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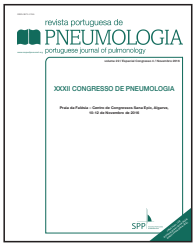

POSTERS

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P-001. TUBERCULOSIS AND LUNG CANCER: DIFFICULTIES IN THE DIFFERENTIAL DIAGNOSIS (CLINICAL CASE)

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Introduction: The relationship between cancer and tuberculosis has sparked interest for decades, whose evidence appears to be more consensual because of the state of immunosuppression boosted by oncological diseases. The diagnosis and therapeutic management of both entities can be challenging, especially by mimicking ability of imaging changes can present.
Case report: Woman 57 years, black race, autonomous, smoker, with cardiovascular risk factors (ischemic heart disease with disease of a vessel, hypertension, dyslipidemia and hyperuricemia), post hysterectomy status and full adnexectomy for uterine fibroids. Was brought to the ER by sudden onset of an unspecific malaise, dizziness, changes in speech and behavior associated with intense bilateral parietal headache, besides night predominance of dry cough, night sweats and weight loss measured in 10 kg in three months. The CT skull-brain showed signs of microangiopathic subcortical leukoencephalopathy with circumscribed hypodense foci and thoracic tomography showed in both lung fields a micronodular pattern of random distribution which was associated with some larger nodules in both upper lobes, some partially cavitation in addition to bulky mediastinal and hilar lymphadenopathy rights, not calcified. Towards the diagnosis of tuberculous meningoencephalitis, held lumbar puncture whose analysis of cerebrospinal fluid (CSF) revealed protein concentration with low cellularity and the culture was positive for Mycobacterium tuberculosis complex confirming the diagnosis of tuberculous meningitis (already under empirical antituberculosis) treatment. Nevertheless, due to its worsening of the general condition despite the targeted treatment, was placed additional diagnosis of lung cancer. It was performed a bronchoscopy and the cytological examination of the bronchial laundered and brushed as well as histological examination of the transbronchial biopsy was positive was positive for non-small cell carcinoma very suggestive of adenocarcinoma. At this time, it was not possible to stage the oncological disease, so after three months of antituberculosis treatment, the repeated imaging tests showed dimensional regression of brain injuries and some of the lung lesions. For clarification of cancer staging held, held endobronchial ultrasound (EBUS) of 4L groups, 4R and 7 whose cytology was negative for malignant cells, and performed also a Positron Emission Tomography (PET) chest that revealed hypermetabolic activity in a mass of the right upper lobe with 36 × 22 mm very suggestive of neoplastic lesion. The mediastinoscopy confirmed the presence of N2 disease (4R adenocarcinoma group, multilevel) and therefore excluded the surgical event as a therapeutic option. Started 1st line chemotherapy and with documented disease progression in the lung started the 2nd line of chemotherapy. The patient died about 15 months after the initial diagnosis.
Discussion: This case aims to demonstrate how challenging can be the diagnostic approach of two pulmonary entities so prevalent, emphasizing the difficulty in staging of neoplasic disease and subsequent treatment under the association with tuberculosis.

Key words: *Tuberculosis. Lung cancer. Differential diagnosis.*

P-002. A RARE CAUSE OF PLEURAL EFFUSION IN WOMEN

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The association of asbestos exposure and malignant pleural mesothelioma is well established and thus its incidence is higher in men than in women. The authors describe the case of a 53 year-old woman who was unemployed (she had been cook and she had occupational exposure to insulating materials) and with previous smoking habits (15 pack/years). She was admitted in Pulmonology Department for right pleuritc chest pain and cough with purulent sputum which had started 6 weeks before. Her past medical history included asthma, arterial hypertension, type 2 diabetes, chronic gastritis, hiatal hernia, hypoacusis and she was treated accordingly. Physical examination in the Emergency Department was consistent with pleural effusion in the lower 2/3 of right hemithorax. Laboratory evaluation showed an increase in inflammatory markers Leukocytes 12,500 Neutrophils 67.1%, C-Reactive Protein 7.4 mg/dL, thrombocytosis 577,000 platelets, D-Dimer 2:08 μg/mL. Arterial blood gases in room air with partial respiratory failure and respiratory alkalosis (pH 7,46, pCO_2 34 mmHg, pO_2 64 mmHg HCO_3^- 24.3 mmol/L, $SatO_2$ 94.7%). During hospitalization thoracentesis and pleural biopsy were performed - pleural fluid was compatible

with exudate (glucose 78 mg/dL, protein 5.4 g/dL, cholesterol 118 mg/dL, LDH 1057 IU/L, ADA 20.90 U/L); cell count with 6400 cells/ul (7% neutrophils, 82% lymphocytes, 10% monocytes/macrophages, mesothelial cells 1%). She was discharged afterwards waiting for the results of pleural techniques. Cytology of pleural fluid was positive for malignancy and pleural biopsy showed papillary proliferation on mesothelial surface, with stromal invasion foci and presence of psammomatous microcalcifications, with positive staining for CK7, Calretinin, WT1, EMA and negative for CK20, TTF1, Napsin. These aspects were compatible with epithelioid mesothelioma, although differential diagnosis with serous ovarian carcinoma was mandatory. For further study she went through: CT scan - right pleural effusion, without nodular pleural thickening; passive atelectasis of middle and right lower lobes and mediastinal lymphadenopathy. Lef ovarian cysts which should be further characterized by MRI. Pelvic MRI - left ovarian cyst not consistent with cystic formation in the left ovary. not consistent with malignancy. PET CT - right pleural effusion with mild FDG avidity; hypermetabolic focus on diaphragmatic ipsilateral pleura. TTNB - several punctures with no fluid drainage in the right hemithorax. There were no identifiable nodules and thus TTNB was not performed. She started chemotherapy with permetrexed + carboplatinum (3 cycles) which will be followed by pleurectomy. Malignant pleural mesothelioma is a rare cause of pleural effusion in women, and this case was a diagnostic challenge, not only for epidemiological rarity but also for immunohistochemical similarities with serous ovarian carcinoma, which would be the most likely diagnosis given the gender and age of the patient.

Key words: *Pleural effusion. Pleural biopsie. Mesothelioma.*

P-003. IMMUNOTHERAPY AND NEW TOXICITIES

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In recent years, the emergence of available immunotherapies for the treatment of Non-Small Cell Lung Cancer (NSCLC) has added a new weapon against this disease. The ability to induce a reaction by the immune system against these tumoural cells has become a valuable advantage, namely through the action of pharmaceutical compounds targeting checkpoint inhibitors and increasing patient survival in late-stage disease. Nevertheless, the manipulation of immune response can trigger side effects. The most frequent are colitis, pneumonia, hepatitis, nephritis and endocrinopathies, although any organ can be affected. It is important to understand that these effects can show up weeks or months after the end of treatment. The majority of the side effects is easily controllable, allowing the continuation of therapy, as long as there is an early diagnosis and correct treatment. We present three clinical cases of patients with NSCLC treated with checkpoint inhibitors, which have developed during the course of treatment-induced colitis, pneumonitis and thyroiditis. We conclude by stressing the importance of informing physicians that treat cancer patients, namely lung cancer patients, about the side effects of the new immunotherapies, which are very different side-effects to the ones caused by classic chemotherapy or by targeted therapies.

Key words: *Immunotherapy. Toxicities. Oncology. Lung. NSCLC.*

P-004. CARCINOID TUMORLETS, THE DIAGNOSIS 5 YEARS LATER. A CASE OF MULTIPLE LUNG NODULES

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Introduction: Pulmonary neuroendocrine cell hyperplasia can be diffuse when it is confined to the bronchial/bronchiolar wall or it can break through the basal membrane and originate tumorlets when the proliferation is ≤ 5 mm or carcinoid tumors when it is > 5 mm.
Case report: Female, 70 years old, former administrative assistant, non-smoker, with asthma since the age of 50, gastro-esophageal reflux and colloid nodules of the thyroid. At the age of 44, the patient had a uterine tumor and underwent hysterectomy. She did not know the histology of the tumor. At the age of 64, she had a community-acquired-pneumonia and was admitted to the Pulmonology department. The infection resolved, but she had multiple pulmonary nodules (larger size about 1 cm). She undergone many exams to look for a primitive tumor, as the nodules were suspected to be metastasis, but it could not be found. Flexible bronchoscopy was normal. Bacteriological, mycological and mycobacteriological exams of the bronchial washing were negative. Transbronchial biopsies were inconclusive. On functional respiratory assessment, she had moderate bronchial obstruction with positive response to the bronchodilator. She refused further investigation with more invasive exams. Thus, she maintained follow-up by the pulmonologist. Her medication was formoterol/budesonide, tiotropium bromide and omeprazole. She complaint of dry cough and dyspnea (mMRC2). There was radiological and functional stability for the next five years. In April 2015, the patient had hemoptyses. She had no other symptoms, specifically fever, chest pain, sudoresis, anorexia or weight loss. There was growing of some nodules on chest CT, so the patient underwent flexible bronchoscopy. Bronchial biopsies were performed on a superficial elevation of the wall of the apico-posterior segmental bronchus of the left superior lobar bronchus, which were inconclusive. Microbiology and citomorphology of the bronchial washing were negative. Differential cell count of the bronchoalveolar-lavage demonstrated lymphocytes predominance (63%), CD4/CD8 4.3. Considering the nodules had grown and because benign metastasising leiomyomatosis was suspected, a surgical biopsy was performed. It was consistent with carcinoid tumorlets. The patient was discussed in a multidisciplinary meeting and, since these tumors have a benign course, the patient was kept under surveillance.
Discussion: Carcinoid tumorlets appear in non-smoker women, usually older than 50 years old. As the most common presentation is multiple pulmonary nodules, it is compulsory to consider the hypothesis of metastatization. However, as in the case described, carcinoid tumorlets are slowly growing lesions. Evolution is usually benign, extrapulmonary dissemination and occurrence of atypia being uncommon. Since it is a rare entity, its natural history is not fully understood, so its behavior is difficult to predict and the follow-up strategy is a challenge.

Key words: *Carcinoid tumorlets. Multiple lung nodules.*

P-005. HIV INFECTION AND LUNG CANCER. FARO HOSPITAL EXPERIENCE

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Introduction: Since the introduction of highly active antiretroviral therapy (HAART) in patients with Human Immunodeficiency Virus (HIV), there was an increase of their survival, associated with increased incidence of Acquired Immunodeficiency Syndrome (AIDS) non-defining cancers, being lung cancer the most common of these group, over AIDS defining malignancies.
Objectives: Characterize the population with HIV infection and lung cancer followed at Oncologic Pneumonology and Immunodeficiency appointments at Faro Hospital, with greater emphasis to mean age, smoking habits, CD4 T-lymphocytes count,

cancer histology and their stage at the moment of the diagnose; determine the average survival of these patients.
Methods: Analytical, cross-sectional, retrospective study of patients diagnosed with primary lung cancer and HIV, followed at Oncologic Pneumonology and Immunodeficiency appointments, from 01/01/2011 to 31/12/2015. We analyzed the following variables: gender, age, smoking habits, history of intravenous drug use, hepatitis C virus (HCV) coinfection, comorbidities, previous HAART use, CD4 T-lymphocytes count at the diagnosis, administered treatment, survival and mortality.
Results: From the 644 new cases of lung cancer diagnosed at the considered time interval, there were found 10 patients HIV positive (1,6%). From these, 100% were male, mean age was 50 years old. All of them had history of smoking habits (2 were ex-smokers) and the median pack per year smoking history was 49. All of them had HIV1 infection and used HAART previously, having 50% of them AIDS criteria and 30% HCV coinfection. There was history of intravenous drug use in 60% of the patients. From the relevant comorbidities, to mention: 30% of the cases had COPD and 20% had recurrent respiratory infections. The average of CD4 T-lymphocytes count at the diagnosis was 329/mm^3, and the majority of patients (60%) had CD4 T-lymphocytes > 200/mm^3. The most frequent histologic diagnose was Adenocarcinoma (n = 3, 30%) and squamous cell carcinoma (n = 3, 30%), followed by neuroendocrine carcinoma of small cells (n = 2, 20%), neuroendocrine carcinoma of large cells (n = 1, 10%) and poorly differentiated carcinoma of non-small cells (n = 1, 10%). Typically, at the diagnosis time, the cancer stage was already advanced: 70% at stage IV, 20% at stage IIIb and 10% at stage IIIa. About the administered treatment: 4 patients (40%) had just first-line chemotherapy, 2 patients did first-line combined chemoradiation, 1 patient (10%) had combined chemoradiation, followed by surgery and adjuvant chemotherapy, 1 case (10%) did only palliative radiation and another case (10%) had indication just for support treatment. The average survival of these patients was 7.9 months, and most of the patients (70%) died. Untill now, 10% were lost at the follow-up. Patients with CD4 T-lymphocytes < 200/mm^3 count had an average survival of 2.4 months and those with CD4 T-lymphocytes > 200/mm^3 had an average survival of 15.1 months (p value = 0.05).
Conclusions: There was a prevalence of male gender, having all of them smoking habits history. At diagnosis, in the majority of the cases, cancer was at IV stage, being adenocarcinoma and squamous cell carcinoma the most commonly diagnosed, and CD4 T-lymphocytes > 200/mm^3 was associated to a superior survival average.

Key words: *HIV. AIDS. Lung cancer.*

P-006. PSYCHOSIS OF LUNG ORIGIN: REGARDING A CLINICAL CASE

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Introduction: Paraneoplastic syndromes affect a small percentage of patients with lung cancer. It is a clinical syndrome resulting in systemic tumor effects, not related to metastasis, likely linked to the release of various substances into the bloodstream such as hormones, cytokines and antibodies.
Case report: 65 year old male, gravedigger, non smoker, with a history of hypertension treated with losartan 50 mg. Admitted to the Psychiatric Hospital for delusional ideation with acute onset in patient without psychiatric history. Treated with risperidone 2 mg with stabilization of psychosis in internment. After further study, psychosis was related to an organic cause - detected pulmonary nodules on chest radiograph. No respiratory complaints and without constitutional syndrome. In addition to the Head-CT without changes, held Thorax-CT which showed a 30 mm nodule with regular limits in RSL, lymphadenopathy in the right hilar region and exophytic suspect solid nodule on the right kidney with 12 mm. Videobronchofiboscopy (VBF) without endobronchial lesions and negative cytology for neoplastic cells. Done PET-CT scan that revealed mild FDG-F18 uptake in the RSL nodule, suspicious of high metabolic grade neoplasia. Ganglionar formations in the right hilum with discrete capture and nodule in right kidney without activity. No bone or liver abnormal cell activity. Performed lung biopsy directed to RSL nodule guided by TAC whose morphologic and immunohistochemical features were of carcinoid tumor (expression of chromogranin and synaptophysin; proliferative index of 1%) and renal nodule's biopsy was compatible with angiomyolipoma. The case was discussed in Therapeutic Decision Consultation and was recommended surgical treatment that the patient refused, as well as guidance for expert consultation. The patient is in clinical, analytical and radiological monitoring.
Discussion: Paraneoplastic syndromes may be the first manifestation of lung cancer and its resolution goes essentially to the treatment of the underlying cancer disease.

Key words: *Carcinoid. Psychosis. Nodule. Paraneoplastic.*

P-007. BRONCOSCOPIC FINDINGS IN PATIENTS WITH LUNG CANCER

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Introduction: There are multiple technical modalities used in the diagnosis of lung cancer (LC). Of these, there is flexible bronchoscopy (FB) as an excellent vehicle for the diagnosis of CP, with their ancillary techniques. However, there are differences concerning diagnostic yield directly related, among other factors, with the type of endoscopic presentation.
Objectives: The aim of this study was to analyze FB findings in patients diagnosed with LC and to correlate those with histopathological findings.
Methods: This was a retrospective study involving 14 patients with a confirmed diagnosis of lung cancer by cytological evaluation of subsidiaries techniques of FB: bronchial lavage (LB), broncoalveolar lavage (BAL), bronchial brushing (EB), bronchial biopsy (BB) and transbronchial lung biopsy (TLB). The data were collected at the Pulmonology Interventional Unit of Hospital de Santa Maria, between January 2016 and June 2016. The endoscopic findings were classified as endoscopically visible tumor, endoscopically invisible tumor, and mucosal injury, as well as being classified by the presence/type of secretion. The visible tumors were additionally classified according to their location in the tracheobronchial tree.
Results: Complete data records from 28 patients were available for statistical analysis. Maximum numbers of patients were in age group 65-74 (35.7%), with the average age being 69.1 years. All FBs were done under short conscious sedation or general anesthesia. Majority of FBs were done in males (64.3%). There were no fatal complications. The leading endoscopic findings were endoscopically visible tumor by an endobronchial mass (64.3%), followed secondly by mucosal infiltration by the tumor (35.7%). The majority of the endoscopically visible tumors (57.1%) localized in the right upper lobe. The histological type was determined in all cases, being adenocarcinoma the most prevalent type (67.9%). The other identified histologic types were: squamous carcinoma in 3 cases (10.7%), small cell carcinoma in 3 cases (10.7%), one case of large cell carcinoma (3.6%) and other of poorly differentiated carcinoma (3.6%). All histological types were more commonly seen as an endobronchial mass.

Conclusions: Bronchoscopy is an excellent tool to evaluate lung carcinoma and multimodality approach is always helpful, joined with the experience of a bronchoscopist. We observed that LC incidence is higher in male population. The most advantageous diagnostic tool was biopsy of visible growth followed by BAL. Our results show that an endobronchial mass is the most common bronchoscopic finding that is suggestive of malignancy. Proportionally, endobronchial mass is the most common finding in all histological types. However the yield can be greatly enhanced by using several other techniques such as Endo bronchial ultrasound (EBUS), fluoroscopic guidance and electromagnetic navigation and virtual bronchoscopy.

Key words: *Lung cancer. Bronchoscopy. Bronchoscopic findings.*

P-008. THREE IN ONE: A CASE OF COMBINED LUNG CARCINOMA

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Introduction: Histologically, lung tumors are classified as small cell carcinoma (CPC) or non-small cell carcinoma (CNPC), the latter including adenocarcinomas (ADC), squamous cell carcinoma and large cell carcinoma. The combined carcinomas are rare types of tumors that are defined by being composed of two or more subtypes in same histological tumor.
Case report: In this paper we describe the case of a 52 year-old women, former smoker of 30UMA without any medical history. Presenting with dry cough, reason why she did chest X-ray and later a thoracic CT, which showed a hilar mass condicioning an atelectasis of the right upper lobe. He performed a bronchoscopy where it was visualized an occlusion of right upper lobe bronchus and bronchial biopsies were performed suggesting a salivary gland type carcinoma of the lung. Regarding the PETscan, it was a stage IIIA (T3N1M0), only marking the ganglionary group 10R, whereby the patient was proposed upper right bilobectomy. Histological characterization of surgical piece revealed that it was a combined carcinoma: predominance of adenosquamous carcinoma (acinar and papillary patterns) with small cell carcinoma, and the surgical staging was coincident with the previously mentioned. After discussion in a multidisciplinary meeting it was decided to carry out medical treatment directed to small cell carcinoma, and started chemotherapy with cisplatin and etoposide.
Discussion: This rare case of combined carcinoma of three different histologic patterns - adenosquamous and small cell carcinoma, itself unusual - demonstrates the importance and the implication that a correct histological diagnosis has to choose the appropriate therapy. Based only on the limited amount of material histology, such as bronchial biopsy or aspiration cytology we may miss combined tumors.

Key words: *Combined carcinoma. Sallivary glands carcinoma. Lung cancer.*

P-009. SAME PATIENT, TWO DIAGNOSES

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Introduction: Pancoast Tumour is a rare entity, with an incidence less than 5% of all lung tumours. It´s located at the lung apex and it´s usually a non small cell lung cancer. Commonly invades ribs, vertebrae or neck vessels forming Pancoast Syndrome with severe shoulder pain, Horner Syndrome and tingleness or pain along the ulnar region of the arm. Pancoast tumour and pulmonary tuberculosis simultaneous diagnosis is extremely rare. Pulmonary tuberculosis and lung cancer can present with similar symptons such as weight loss, fatigue, anorexia or cough.
Case report: White male patient, 66 years old, retired and a former smoker (75 pack units year). Past medical history of diabetes, peptic ulcer and benign prostate hypertrophy. Medicated regularly with metformin, omeprazol, finasteride and tansulosin. Admitted to the emergency department with fever, anorexia, weight loss, myalgia, severe right shoulder pain, dyspnea on exertion and purulent cough for two weeks. He also complained of tingleness of the 3rd, 4th and 5th fingers of the right hand that had begun 5 months earlier. Admission blood tests showed Hb 15.8 g/dl, 9,590 leucocytes with 67.8% neutrophiles, 334,000 platelets, raised CRP 10.8 mg/dl and LDH (354), urea 45, creatinine 1.3 mg/dl, hyponatremia (127) and hypercaliemia (5.5). Negative blood cultures and negative HIV serology. CXR showed masses in the upper and medium level of right lung and several micronodules. Arterial blood gas showed type 1 respiratory faillure. Patient was admitted in Pulmonology ward. CT scan revealed a 10cm mass in the right lung apex with destruction of ribs and invasion of mediastinum as well as 4R, 7 and 10R nodules. Also a miliary pattern with multiple micronodules. Transthoracic needle biopsy by CT guidance (TTNB) revealed lung adenocarcinoma. NSE and Cyfra 21-1 were increased. Bronchoscopy showed generalized inflammatory signs and purulent sputum without endobronchial lesions. Citologic and microbiologic results of broncho-alveolar lavage were negative. Lung biopsy showed 2 necrotizing granulomes and BAAR suggesting pulmonary tuberculosis. The patient started therapy with HRZE and was discharged after clinical improvement, with follow up visitations in Tuberculosis and Oncology Units.
Discussion: We presented a rare combination of two diagnosis. Pancoast tumour was diagnosed by TTNB. We could have admitted that the patient had Pancoast tumour with lung methastic disease. However the CT scan miliary distribution raised the suspition of lung tuberculosis. Bronchoscopy was essential to this diagnosis.

Key words: *Pancoast tumour. Miliary tuberculosis.*

P-010. LUNG ADENOCARCINOMA PRESENTING AS A EXOPHYTIC SKULL MASS

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Introduction: Patients with lung cancer, often have bone metastasis, primarily in axial skeleton. Transcranial metastatic disease is less frequent, especially if as initial manifestation of the disease.
Case report: 75 years old man, smoker for about sixty years (90 pack-year), without prior medical record. History of head injury at home with damage to the parietal right region and, since then, with evident growth of a protuberance. He referred right visual impairment, without any other deficits. As the symptoms persisted, he went to the emergency department one month later. He had a normal neurological examination; brain CT indicated high suspicion metastasis: one lytic lesion with right parietal skull erosion, with soft-tissue component but without perilesion edema, as well as other right mass with destruction of the sphenoid bone and intimate contact with the orbital apex. In the posterior investigation cervical-thoracic-abdominal-pelvic CT showed a mass with spiculated margins in lung's right superior lobe, with intimate

contact with the major fissure. Lung biopsy confirmed adenocarcinoma TTF1 positive. Later, attending to clinical worsening, he was referred to the Pulmonology department, that decided for his admission. He had important deterioration of the health status, significant weight loss, right amaurosis and periods of confusion, incoherent speech and disorientation. Physical examination revealed hard, still mass in the right parietal region, with 6x5x3 cm; no other alterations. Brain CT showed important worsening of the parietal lesion dimensions, with slight invasion on the dural space, perilesion edema and slight midline shift, also invasion of the right orbit. Because of the important decline of the health status that was causing dependence in activities of daily life (ECOG Performance Status - 3) and exuberant aggravation of metastasis dimensions, was decided, in a multidisciplinary reunion, to provide only support treatment.
Discussion: With this clinical case, we emphasize that lung metastatic disease occurs in the most unlikely places, even in the absence of respiratory symptoms. So, regardless of the location, the possibility of lung cancer should be excluded.

Key words: *Lung adenocarcinoma. Skull mass.*

P-011. ORGANIZING PNEUMONIA AND CHEMOTHERAPY AND RADIOTHERAPY TREATMENT

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Introduction: The treatment for locally advanced non-small-cell lung cancer (NSCLC) is radiotherapy (RT) and a platinum based chemotherapy regimen combined. Recently, given its low toxicity, pemetrexed was considered as an option to include in the chemotherapy regimen. Organizing pneumonia (OP) has well defined clinical, radiological and histological criteria, being classified as secondary or idiopathic (cryptogenic). OP secondary to RT has been more frequently described in association with breast cancer, with recent reports associated with lung cancer treatment. The authors describe two clinical cases.
Case reports: A 65-year-old male, non-smoker and with lung adenocarcinoma stage IIIB, went through concomitant treatment with carboplatin, pemetrexed and RT. Seven months after RT he had complaints of dyspnoea and the chest CT revealed bilaterally dispersed ground glass micronodularities, besides lesions suggestive of radiation pneumonitis, which suggested the OP hypothesis, that was later confirmed through transthoracic lung biopsy. The patient initiated therapy with corticosteroids, with clinical and radiological resolution. A 53-year-old female, previous smoker (14 pack-year), obese, with obstructive sleep apnoea syndrome, depression and lung adenocarcinoma stage IIIA, went through sequential treatment with carboplatin plus pemetrexed and RT. Two months after RT she had dyspnoea and a chest CT that revealed bilateral areas of consolidation. OP was advanced has a hypothesis after discussion in a multidisciplinary consult of diffuse pulmonary diseases. The patient was given corticosteroids with resolution of the complaints and radiological findings. OP in breast cancer, has been described as more frequent in the first 6 months post RT, and then until the 12th month, with the report of 2,5% of occurrence in some series of patients submitted to RT, thus becoming an important differential, after excluding other diagnosis. Some authors report an association between OP with previous symptomatic radiation pneumonitis, putting emphasis on the vigilance of these patients.
Discussion: The cases here presented are good examples of OP after chemotherapy and RT and of the good outcome after corticosteroids. It should be noted that OP occurred after treatment with carboplatin, pemetrexed and RT. Recognizing OP as the diagnosis of new pulmonary lesions in the oncologic patient is paramount.

Key words: *Organizing pneumonia. Lung cancer. Radiotherapy. Chemotherapy. Carboplatin. Pemetrexed.*

P-012. WITHDRAWN AT THE REQUEST OF THE AUTHORS

P-013. A LUNG ADENOCARCINOMA PATIENT WITH A MET HIGH AMPLIFICATION AND A PARTIAL RESPONSE AFTER CRIZOTINIB

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Introduction: During last years, with the discovery of new driver mutations, the treatment of non-small cell lung cancers (NSCLC) has improved with novel targeted therapies. C-Met-amplified NSCLC defines a subset of NSCLC that may be sensitive to the small-molecule tyrosine kinase inhibitor crizotinib, approved multinationally for the treatment of advanced ALK-positive NSCLC.
Case report: We describe a case of clinical activity (partial response) of crizotinib in a male, 64 year old with c-MET high amplification. This patient was EGFR, ALK and ROS1 negative. Previous therapy was platinum + pemetrexed (first line) with progression after four cycles, docetaxel (second line) with progression after three cycles. At this moment with crizotinib and partial response after six weeks.
Discussion: This report highlights the need to better characterize the molecular profile of tumors to allow personalized cancer treatment. We need to know more about MET amplification and mutation and target therapy.

Key words: *Non-small cell lung cancers. C-MET. Crizotinib.*

P-014. ENDOBRONCHIAL METASTASIS AS A PRESENTATION OF COLON CARCINOMA

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Introduction: Metastatic lung disease is a frequent finding in the evolution of many extra-thoracic malignant diseases. However, endobronchial involvement is quite uncommon. Next to liver, lung is recognized as the most frequently affected organ. The proportion of stage IV colorectal carcinoma seems to be increasing, mainly due to a growing incidence in synchronous lung metastasis.
Case report: The authors describe two clinical stage IV colon adenocarcinomas whose inaugural diagnosis emerged during the investigation of radiologic pulmonary and pleural abnormalities. In both cases endobronchial biopsies allowed the pathologic and immune-histochemical diagnosis of the primary index. Case 1: A 74-year-old man, ex-smoker (55 pack-year) and a past-history of seminoma at the age of 39 treated by surgery and radiotherapy with no further recurrence. Five months before our first evaluation the patient developed progressive episodes of non-productive cough, tiredness and dyspnoea on exertion. Right pleural effusion was clinically and radiologically evident, along with multiple round pulmonary opacities suggestive of metastatic thoracic disease. Bronchoscopy showed politopic segmental and subsegmental obstructive mucosal infiltration. Bronchial biopsy showed infiltration of the airway by adenocarcinoma suggesting intestinal origin, confirmed immunohistochemically as colon adenocarcinoma. Case 2: A 79-year-old-man, ex-smoker (60 pack-year), with long-

lasting gastro-esophageal reflux disease. On our first evaluation the patient presented with a relentless 10 Kg weight-loss during the last 3 years, and frequent episodes of productive cough with persistent bright bloody sputum, over the last 3 weeks. Chest X- ray and subsequent chest CT-scan disclosed different size, bilateral, multiple lung nodules, suggestive of metastatic disease. Physical examination only disclosed a pleural friction rub, over the posterior right lower thorax. Diagnostic bronchoscopy disclosed polytopic segmental and subsegmental involvement with obstructive and infiltrating masses on right B3 and B8 and on the left B3. Biopsies of different lesions revealed an adenocarcinoma with a morphologic pattern suggestive of colon metastasis, confirmed by immunohistochemistry. Therapeutic bronchoscopic intervention was not an indication in any of the cases and the patients were referred to their hospital for further investigations and comprehensive therapeutic planning.
Discussion: Although many different kinds of tumours can develop lung metastasis either synchronous or metachronous, the breast, kidney and colorectal carcinomas are the most frequently involved. In these two rare cases of clinical and radiologic chest abnormalities, the inaugural endobronchial involvement, allowed the pathologic diagnosis of primary colon adenocarcinoma, along with the differential diagnosis with primary lung cancer.

Key words: *Bronchoscopy. Metastasis. Endobronchial lesion. Colon carcinoma.*

P-015. COMPLICATED TRACHEAL PAPILLOMA: A CASE REPORT

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Introduction: Recurrent respiratory papillomatosis is typically a benign and self-limited disease. It is caused by infection of the upper respiratory tract by human papillomavirus (HPV), resulting in the formation of papillomas. Although the disease is more common in children, it can also occur in adults. It is typically restricted to the larynx but can also invade the tracheobronchial tree and the pulmonar parenchyma. The disseminated form is also known as laryngotracheobronchial papillomatosis.
Case report: The authors present the case of a 71-year-old male, non-smoker, with irrelevant personal history, with complaints of cough and sputum hemoptysis with about a week old. Analysis and chest X-ray didn´t identify any significant changes and so, a chest CT was performed, which showed an area of thickening of the left posterolateral tracheal wall, at the supracarinal level, with intraluminal exophytic growth. A fiberoptic bronchoscopy was performed, which identified a single tracheal papillomatoid lesion, followed by rigid bronchoscopy for treatment with debulking and argon - plasma. The anatomopathologic evaluation of the piece identified the presence of benign papilloma and squamous cell carcinoma. The patient also performed PET-CT that confirmed the presence of a single tracheal lesion and so, the patient was sent for a oncopulmonology consultation.
Discussion: The adult form is typically solitary, more common in men, doesn´t usually disseminate and recurs less frequently than in the childhood form. Hoarseness is the most common finding, but it also may present as recurrent respiratory infections or by symptoms that mimic obstructive pulmonary diseases. Chest X-rays or CT scans may, occasionally, produce findings suggestive of the disease, such as the combination of solid or cavitated pulmonary nodules and vegetative nodular lesions in the trachea or in the main bronchi. The ideal method for diagnosis is the bronchoscopy, since it is both diagnostic and therapeutic, allowing the resection of the lesions, which can then be submitted to anatomopathological study. Malignant degeneration to squamous cell carcinoma is reported in 1-10% of all cases of laryngotracheobronchial papillomatosis, typically occurring after radiotherapy or chemotherapy, as well as in patients with a history of smoking. None of the various treatment protocols have been shown to be truly efficacious and recurrence is common, regardless of the treatment given. In practice, it is necessary to submit such patients to frequent bronchoscopic examinations.

Key words: *Papilloma. Tracheal neoplasm. Bronchoscopy.*

P-016. LUNG ADENOCARCINOMA: ROS1-POSITIVE AND CRIZOTINIB

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Introduction: The discovery of a variety of molecular and genetic alternations in non-small-cell lung cancer (NSCLC) has provided the opportunity for targeted therapy, such as epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors (gefitinib and erlotinib) or anaplastic lymphoma kinase (ALK) inhibitor (crizotinib) for NSCLC harboring ALK gene fusion. The c-ros oncogene 1 (ROS1) receptor tyrosine kinase (RTK) has recently emerged as a potentially relevant therapeutic target in NSCLC.
Case report: Between November 2015 and June 2016 we identified four patients with ROS1 positivity. One of those patients is a 41 years old male, who never smoked, with the diagnostic of lung adenocarcinoma, stage IV, performance status (PS) 1, who doesn´t had EGFR and ALK mutation in November 2014. So he started cisplatin and pemetrexed as the first line of treatment and subsequent maintenance, with partial response. Nevertheless, in July 2015 occurred lung cancer progression, therefore we started a second line of treatment - docetaxel - but with important toxicity. The patient performed a new molecular study that showed ROS1 positivity, so in November 2015 he began crizotinib (250 mg 2id), whit an important partial response and PS 0 in May 2016. However in July 2016, in sequence of toxicity, we had to reduce the dose to 200 mg 2id.
Discussion: This report highlights the need to better characterize the molecular profile of tumors to allow a more personalized cancer therapy. We now know that ROS1-rearranged adenocarcinomas are found in about 1.8-2% of patients with NSCLC. ROS1 screening in adenocarcinoma patients with no known previous oncogenic mutations might be an effective strategy to find ROS1 rearrangements and begin treatment with crizotinib.

Key words: *Non-small-cell lung cancer. ROS1. Crizotinib.*

P-017. A CASE OF UNILATERAL AMAUROSIS STARTING FROM THE LUNG

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Case report: The authors present a clinical case of a pulmonary adenocarcinoma with an unusual presentation as retinal detachment. It's a 43 years old male, mason, 30 packs per year smoking history. Had an acute lymphoid leukemia as a child, but nowadays isn't taking any medication. The history began in December 2015 with a quickly progressive visual acuity deterioration of his left eye, with ocular hyperemia, pain, photophobia and ipsilateral headache, without time predominance. 2 weeks after the symptoms beginning, the patient went to ophthalmology emergency department and the diagnosis of a retinal detachment was made. A couple of topical treatment were prescribed without symptomatic relief. In April 2016 he presented

dry cough, without fever, tiredness, wheezing or dyspnea. Since the symptoms began he lost 5 kg (10% of the total weight), and mentioned anorexia. In May 2016 a left orbit magnetic resonance has made showing a possible neoplastic choroidea lesion, a frontal bone lesion, a right sided temporal extra-axial lesion and a left cerebral peduncle lesion. To investigate the main tumor of this metastatic presentation, a body CT was performed in May 2016. This exam showed a heterogeneous spiculated lesion, which involved the right superior pulmonary vein. This lesion provoked a distal condensation on the posterior and anterior segments. There was enlargement of the lymph nodes on the right hilum and infracarinal region who merged together. In both lungs there was small lung nodes. The esophagus path was surrounded by the main lesion. On the left adrenal gland there was a 15 × 13 mm node. Patient was submitted to a bronchoscopy which showed a neoplastic infiltration on the tracheal inferior third with involvement, right bronchial tree and proximal section of the left principal bronchus. Bronchial biopsies revealed a lung adenocarcinoma with positive ALK rearrangement. A bone scintigraphy showed lesion on the right frontal skull, cervical spine and dorsal vertebras – 6 and 11. Patient began treatments with chemotherapy with cisplatin and pemetrexed while waiting for the mutation results. Currently he is on the 2nd chemotherapy cycle, uneventfully.

Key words: *Lung adenocarcinoma. Amarosis. Retinal detachment.*

P-018. HOARSENESS AS PRESENTATION OF SMALL CELLS CARCINOMA: IMPORTANCE OF AN EARLY DIAGNOSIS

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Introduction: Small cell carcinoma is a neuroendocrine carcinoma with an aggressive behavior, showing rapid growth as well as rapid metastasizing (liver, bone, brain and adrenal), being diagnosed preferably from 60 to 80 years. The paralysis of the recurrent laryngeal nerve and the phrenic nerve are rare complications of this type of tumors.
Case report: The authors present the case of a male patient, 55 years of age, smoker, merchant, without other relevant background. Presented hoarseness progressive worsening, with two months of evolution, having performed a laryngoscopy, with evidence of paralysis of the left vocal cord. The patient was hospitalized for hoarseness and hemoptoic sputum, hemodynamically stable without hypoxemia. From the additional assessment carried out, namely through a chest radiograph, we could highlight a widening of the mediastinum, the left hemidiaphragm elevation, hypotransparency of spiculated margins in the left upper lobe (LUL) and-hilar left. As a result of the laboratory evaluation, we could stress: PCR (4,19 mg/dL), CEA (15,7 ng/mL), NSE (42,4 ug/L). Bacteriological examination of sputum was isolated *Haemophilus influenza* sensitive to amoxicilina- clavulanate, azithromycin and cotrimoxazole. For characterization of the images identified in chest radiograph, performed a CT scan which highlighted evidence of two foci of heterogeneous condensation, not nodular, with irregular and spiky contours with 17 mm and 26 mm, in the LUL. In the apical posterior segments and former LUL, evidence of heterogeneous condensation (infiltrates poorly defined with some air bronchogram). Centrilobular emphysema and superior to-septal and internal left. Mediastinal adenopathic conglomerates: pre-vascular, mediastinal, peri-vascular and peri-aortic, left perihilar, to the right hilar region and infra-carinal. Performed a bronchoscopy, verifying paralysis of the left vocal cord, enlargement of the LUL division spur, irregular appearance mucosa, reddened and swollen throughout the SLB wall, B1/2 orifice decrease. Neoformative sub-mucosal LUL engagement, identified through bronchial biopsy, small cell lung carcinoma. Direct BK and bacteriological examination of bronchoalveolar lavage were negative. Also performed other imaging tests, such as: neck CT highlighting paralysis of the left vocal cord by commitment of the recurrent laryngeal nerve route in the territory of aorto-pulmonary window, by evidence of massive adenopatic conglomerate, adenopatic conglomerate with pre-vascular high location, neoplastic nodules in the left lung apex; cranial, abdominal and shoulder CT without evidence of metastization. The small cell carcinoma associated with paralysis of the recurrent laryngeal and the phrenic nerves and community-acquired pneumonia, were the diagnoses admitted. Fulfilled antibiotic therapy directed at relieving symptoms, keeping only hoarseness. The patient was referred for oncologic pulmonology consultation.
Discussion: It highlights the importance of study the etiology of hoarseness as well as the elevation of the hemidiaphragm found on routine imaging tests, as it may be an underlying neoplastic process whose early diagnosis and staging is crucial for the patient's prognosis. Note that smoking remains as the main cause of small cell carcinoma, whereby about 98% of patients with this diagnosis have a previous history of smoking.

Key words: *Hoarseness. Small cells carcinoma. Recurrent laryngeal nerve. Phrenic nerve. Diaphragm. Oncology.*

P-019. LUNG CANCER HISTOLOGICAL CHANGE. CLINICAL CASE

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Introduction: Mutations of epidermal growth factor receptor (EGFR) occur in 10-20% of non-small cell lung carcinoma (NSCLC) and are associated with response to tyrosine kinase inhibitors (EGFR-TKIs's), improving progression-free survival with acceptable toxicity. However, almost all of NSCLC with EGFR mutations develop resistance to EGFR-TKI's. Although the most common EGFR mutation is the T790 Gatekeeper mutation, transformation into small cell carcinoma (SCLC) is an additional mechanism, and three transformations have been proposed. First, differentiation from a previously well defined cancer; second, arise from the same stem cell; and third the two components are present at initial diagnosis but the biological material available for analysis is limited.
Case report: 59-year-old woman, Caucasian, non-smoker, admitted in February 2014 due to severe headache for the last 4 months, diagnosed with brain occupant injury, submitted to a craniotomy with complete lesion removal. Histological examination revealed metastasis of NSCLC favoring adenocarcinoma. EGFR gene mutations was carried out identifying mutation in exon 21. The imaging study showed a pulmonary solid mass in the left lower lobe (LLL) measuring 6,4 × 5,6 × 3,6 cm, in contact with the parietal pleura, and with contralateral and liver nodes, suggestive of metastases. Bronchoscopy revealed infiltration of the left main bronchus to the LLL with lumen reduction. In March 2014 she began treatment with holocranial radiotherapy and gefitinib 250 mg/day, completing 6 cycles, that resulted in the reduction of left hilar lesion and contralateral and liver metastases. She started permetrexed and cisplatin as maintenance treatment. In January 2015, a disease progression was documented, with left hilum mass increase that conditioned left pulmonary atelectasis, and an increase in contralateral and liver metastases. Rigid bronchoscopy and laser argon was held for endoluminal tumor reduction and bronchial biopsies were performed. Its histological study revealed SCLC. On that date directed treatment with etoposide was initiated, a total of 3 cycles, with disease progression and bone metastasis. Patient died in August 2015.

Discussion: Resistance to EFGR-TKI's should be suspected on young and non-smoking patients with NSCLC that has EGFR mutations treated with EGFR-TKI's with disease progression after the stabilization phase. It is important to keep close watch and collect more biological material for a complete histological reevaluation, allowing physians to correctly redirect cancer therapy.

Key words: *Lung cancer. Epidermal Growth Factor Receptor. Tyrosine kinase inhibitors.*

P-020. "WHILE THERE IS LIFE" – AN EXPERIENCE OF CARE BEYOND THE CURE FOR LUNG CANCER

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Introduction: In patients with metastatic lung cancer a multidisciplinary approach in palliative care is particularly important both in the control of symptoms, either in social, psychological and spiritual component. In a study [1] early integration of palliative care in combination with standard cancer care in lung cancer patients resulted in increased survival and significant clinical improvement in quality of life and mood. It is intended to present the clinical case of a patient with lung adenocarcinoma in stage IV with extensive metastases and rapidly fatal evolution, analyzing and highlighting the multidisciplinary involvement in the various stages of monitoring the patient progressively integrating palliative aspect of care. The case is the complex challenge that is the patient in palliative stage, with regard to global and multidisciplinary care of their physical, psychosocial and spiritual needs.
Case report: 47 year old woman without relevant antecedents, which, in Pulmonology consultation, was diagnosed with lung adenocarcinoma stage IV (negative EGFR), with very extensive multiorgan metastasis with Performance Status 1. Two weeks after the first consultation, she was hospitalized intensity of pain control, and progressive, acute clarification vomiting and jaundice, and streamlining the treatment plan. During hospitalization, the team was faced with a number of oncologic challenges: the osteoarticular pain control, achieved by climbing analgesics; delirium and depression, partially stabilized with medication and psychological support; high intestinal occlusion by tumor infiltration, complicated by obstruction of the biliary tract and the pylorus, requiring intervention gastroenterological for placement of prostheses. There was always support the Palliative Care team for the management and optimization of refractory symptoms. These complications, coupled with the progressive commitment of oral and complicated route of upper gastrointestinal bleeding, led to a sharp decline of the state of the patient, preventing the onset of cancer therapy, eventually heading the care, at this late stage, to comfort. At the same time, and with the support of Psychology and Social Work, it was possible for the patient to meet with family members, as well as a visit from a priest of the Orthodox Church was requested and, despite the limitations, allowed that the patient is displaced to the garden as your wish. These small efforts have comfort and make sense of the last days of this patient, despite their suffering. Same died peacefully under sedo-analgesia, the 38th day of hospitalization, about two months after diagnosis.
Discussion: This case highlights the complexity of symptomatic control, which required multidisciplinary involvement (Pulmonology, Oncology, Gastroenterology, Palliative Medicine, Psychology and Social Work) and the caregiving team mobilized and managed the various resources required. Faced with a patient with incurable and progressive disease, the team was able to meet globally to the various dimensions of the person, enabling the wishes of the same are met in a final stage of life. ERS highlights the growing need of pulmonology establish teams with increasingly comprehensive skills, promoting multidisciplinary cooperation in order to integrate palliative care in lung cancer pathology approach.

Key words: *Palliative care. Lung cancer. Adenocarcinoma.*

P-021. THE OTHER SIDE OF A SPONTANEOUS PNEUMOTHORAX

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Introduction: Spontaneous pneumothorax is an uncommon clinical event in the general population and is often associated with emphysema bubbles. Another rare etiology is oncological disease, corresponding to less than 5% of all spontaneous pneumothoraxes either in the form of either primary lesion or lung metastases.
Case report: In this paper we describe the case of a 24-year-old, non-smoker, followed in consultation of Pulmonology by deficit of alpha-1 antitrypsin PiSS phenotype without relevant personal history presenting with cough and mild dyspnoea for 3 weeks. In routine consultation it was identified a massive spontaneous right pneumothorax, requiring chest tube drainage. A thoracic TC revealed multiple nodular bilateral lesions in the lung parenchymal, that were suggestive of pulmonary metastatic lesions. In the extensive imaging study done an osteolytic lesion was later identified in the left iliac bone which was biopsied, unfortunately without success in histological characterization. For the persistent pneumothorax was decided to perform VATs for pleural talc also with atypical resection of 3 peripheral pulmonary nodules for new attempt at obtaining histological diagnosis. Ewing's sarcoma in the left iliac bone with multiple pulmonary metastases was the final diagnosis, whose initial presentation was a secondary pneumothorax.
Discussion: Sarcomas are tumors of mesenchymal origin tissue and lung metastasis are frequent, accounting for 20% of complications in these patients. Mostly, spontaneous pneumothorax in association with sarcoma arises after treatment with chemotherapy and/or radiation therapy, but are rare cases described of this entity as the initial presentation of this oncological disease in question. We pretend with this unusual case report to describe the uncommon and nonspecific presentation of this pneumothorax and reinforce the rarity of the fact that this is the primary manifestation of a sarcoma in advanced stage with pulmonary involvement.

Key words: *Spontaneous pneumothorax. Ewing sarcoma.*

P-022. A RARE CASE OF SMALL CELL LUNG CANCER WITH PITUITARY AND THYROID METASTASIS?

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Introduction: Small cell lung cancer (SCLC) represents 10-15% of all lung cancer and is characterized by its rapid growth, high rate of tumor response to chemotherapy and radiotherapy and resistance

to treatment in patients with advanced disease. Two thirds of patients have advanced disease at diagnosis.
Case report: We present a case of a female patient, 43 years old, smoker (20 packs per year) with personal history of hypertrophic cardiomyopathy of unclear cause. She went to the ER of Hospital de Santa Maria by sudden onset of bitemporal hemianopsia without other complaints. A brain CT and MRI were performed and highlighted the presence of a sellar and suprasellar mass lesion with 25 mm. Hypothyroidism was observed in the analytical evaluation. She was observed by Neurosurgery and underwent transphenoidal surgery with incomplete removal of the lesion. Histology of the surgical specimen was compatible with metastasis of neuroendocrine carcinoma with probable pulmonary origin (TTF1+), Ki67 was 80%. Stereotactic fractionated radiotherapy (20 Gy) was performed. She underwent thoraco-abdomino-pelvic CT that showed a pulmonary lesion in the left lower lobe with 13 mm, enlarged lymph nodes in the mediastinum (4 L with 17 mm) and in the hilum (10 L with 14 mm, 11 L with 13 mm), left deep cervical lymphadenopathy with 11 mm, 2 micronodules in the right upper lobe and a thyroid lesion with 39 mm. The PET-CT showed suspicious uptake in the lesions observed on CT, with max SUV 3.87 in the lung lesion, 10.87 in mediastinal lymph node, 12.77 in hilar adenopathy and 14,54 in the thyroid nodule. The results of the cytological aspiration of the thyroid lesion and 4L lymphadenopathy were similar to the histology of the pituitary gland (calcitonin negate in immunohistochemistry). The diagnosis of small cell lung cancer stage IV was admitted and the patient started chemotherapy with platinum and etoposide. After 3 cycles the thorax CT showed regression of the thyroid nodule, lung lesion, mediastinal and hilar lymphadenopathy. The patient remains under treatment.
Discussion: Pituitary metastasis are rare, and represent approximately 1% of all pituitary tumors. They are usually diagnosed between the 6th-7th decades of life and about 24% of cases have lung origin (with equal frequency in SCLC and non-small cell lung cancer). Similarly, the incidence of thyroid metastases is very low, they represent about 4% of thyroid tumors. In some published series lung was identified as the primary source in 16% of cases and adenocarcinoma was the subtype most often found. In this case the authors want to demonstrate two rare sites of metastasis from SCLC that, in addition with the infrequent presentation raised several diagnostic questions.

Key words: *Cancer. Metastasis.*

P-023. SPLENIC RUPTURE AS THE FIRST MANIFESTATION OF SYNCHRONOUS TUMORS: CASE REPORT

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Introduction: Splenic rupture is a potentially fatal emergency and can be divided into traumatic, spontaneous or pathological. The pathological splenic rupture is defined as an atraumatic rupture that occurs due to a splenic disease. Infection, haematological malignancies, metabolic and vascular disorders are recognised as the most common causes.
Case report: A 69-year-old male, ex-smoker, with a history of hypertension and dyslipidemia, presented with a three-day history of prostration, vomiting, dizziness and diffuse chest pain. There was no abdominal pain and no history of any trauma, injury or recent bleeding. On examination he was confused and hypotensive; with pain on palpation of the lower abdominal quadrants, without signs of peritoneal irritation. Analytically he presented with normochromic normocytic anemia (Hb 10.7 g/dL), leukocytosis (12,700), hyponatremia (110 mEq/L) and acute renal failure (creatinine 1.7mg/dl). However, six hours after his admission, he had an hemoglobin decrease of 4 g/dL without visible bleeding and requiring transfusion support. New clinical examination revealed distended and diffusely painful abdomen. The abdominal ultrasound showed: large and heterogeneous spleen, with hypoechoic areas, haemoperitoneum. Is was needed a laparotomy that confirmed splenic rupture requiring splenectomy. During the procedure it was also identified a liver mass suspected of secondary location. Then, assessment of disease extension revealed on computed tomography a nodule in the left upper lobe of the lung and confirmed nodule in the right lobe of the liver. Splenic histology was compatible with peripheral T-cell lymphoma. A bone marrow biopsy was performed and showed no involvement by lymphoma. The liver lesion biopsy diagnosed metastatic small cell lung carcinoma. This diagnosis was confirmed by transthoracic biopsy of the pulmonary nodule. These findings were consistent with synchronous peripheral T-cell lymphoma and small cell lung carcinoma (IV stage). After discussion, and attending the patient condition, we opted for palliative treatment. He died three months after the hospital admission.
Discussion: Few cases with coexistence of different types of lung carcinomas and lymphomas were reported in the literature. The synchronous tumors pathogenesis is complex and includes genetic and environmental factors, immune deficiencies and various infectious agents. The therapeutic management of such a combination of tumors requires separate consideration of their biologic behavior and the cumulative toxicity of different drugs.

Key words: *Synchronous tumors. Small cell lung carcinoma. Lymphoma. Splenic rupture.*

P-024. NEUROGENIC TUMORS. ABOUT 3 CLINICAL CASES!

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Introduction: About 20% of mediastinal tumors have neurogenic origin. The most common are the Schwannoma, being frequent in the head, neck and extremities, on the chest they predominate in the posterior mediastinum. It has a higher incidence in the 3rd to 5th decade of life, without differences between gender. They are usually benign, solitary and asymptomatic. The identification is mainly incidentally on imaging tests. The resection and immunohistochemical analysis confirmed the diagnosis. The recurrence and malignant transformation are rare.
Case reports: Female patient, 64 years old. Rural worker. Personal background: mitral valve prolapse and right thyroidectomy. No smoking. Referred from the Ophthalmology consultation for decreased visual acuity. Clinically with Claude-Bernard-Horner syndrome in the right side. Cervical and chest CT scan: rounded mass of well-defined contours, with density of soft tissues in the upper region of the chest, bilaterally. Female patient, 69 years old. Rural worker. Personal background: diabetes mellitus type 2, Hypertension. No smoking. She appealed to the emergency room due to pain located in the right upper quadrant radiating to the ipsilateral hemithorax, with a day of evolution. Radiograph of the chest and chest CT scan: homogeneous nodular formation of well-defined limits, located on the right lung apex. Female patient, 66 years old. Domestic. Personal history: Glaucoma, vertiginous syndrome and depression. No smoking. She appealed to the emergency room due to a painful condition in the hypogastric region, polyuria, urinary urgency, dysuria and hematuria, with a day of evolution. Radiograph of the chest with increased cardio-thoracic index, with no evidence of outbreaks or nodular lesions.

Abdominal CT Scan: Small bilateral pleural effusion and parenchymal densification area of the left lung, peri-aortic. Chest CT Scan: hiatal hernia. Marked decrease of left lower lobe lumen. Formation of soft tissue densities lower left hilar, with 37.5 mm, without cleavage plane with the left pulmonary veins and a doubtful cleavage plane with the left atrium and the descending aorta. In all cases, the patients underwent surgery with diagnosis and therapeutic purposes.
Discussion: Schwannoma can simulate lung cancer in imaging tests, however, are slow growing tumors, usually solitary, benign and asymptomatic. The prognosis is good, with the usually curative surgery. The follow-up of these cases is extremely important because, although rare, can undergo malignant transformation.

Key words: *Neuroendocrine tumors. Schwannoma.*

P-025. IMMEDIATE CAUSES OF DEATH IN PATIENTS WITH LUNG CANCER

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Introduction: Lung cancer is the second most common type of cancer and the leading cause of cancer death, in both genders. However, the immediate cause of death in these cases can be multifarious and therefore registered incorrectly given the difficulty in assessing the impact of tumor burden in relation to other possible causes, complications and contributing factors.
Objectives: To assort the immediate cause of death in lung cancer patients.
Methods: The authors reviewed the database of Homogeneous Diagnosis Related Groups (DRG) of admissions to the Pulmonology Department of Coimbra Hospital University Centre (CHUC) of patients with a primary or secondary diagnosis of lung cancer, deceased between 01.01.2009 and 31.12.2015. Further relevant clinical data for these admissions was also assessed.
Results: From the database 347 results were obtained, of which 50 were excluded due to the absence of a clear histological diagnosis. Out of the 297 cases with the diagnosis of lung cancer, 233 patients were male (78%) and 64 female (22%) with a mean age of 66 years (between 22 and 89 years). Histologically there were 130 adenocarcinoma (44%), 56 squamous cell carcinoma (19%), 49 small cell carcinoma (19%), 20 pleomorphic carcinoma (7%), 15 adenosquamous cell carcinoma (5%), 15 large cell carcinoma (5%), 7 malignant carcinoid (2%) and 5 sarcomatoid carcinoma (2%). Tumor burden was the most frequent cause of death, accounting for 41% of patients (N = 145) including 100 cases of end-stage/ disseminated disease. Infection was the immediate cause of death in 32% of cases (94 patients), 88 cases of pneumonia (of these 7 occurred post-chemotherapy, 3 were associated with necrotic tumor lesions and 4 with altered mental status related to brain metastasis), and 6 patients with an extra-thoracic focus (3 urosepsis, 1 acute pancreatitis and 2 postoperative brain abscesses). Complications of metastatic disease occurred in 29 cases (10%), all associated with brain metastasis. The immediate cause of death in the remaining cases were: pulmonary embolism in 20 patients (7%); bronchial hemorrhage due to endobronchial invasion in 3 cases (1%); and 6 cases attributable to a miscellanea of other causes (2%).
Conclusions: Tumor burden was the most frequent immediate cause of death, which is in accordance with the literature. However other events and complications, including potentially reversible causes, had a significant impact and therefore the importance in their prevention and management.

Key words: *Lung cancer. Immediate causes of death. Tumor burden.*

P-026. LUNG CANCER: EXPERIENCE OF A ONCOLOGIC PULMONOLOGY DEPARTMENT

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Introduction: Hospital Beatriz Angelo is a public hospital, integrated in the National Health Service, that opened in 2012. It serves a population of about 278,000 inhabitants and its opening was a milestone in providing health care in the region of Lisbon and Vale do Tejo. Oncology is one of the prime areas of the hospital and centralizes all tumors except hematologic and sarcomas. Lung cancer has been from the beginning one of the most prevalent pathologies, currently is the 3rd most common cancer. The Oncologic Pulmonology is integrated in the oncology department and is managed globally by pulmonologists.
Methods: The authors retrospectively analyzed the medical records of patients followed in our unit from may 2012 to april 2016, according to demographic characteristics, risk factors, comorbidities, form of presentation and diagnostic approach, histological classification, clinical stage, therapy performed and outcome.
Results: In this period 338 patients were evaluated and followed, of whom 76.6% were male, with an average age of 66.5 ± 10.4 years (minimum 36, maximum 90). About 80% had active or past smoking habits. Regarding to comorbidities, it was found that 60% had a history of cardiovascular disease, 48% of chronic obstructive pulmonary disease, 19% of type 2 diabetes mellitus and 2.7% had a history of a second tumor. The most frequent forms of presentation were pneumonia (25%), constitutional symptoms (15%) and symptoms conditioned by tumor metastasis (13%). Histological diagnosis was achieved in most cases by bronchial biopsy (45%). The histological type most often found was adenocarcinoma (52%), followed by squamous cell carcinoma (25%). At the time of diagnosis most of the patients had ECOG performance status 1 (47.9%) and was at stage IV (59.2%), followed by stage IIIA (10.9%). In 52% of patients therapy was conducted with palliative intent, 33% with curative intent, and the remaining were eligible to Best Supportive Care. In 70 patients (21%) surgery with curative intent was performed. In the mutation-positive patients it was found that 70% of patients were treated with tyrosine kinase inhibitors as initial therapy. About outcome, there were 199 deaths (59%), 80% of whom were patients whose initial approach was palliative.
Conclusions: Despite our short experience, we can see that these data are consistent with the rest of the country. Hospital Beatriz Angelo was created to fulfill a recognized need in hospital care in our region and oncology is one of its privileged areas. Lung cancer is a complex entity, with diagnosis and treatment challenges that require a special and dedicated multidisciplinary team, in which Oncology Pulmonology plays a fundamental role.

Key words: *Oncology. Cancer.*

P-027. UNPLANNED HOSPITAL ADMISSIONS IN PATIENTS WITH LUNG CANCER

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Introduction: Unplanned hospital admissions of patients with lung cancer are common and represent a significant proportion of admissions in Pulmonology Department. The causes of hospital admissions can be cancer related events or therapy related problems but in some cases are due to non-neoplastic conditions. The evaluation of these admissions is important, because the

improvement of rearward care for these patients, especially with a good home support and palliative care, could avoid hospitalization in some circumstances.
Objectives: Evaluate the reasons of unplanned admissions and mortality of patients with the diagnosis of lung cancer in a Pulmonology Department of a Central Hospital.
Methods: Retrospective study that include patients admitted with a diagnosis of lung cancer, within one year, in a Pulmonology Department of a university hospital. Clinical records were reviewed, with assessment of the following variables: age, gender, histological type, reason and time of hospitalization and mortality.
Results: In the period from January 1st to December 31st 2014, there were 204 admissions of patients with lung cancer. 38 (18.6%) were elective admissions to perform diagnostic or treatment procedures, while 166 (81.4%) occurred in unplanned way. 166 unplanned hospitalization corresponded to 125 patients with a mean age of 67.9 ± 11 years, with a maximum of 93 years and minimum of 39 years. 69.6% (n = 87) of patients were male and 30.4% (n = 38) were female. Most hospitalizations occurred by infection [17.5% (n = 29)], 28 respiratory infections and 1 oral and esophageal candidiasis. 15.7% (n = 26) of admissions were for pleural effusion. There was a high incidence of admissions by metastasis [11.4% (n = 19)], majority brain metastasis (n = 13), but also bone (n = 3) and liver with liver failure (n = 3). The cytopenias, related to chemotherapy, corresponded to 9.6% (n = 16) of admissions, 8 by febril neutropenia and 8 by pancytopenia. 9.6% (n = 16) of these cases were pulmonary embolism. The worsening of the general status and dyspnea occurred in 7.8% (n = 13) each. Respiratory failure is also an important cause of hospital admission, corresponding to 6% (n = 10). The remaining admissions [18.1% (n = 30)] occurred in other contexts such as pain, hemoptysis, superior vena cava syndrome, gastrointestinal toxicity secondary to chemotherapy, among others. The average length of hospital stay was 12.2 ± 8.9 days and mortality was 21.7% (n = 36).
Conclusions: Authors concluded that most unplanned admissions in lung cancer patients occur for reasons related to cancer. However, there is a high rate of admissions for reasons that could be solved or minimized with a good network of home care and palliative care, such as the worsening of general condition, dyspnoea and pain.

***Key words**: Lung cancer. Unplanned hospital admissions.*

P-028. SONOGRAPHIC FEATURES OF HILAR AND MEDIASTINAL LYMPHADENOPATHIES USING ENDOBRONCHIAL ULTRASONOGRAPHY (EBUS) AS A PREDICTOR OF MALIGNANT VERSUS BENIGN DISEASE

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Introduction: Recent studies show that sonographic features of hilar and mediastinal lymphadenopathies (LN) accessed by endobronchial ultrasonography (EBUS) are useful to differentiate malignant versus benign etiology. The ultrasound probe facilitates the direct visualization of the LN during biopsy, which may offer information regarding the nodal characteristics and predict the etiology of the underlying disease.
Objectives: Access sonographic features and differences observed in intrathoracic lymph nodes secondary to malignant versus benign pathology.
Methods: This was a retrospective study with univariate analysis. A total of 70 patients undergoing EBUS procedure during a period of 6 months (January to June 2016) were included. All patients had intrathoracic lymph nodes (hilar and mediastinal) observed on CT chest and 40 (57%) had pathologic uptake values (SUV > 2,5) in PET. The equipment used was EBUS Pentax® and 22G needles to perform transbronchial needle aspiration (TBNA). All lymph nodes were evaluated *in situ* by a pathologist with "rapid on site evaluation" (ROSE). One bronchoscopist performed all EBUS-TBNA procedures with collaboration of other colleagues, allowing a homogeneous description of the characteristics observed. Sonographic features evaluated were: size, shape, margin and echogenicity. The sonographic findings were compared with the final pathology results.
Results: Sample had a mean age of 65 ± 13 years, with male predominance (61%). The EBUS technique identified malignant disease in 43 patients (61%) and benign disease in 27 patients (39%). The lymph nodes due to malignant disease presented: size larger than 1 cm (55.8%), round shape (67.4%), indistinct margin (60.5) and heterogeneous echogenicity (51.2%). Lymphadenopathies secondary to benign pathology presented mainly: size less than 1 cm (51.9%), oval shape (59.3%), distinct margin (55.6%) and homogeneous echogenicity (51.9%). There was no statistical significant difference between the sonographic features of malignant versus benign lymphadenopathy ($p > 0.05$).
Conclusions: Sonographic features of the EBUS images can differentiate malignant versus benign lymph nodes. Predictive factors for lymph nodes metastasis were: size larger than 1 cm, round shape, indistinct margin and heterogeneous echogenicity. Predictive factors of reactive lymph nodes were: size smaller than 1 cm, oval shape, distinct margin and homogeneous echogenicity. Analyzing the sonographic features visualized by EBUS technique may help predict intrathoracic lymph nodes etiology (malignant versus benign pathology).

***Key words**: EBUS. Sonographic features. Diagnosis. Lymphadenopathies.*

P-029. CRYOBIOPSY IN INTERSTITIAL LUNG DISEASE. EXPERIENCE IN A BRONCHOLOGY UNIT

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Introduction: Transbronchial cryobiopsy (CB) has acquired an important role in the diagnosis of interstitial lung disease as it carries fewer risks and complications than surgical biopsy and has a diagnostic efficacy superior to conventional transbronchial biopsy (TB). CB has a higher diagnostic efficacy compared to TB since larger and best preserved fragments with less artifacts are obtained.
Objectives: To evaluate the diagnostic yield and complications associated with CB.
Methods: We conducted a prospective study which included all patients undergoing CB. Demographic characteristics, respiratory function tests, clinical suspicion, radiologic findings, biopsy sample features, histologic diagnosis, final diagnosis and complications were recorded.
Results: There were included 68 patients, which are characterized in the table. Regarding CB, the right lung was biopsied in 80.9% of cases (n = 55), two segments were analyzed in 51.5% (n = 35), and in only 2 patients different lung lobes were biopsied. The mean number of fragments taken per patient were 4 ± 1 with a mean size of 4 ± 1 mm. Lung parenchyma was observed in 97% (n = 66) of CB samples and visceral pleura in 22.1% (n = 15). Regarding complications, pneumothorax occurred in 15 patients (22.1%), 13 requiring chest drainage and there were no episodes of major bleeding. A histologic diagnosis was obtained in 66% (n = 45) of

patients. Two patients were excluded for analysis of definitive diagnosis because they were lost during follow-up. After discussion in a multidisciplinary team (MDT) and association of clinical data, imaging, bronchoalveolar lavage and histology obtained from CB, a definitive diagnosis was reached in 56.1% of patients (n = 37). The most common were HP (n = 6), OP (n = 5), idiopathic pulmonary fibrosis (n = 5), drug toxicity (n = 3) and connective tissue disease-associated ILD (n = 3). Of the remaining 29 patients without definitive diagnosis: 8 underwent surgical biopsy by VATS (video-assisted thoracoscopic surgery), 1 refused surgery, 6 didn't have surgical conditions, 8 remain under investigation/surveillance and in 6 a diagnostic work based in the clinic, radiology, evolution and MDT was stablished.

Demographic characteristics	
Male [n (%)]	38 (56)
Age [n (%)]	58 (13)
Respiratory function	
Forced vital capacity [median (min-max)]	85 (64-145)
Carbon monoxide lung diffusion [mean (SD)]	65 (17)
Body Mass Index [mean (SD)]	29.1 (6.2)
Pulmonary hypertension (n = 42)	
Yes	4 (9.5)
Borderline	4 (9.5)
Main clinical suspicion	
Organized pneumonia (OP)	11 (16.2)
Hypersensitivity pneumonitis (HP)	9 (13.2)
Nonspecific interstitial pneumonia (NSIP)	7 (10.3)
Usual interstitial pneumonia (UIP)/NSIP	7 (10.3)
Drug toxicity	6 (8.8)
Desquamative interstitial pneumonia (DIP)	5 (7.4)
Alveolar hemorrhage	4 (5.9)
Main radiological patterns	
Reticular pattern	15 (22.1)
Ground glass + septal thickening	12 (17.6)
Ground glass	11 (16.2)
Parenchymal consolidation	10 (14.7)

SD: Standard Deviation.

Conclusions: CB is an useful and safe technique in the diagnostic evaluation of ILD. The number of definitive diagnosis was lower than the histological diagnosis which can be related to the multifactorial and interdisciplinary evaluation of these diseases.

Key words: *Cryobiopsy. Diagnosis. Interstitial lung disease.*

P-030. BRONCHOLOGY PREVENTIONS. A SIX-YEAR ANALYSIS

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Introduction: Rigid bronchoscopy (RB) prevention regime in the north of the country was created in 2004 and is secured by Bronchology Units of Centro Hospitalar de Vila Nova de Gaia e Espinho (CHVNG/E) and Centro Hospitalar de São João (CHSJ). It aims to respond to urgent situations requiring interventional bronchoscopic treatment.
Objectives: Characterize the experience in RB prevention held in CHSJ within 6 years.
Methods: Retrospective analysis of Bronchology Unit records between 2010 and 2015.
The following data were analyzed: performing schedule, provenance, demographics, motive for the RB prevention, type of examination, endoscopic findings and their location, and performed interventional treatments.
Results: 207 RB preventions were held. Performing schedule: before 20h (137, 66.5%), after 20h (70, 33.5%). Provenance: CHSJ (122, 58.9%), CHVNG/E (15, 7.2%), other hospitals (70, 33.8%). Demographics: male (147, 71%), female (60, 29%); mean age 50.3 years (min: 2 months, max: 89 years); 37 patients (17.9%) were pediatric, of which 20 (54%) were children aged ≤ 2 years. The main motives for RB prevention were airway obstruction by cancer (69 - 33.3%), suspected foreign body aspiration (55, 26.6%), tracheal stenosis (41, 19.8%), hemoptysis (32, 15.5%), others (9, 4.3%). Stenting was performed in 45.6% of patients with airway obstruction by cancer. Of the 55 cases of suspected foreign body aspiration, 52.7% occurred in children; 56.4% were foreign body extraction and 40% was not seen any change. In 55% of patients with tracheal stenosis mechanical dilation was performed. The interventional bronchoscopic treatments carried out were: introduction or stent replacement (50, 24.2%), foreign body extraction (32, 15.5%), removal of clots (32, 15.5%), dilatation (25, 12.1%), laser (18, 8.7%) mechanical debridement (15, 7.2%), biopsies (5, 2.4%), laser and placement of stent (3, 1.4%). No major complications occurred. In 26 (12.6%) examinations only inspection was carried out. A terminal stage lung cancer patient did not meet the necessary clinical conditions and it was decided by not carrying out any kind of procedure. As for the location of the lesions, 42% were located in the trachea and 20.8% in trachea and bronchi.
Conclusions: There was a significant number of RB preventions in that period. The most frequent motives were airway obstruction by cancer, suspected foreign body aspiration and tracheal stenosis. The regime of prevention enabled rapid referral and resolution of serious and life-threatening situations.

Key words: *Rigid bronchoscopic. Prevention. Cancer. Foreign body. Airway obstruction.*

P-031. BRONCHOSCOPY IN THE DIAGNOSIS OF SMEAR-NEGATIVE PULMONARY TUBERCULOSIS

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Introduction: Tuberculosis remains a worldwide public health problem and it is estimated that in 2014 9.6 million people were affected by this disease. In Portugal, the 2015 General Health Department report puts Portugal on the threshold of countries with low incidence. However, the major urban centers maintain intermediate incidence (20-50 cases per 100,000 inhabitants). Since less than half of patients with active TB have positive smear, it is often difficult to establish with certainty the diagnosis. The aim of the study is to evaluate the role of bronchoscopy (BFC) in patients with suspected pulmonary tuberculosis (PT) and negative smear.
Methods: This is a retrospective study involving 103 patients with clinical suspicion of PT with negative smear, that underwent bronchoscopy and its subsidiary techniques: the bronchial lavage

(BL), the bronchoalveolar lavage (BAL) and the bronchial biopsy (BB). The results were considered positive after microbiological and pathological laboratory confirmation. Data was obtained from the database of the Pneumology Interventional Unit in Santa Maria's Hospital, from January to December 2014, and statistical analysis was carried out using the IBM-SPSS.
Results: Statistical analysis was performed in 103 patients, aged 18 to 88 years old, with an average of 54.03 years. The majority are men (68.9%, n = 71). It was found that 80% (n = 83) of the sample had some degree of immunosuppression and that 35% (n = 36) were HIV positive. Pulmonary tuberculosis was recorded in 32% (n = 33) of the patients. BL and BAL were positive for Mycobacterium tuberculosis in 7.8% (n = 8) and BB was positive in 5.8% (n = 6). In 71 patients (68.9%) some microbial agent was isolated in BL or BAL, being *Haemophilus influenzae* (n = 10) and *Pneumocystis jirovecii* (n = 8) the most common. In one patient *Mycobacterium kansasii* was isolated.
Conclusions: BFC and its subsidiary techniques seem to have an important role in the approach to patients with suspected tuberculosis, but with negative smear, in a country with low incidence of tuberculosis such as Portugal. Our results show a low rate of positive results for PT, revealing nevertheless that BFC is a useful tool for rapid differential diagnosis in patients with some degree of immunosuppression.

Key words: *Bronchoscopy. Smear-Negative Pulmonary Tuberculosis.*

P-032. TRANSBRONCHIAL LUNG CRYOBIOPSY IN THE DIAGNOSIS OF HYPERSENSITIVITY PNEUMONITIS

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Introduction: The diagnosis of hypersensitivity pneumonitis (HP) might be complex, given the wide variability of clinical and radiological manifestations, being sometimes essential to perform a pulmonary biopsy. Transbronchial lung cryobiopsy has been assuming an increasing importance, since it enables to obtain large and well-preserved lung parenchyma samples, which can therefore avoid a surgical biopsy.
Objectives: Evaluation of diagnostic yield of transbronchial lung cryobiopsy in the context of HP, as well as description of this technique safety profile.
Methods: Analysis of clinical cases with diagnostic hypothesis of HP, who underwent transbronchial lung cryobiopsy, due to the need of histological confirmation for exclusion of other differential diagnoses, after evaluation in a previous multidisciplinary meeting.
Results: From 98 patients who underwent transbronchial lung cryobiopsy, between October 2014 and July 2016, 27 patients were included. Patients had a mean age of 65.9 (± 7.6) years, and 55.6% (n = 15) were male. At functional assessment with a mean value of FVC of 82 (± 15.6)%, FEV_1 83.4 (± 15)%, TLC 82.6 (± 15.4)%, D_LCO of 54.2 (± 17.5)%, and a mean pO_2 of 76.4 (± 7) mmHg. On thoracic computed tomography (CT) the major patterns found were: usual interstitial pneumonia (n = 15), mosaic (n = 6), ground glass (n = 4), centrilobular micronodules (n = 1) and cysts (n = 1). The median number of biopsies performed by patient was 4 (2-5), and in 59.3% of cases (n = 16) there were carried out biopsies in two different lobes. In 88.9% of cases (n = 24), transbronchial lung cryobiopsy allowed a conclusive diagnosis, with histological findings consistent with HP. In 3 patients, transbronchial lung cryobiopsy has not permitted to achieve a definite diagnosis, and these were subsequently submitted to surgical lung biopsy. The complications registered were pneumothorax in 25.9% (n = 7) – 6 patients underwent cryobiopsy in 2 different lobes – and hemorrhage in 7.4% (n = 2).
Conclusions: In this case series, transbronchial lung cryobiopsy assumed as a high diagnostic yield technique in different manifestations of HP, thus avoiding surgical lung biopsy in a significant number of patients.

Key words: *Transbronchial lung cryobiopsy. Hypersensitivity pneumonitis. Diagnostic yield.*

P-033. THE ROLE OF ENDOBRONCHIAL ULTRASONOGRAPHY-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) IN THE DIAGNOSIS OF MEDIASTINAL AND HILAR NON-NEOPLASTIC LYMPHADENOPATHIES

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Introduction: Bronchoscopy with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) provides reliable access to cytologic specimens from the mediastinal and hilar lymph nodes and has been reported to be an accurate and safe method to confirm a pathologic diagnosis of malignant and benign pathology including sarcoidosis.
Objectives: This study aimed to assess the diagnostic efficacy of endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) of hilar and mediastinal non-neoplastic lymphadenopathies and evaluate the main benign pathologies.
Methods: This was a retrospective descriptive study. A total of 172 patients undergoing EBUS-TBNA procedure were included, during a period of 2 years (June 2014 to June 2016). All patients had intrathoracic lymph nodes (hilar and mediastinal) observed on chest computed tomography (CT) and 119 (69%) had pathologic standardized uptake values (SUV) in positron emission tomography (PET). Samples were obtained from three nodal stations on average per patient. The equipment used was EBUS Pentax® and 22G needles to perform transbronchial fine needle aspiration (TBNA). All lymph nodes were evaluated «in situ» by a pathologist with «rapid on- site evaluation» (ROSE).
Results: Sample had a mean age of 66 ± 13 years, with male predominance (63%). EBUS-TBNA provided representative sample for diagnosis in 79.3%. The technique identified malignant disease in 68 patients (39.5%) and non-neoplastic disease in 28 patients (16.3%). In 36 cases (20.9%) samples were not valid (hemorrhagic, necrotic or insufficient material). In 40 patients (23.3%) was obtained material compatible with normal lymph node negative for malignancy (20% of them corresponded to re-staging lung cancer after neoadjuvant chemotherapy). Non-neoplastic lymphadenopathy corresponded to 28 patients (mean age: 59 ± 15; female predominance: 53.6%). Diagnosis distribution of these lymph nodes were: acute lymphadenitis 1 (3.6%), chronic lymphadenitis 2 (7.1%), anthracotic lymph nodes 1 (3.6%), necrotizing adenopathy compatible with tuberculosis 4 (14.3%), non necrotizing granulomas 5 (17.9%), sarcoidosis granulomas 11 (39.3%) and reactive lymph nodes 4 (14.3%). All 28 patients had intrathoracic lymph nodes (hilar and mediastinal) observed on chest CT and 16 (57.1%) had pathologic uptake values (SUV) in PET. Lymph nodes stations most frequently accessed were: subcarinal (7) and right superior interlobar (11Rs) with a total of 21 cases (75%) respectively and right lower paratracheal (4R) with 19 cases (68%).
Conclusions: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) provides reliable access to cytologic specimens from the mediastinal and hilar lymph nodes and has

been reported to be an accurate and safe method to confirm a pathologic diagnosis of non-neoplastic lymphadenopathies. EBUS-TBNA alone has a high diagnostic yield with a very low complication rate for patients with suspected sarcoidosis. This approach to the lymph nodes of the mediastinum allows a definitive diagnosis for most patients using a well tolerated, safe, outpatient procedure.

Key words: *EBUS-TBNA. Interventional Bronchology. Diagnosis.*

P-034. HILAR AND MEDIASTINAL LYMPHADENOPATHY DIAGNOSIS USING ENDOBRONCHIAL ULTRASONOGRAPHY GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) – INITIAL EXPERIENCE OF A REFERENCE CENTER IN MADRID

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Introduction: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a safe and minimally invasive technique that provides hilar and mediastinal lymphadenopathies diagnosis (malignant versus benign pathology). It also become a standard of care in staging lung cancer. Characterization of the initial experience of a new implemented technique is important to evaluate and improve procedures in order to increase efficacy.
Objectives: This study aimed to assess the initial experience and diagnostic efficacy of endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) of hilar and mediastinal lymphadenopathies in a reference center in Madrid.
Methods: This was a retrospective descriptive study. A total of 122 patients undergoing EBUS-TBNA procedure were included, during a period of 15 months (June 2014 to November 2015) after initial technique implementation. All patients had intrathoracic lymph nodes (hilar and mediastinal) observed on chest computed tomography (CT) and 82 (67%) had pathologic standardized uptake values (SUV > 2,5) in positron emission tomography (PET). Samples were obtained from three nodal stations on average per patient. The equipment used was EBUS Pentax® and 22G needles to perform transbronchial fine needle aspiration (TBNA). All lymph nodes were evaluated «in situ» by a pathologist with «rapid on- site evaluation» (ROSE).
Results: Sample had a mean age of 60 ± 13 years, with male predominance (63%). EBUS-TBNA provided representative sample for diagnosis in 78.7%. In 26 cases (21.3%) samples were not valid (hemorrhagic, necrotic or insufficient material). The technique identified malignant disease in 43 patients (35.2%) and non-neoplastic disease in 27 patients (22.1%). In 26 patients (21.3%) was obtained material compatible with normal lymph node negative for malignancy (19.3% of them corresponded to re-staging lung cancer after neoadjuvant chemotherapy). Complications corresponded to a single episode of oxygen desaturation. Malignant lymph nodes histologically were: squamous cell carcinoma-epidermoid (39.5%) and adenocarcinoma (25.6%). Sarcoidosis was identified in 51.9% of benign etiology lymphadenopathies.
Conclusions: EBUS-TBNA provides reliable access to cytologic specimens from the mediastinal and hilar lymph nodes with low complication rate for patients. Among neoplastic etiology, epidermoid carcinoma was the most frequent. Sarcoidosis was the most diagnosed benign disease. Characterization of the initial experience of a new implemented technique is important to evaluate, compare results with other centers, allowing changes and improve procedures in order to increase efficacy.

Key words: *EBUS-TBNA. Interventional bronchology. Diagnosis.*

P-035. ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION FOR THE DIAGNOSIS OF INTRATHORACIC LYMPHADENOPATHY IN PATIENTS WITH EXTRATHORACIC MALIGNANCY

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Introduction: Mediastinal lymphadenopathy is a common finding in patients with extrathoracic malignancies. Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is an alternative to mediastinoscopy or thoracoscopy for the diagnosis of enlarged mediastinal and hilar lymph nodes in patients with extrathoracic malignancies.
Objectives: Analysis of patients diagnosed with extrathoracic malignancies who underwent EBUS - TBNA for diagnosis of intrathoracic lymph node enlargement.
Methods: Retrospective analysis of all patients who performed EBUS-TBNA from 03/2010 to 01/2016. All patients with suspected hilar ou mediastinal metastatic involvement of extrathoracic malignancies who underwent EBUS-TBNA were included.
Results: From a total of 624 patients, 53 (8.0%) patients were included (32 male and 21 female, with mean age of 61 ± 12 years). Extrathoracic malignancies observed were: gastrointestinal (n = 18; 34.0%), breast (n = 10; 18.9%), head and neck (n = 10; 18.9%), urological (n = 4; 7.5%), testicle (n = 4; 7.5%), others (n = 6; 11.3%). The mean size of the enlarged lymph nodes, as measured by EBUS, was 16.6 ± 7.9 mm. The most commonly sampled lymph node station was subcarinal (24.8%). The mean number of punctures per patient was 1.8 ± 1.1. Rapid on-site evaluation was available in 98% of exams. The results obtained were: malignancy in 26 (49.0%) cases (23 concordant metastases and 3 new lung cancer); in 15 (28.3%) normal lymphoid material; 11 (21.0%) granulomatous lymphadenopathy, 1 (1.9%) inconclusive result.
Conclusions: EBUS-TBNA allowed the diagnosis of metastatic disease in almost half of the patients, thus avoiding more invasive methods. Adequate samples were obtained in 98% of patients confirming the diagnostic utility of this method.

Key words: *EBUS-TBNA. Extrathoracic malignancy.*

P-036. TRANSBRONCHIAL CRYOBIOPSY IN PATIENTS WITH POSSIBLE UIP

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Introduction: Transbronchial lung cryobiopsy (TBLC) has assumed increasing importance in multidisciplinary approach to diffuse lung diseases (DLD), when histology is required. In some institutions, in DLD approach, TBLC is used prior to surgical biopsy.
Objectives: Evaluation of diagnostic yield of patients undergoing TBLC with a radiological pattern of possible usual interstitial pneumonia (UIP). Determination of the complications and its incidence, compared with the remaining patients undergoing TBLC.
Methods: Prospective observational study of patients with suspected DLD who underwent TBLC over a 2-year period. The analysis was made in subgroups, possible UIP (Group 1) vs another diagnosis (Group 2), in terms of demographics, functional study, quality of the sample, complications and definitive diagnosis. Statistical analysis was performed with software SPSS, version 20, using T-test (parametric variables) and chi-square (nonparametric variables). To determine the diagnostic predictors was performed binary logistic regression. It was considered $p < 0.05$ as statistically significant.

Table P-036

	TBCL patients	Group 1	Group 2	UIP vs Other
	n = 69	n = 14	n = 55	(p)
Demographical and functional characteristics:				
Age (years-old) (media/SD)	58.2/13.2	64.9/9.2	56.5/13.6	0.032
Male gender (n/%)	39/56.5	11/78.6	28/50.9	0.062
BMI (Kg/m^2) (media/SD)	29.0/6.1	29.4/6.0	29.0/6.2	0.855
FVC (%) (media/SD)	90.0/19.6	94.8/20.3	88.8/19.5	0.350
DLCO (%) (media/SD)	63.8/15.2	62.6/20.4	64.1/13.8	0.776
Biopsy characteristics				
Biopsy of right lung (n/%)	56/81.2	12/85.7	44/80.0	0.625
Biopsy of > 1 lung segment (n/%)	26/37.7	7/50.0	19/34.5	0.294
Biopsy of > 1 lung lobe (n/%)	1/1.4	0/0	1/1.8	0.617
Number of biopsy fragments (media/SD)	3.8/0.9	3.7/0.6	3.9/1.0	0.561
Dimensions fragments (mm) (media/SD)	4.4/1.1	4.3/1.0	4.1/1.1	0.760
Complications				
Bleeding (n/%)	67/97.1	13/92.3	54/98.2	0.289
Pneumothorax (n/%)	15/21.7	2/14.3	13/23.6	0.449
Thoracic drain need (n/%)	13/18.8	2/14.3	11/20.0	0.625
Hospital admission (n/%)	15/21.7	2/14.3	13/23.6	0.449

Results: Were included 69 patients (69 TBCL). The demographic, functional and biopsy characteristics, and complications of patients, are shown in the table. In Group 1 the most common histologic characteristics were: fibrosis and distortion of the architecture (n = 13; 92.9%), temporal heterogeneity (n = 9; 64.3%), fibroblast proliferation foci (n = 6; 42.9%), paraseptal and subpleural distribution (n = 6; 42.9%) and honeycomb (n = 4; 28.6%). In 6 (42.9%) cases the TBLC histology gathered all the histological criteria for UIP. Surgical biopsy was performed in 3 cases (cases with inconclusive TBLC). After multidisciplinary meeting was obtained a definitive diagnosis in 13 (92.6%) cases. In the comparative analysis, between the subgroups 1 and 2, there were no relevant statistically significant differences. There were no predictors of definitive diagnosis of UIP.
Conclusions: In selected patients, TBLC achievement can avoid subjecting patients to a surgical biopsy (with its already known associated risks). In patients diagnosed with possible UIP TBLC is a safe, reliable, with good diagnostic yield and less expensive diagnostic method, in patients whose radiological clinical diagnosis is not possible in a multidisciplinary meeting.

Key words: *Transbronchial cryobiopsy. UIP. Diffuse lung diseases. Insterstitial lung disease.*

P-037. BRONCHOSCOPIC TECHNIQUES IN PNEUMONIA ETIOLOGIC AGENTS IDENTIFICATION. IS BRONCHIAL ASPIRATE ENOUGH?

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Introduction: The flexible bronchoscopy has a wide variety of clinical indications, such as biological specimens collection for pneumonia diagnosis, with a low complication rate. Many times the microbiological identification need for application of more targeted therapy leads the bronchoscopist to combine several bronchoscopic techniques.
Objectives: The aim of this study was to evaluate the utility of combination of microbiological and/or cytological analysis of bronchial aspirate with bronchoalveolar lavage (BAL) and/or bronchial brushings (BB), in patients with suspected infection as a means to increase the diagnostic accuracy.
Methods: Transversal and retrospective study of results of microbiological and/or cytological analysis of bronchial aspirate, BAL and/or BB, of a sample of individuals who have been performed bronchoscopy for suspected pulmonary infection from March to May 2016, in the Technical Endoscopic Sector of the Pulmonology Department of the University Hospital of Coimbra - Coimbra University Hospital Center. Clinical data were registed in a database and processed by appropriate statistical methods. p values < 0.05 were considered significant.
Results: Microbiological analysis of bronchial aspirate was made in all patients included (n = 67) and the same analysis of BAL was made in 61 of them with isolation of microorganisms in 40.3% and 36.1%, respectively. In both *Staphylococcus aureus* was the most frequent microorganism, followed by *Klebsiella pneumoniae*. In 78.7% of cases the microorganisms isolated by these two techniques were the same and only in three cases of negative results in bronchial aspirate microorganisms was isolated in LBA, verifying a significant (p < 0.001) substantial concordance (kappa = 0.642) between them. The cytological analysis taken in 49 bronchial aspirates and 30 BALs was diagnostic in only 6% (squamous metaplasia, *Candida* and *Aspegillus* infection) and 2.6% (tracheal invasion by esophageal squamous cell carcinoma) cases, respectively, showing no concordance between their results (p = 0.732). It was also performed cytological analysis of BB in 12 patients, diagnostic in 16.7%, resulting in metaplasia (8.3%) and carcinoma (8.3%), with a significant (p = 0.002) and substantial (kappa = 0.636) concordance observed with bronchial aspirate. The calculated sensitivity for infections etiological diagnosis of bronchial aspirate and BAL microbiological analysis was 84.4% and 75.9%, respectively, whereas for cytological analysis was 12% for

bronchial aspirate, 5.6% for BAL and 33.3% for BB. The calculated specificity was 100% for all.
Conclusions: Although many times the combination of microbiological and/or cytological analysis of other bronchoscopic techniques to the bronchial aspirate is done in the diagnosis of infection, in order to increase the diagnostic accuracy necessary for proper therapeutic approach, we found that, in the population studied, the results are very consistent with superiority shown by the microbiological analysis of bronchial aspirate. The cytological analysis, despite the low sensitivity for this purpose, can be useful in suspected neoplasia masked by pneumonia. Therefore, we can conclude that the combination can be an advantage in some situations but not routinely, it is essential a careful analysis of each situation.

Key words: *Bronchial aspirate. Bronchoalveolar lavage. Bronchial brushings. Infection.*

P-038. RANDOMIZED TRIAL OF ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION UNDER TWO MODERATE SEDATION METHODS

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For endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) there is no standardisation about optimal sedation type. We performed a prospective randomized trial to compare the impact of two methods of moderate sedation on the diagnostic yield, complication rate and patient satisfaction of EBUS-TBNA. Patients requiring EBUS-TBNA for the diagnosis of mediastinal or hilar lymph nodes (LNs) or masses, or for mediastinal staging of lung cancer were included. Patients were randomized to undergo the procedure under intravenous boluses of alfentanil and midazolam (AM) or alfentanil and propofol (AP). Forty-eight patients were included, 25 patients submitted to AM and 23 to AP. The average age of the patients was 59.1 ± 14.7 years, 37/48 (77.1%) were male. No difference was found in the indication for the procedure between groups. The average dose of sedative agents administered was 1.1 ± 0.8 mg of alfentanil and 7.1 ± 3.5 mg of midazolam for the AM group and 1.0 ± 0.2 mg of alfentanil and 190.5 ± 51.04 mg of propofol for the AP group. The most common reported symptom, that occurred after the procedure, was cough for both groups, 42.9% (AM) and 57.1% (AP) ($p > 0.05$). Mean total procedure time, EBUS-duration and recovery time were 88.2 min, 21.6 min and 48.1 min for the AM group; and 82.8 min, 20.7 min and 48.4 min for the AP group, respectively ($p > 0.05$). Forty-three LNs were sampled in the AM group and 37 in the AP group ($p > 0.05$). EBUS-TBNA nodal sampling was considered adequate in 88% of the samples of the AM group and in 81.8% of the samples of the AP group ($p > 0.05$). The diagnostic yield was 80% for the AM group and 81.8% for the AP group ($p > 0.05$). Sedation related complications during the procedure were more common in the AP group [7 (30.4%) vs 6 (24%)], but no statistically significant ($p > 0.05$), and resolved with simple therapeutic measures. Hypoxemia rapidly reversible with mandible protrusion was the most common. There were no major complications or escalation of care in either group. Most patients did not report unpleasant moments during the procedure in both groups. All the patients would repeat EBUS-TBNA if necessary. EBUS-TBNA performed under moderate sedation with alfentanil-midazolan and alfentanil-propofol had comparable diagnostic yield, complication rate and patient degree of satisfaction. EBUS-TBNA can be equally performed under alfentanil-midazolan or alfentanil- propofol.

Key words: *EBUS-TBNA. Moderate sedation. Midazolan. Propofol.*

P-039. BRONCHOSCOPIC TECHNIQUES IN LUNG CANCER DIAGNOSIS – LESS INVASIVENESS WITH SIMILAR YIELD?

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Introduction: Lung cancer is the most common cancer worldwide, both in terms of incidence and mortality. Bronchoscopy is one of the most important procedures for its diagnosis, namely for performing biopsies, however less invasive techniques may be diagnostic. Commonly the bronchoscopist appeals to the combination between them as a means of more accurate diagnosis, that allow an adequate approach of the disease.
Objectives: The aim of this study was to evaluate the diagnostic yield of cytological analysis of bronchial aspirate, bronchoalveolar lavage (BAL) and bronchial brushings (BB) in patients with suspected lung cancer, and the advantage in its combination.
Methods: Retrospective study of a sample of individuals undergoing bronchoscopy in the Technical Endoscopic Sector of the Pulmonology Department of the University Hospital of Coimbra – Coimbra University Hospital Center, between March and May of 2016. Patients with suspected lung cancer, to whom biological samples for cytological analysis of bronchial aspirate and BAL and/or BB were collected. Many clinical and analytical parameters obtained from clinical charts were registered in a database and consequently processed by appropriate statistical methods. P-values < 0.05 were considered significant.
Results: 41 individuals were included, in which bronchial aspirate collection and cytological analysis was carried out and revealed nonspecific inflammation (85.4%), squamous metaplasia (4.9%) and carcinoma (9.7%). BAL cytology was performed in 22 of these individuals, resulting in unspecific bronchial inflammation in 91%, metaplasia in 4.5% and adenocarcinoma in 4.5% Comparing the results of these techniques we found that in 95.5% of cases they were equal, showing significant substantial concordance (kappa = 0.782, $p < 0.001$). In 30 individuals BB and respective cytological analysis was performed, and revealed nonspecific inflammation in 80%, metaplasia in 3.3% and carcinoma in 16.7%. This technique showed a significant concordance, although weak, with results of bronchial aspirate cytology (kappa = 0.39, $p < 0.001$). The same comparison between results of BAL and BB showed no correlation between them ($p = 0.101$). We also calculated the sensitivity of the three techniques and their combinations for lung cancer diagnosis: 23.1% for cytology of bronchial aspirates, 18.2% for BAL and 14.3% for BB. For combinations of the bronchial aspirate with BB or BAL, and BAL with BB, the sensitivity was 23.1%. The calculated specificity was 100% for all except for the BB and its combination with aspirated or BAL (66.7% and 80%, respectively).
Conclusions: In the absence of biopsable direct endoscopic signs of tumor, commonly we appeal to the combination of some less invasive bronchoscopic techniques. However, we found that, except for the BB, the results of the various techniques were very consistent, the specificity equal and sensitivity of the various combinations was not higher than that of cytology of bronchial aspirate, in the population studied. Thus, the combination of various techniques did not prove to be advantageous, so this should not be an alternative to more invasive techniques.

Key words: *Bronchial aspirate. Bronchoalveolar lavage. Bronchial brushings. Lung cancer.*

P-040. ENDOBRONCHIAL METASTASES FROM EXTRA THORACIC MALIGNANCIES: RETROSPECTIVE STUDY FROM THE PAST 10 YEARS IN A SINGLE HOSPITAL

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Endobronchial metastases (EBM) from extra pulmonary solid tumors are a rare occurrence and currently available epidemiological and clinic-pathological data are limited. The epidemiology of this type of metastasis is still quite unclear and may vary considerably depending on the study and the definition of endobronchial metastasis. Breast, colon and renal lesions are reported in the literature as being most often associated with EBM. We evaluated the clinical, radiographic and bronchoscopic aspects of patients with EBM, who had been diagnosed in the past 10 years, between Jan 1st 2006 and Dec 31st 2015, in Garcia de Orta Hospital. EBM was defined as a bronchoscopically visible lesion, which was histopathologically identical to the primary tumor. A series of 17 consecutive cases of EBM from extra thoracic solid tumors were collected during that period, corresponding to 5.8% of all endobronchial tumors detected in diagnostic fiber optic bronchoscopies. Of these 17 cases, 47% occurred between 2011-2015 and 53% from 2006 to 2009. A higher prevalence of males was observed (64.7%). The age at the diagnosis of EBM ranged between 37 and 80, with an average of 68.2. It was possible to evaluate the ethnic group of 13 of these patients through the existing records. Most of them were of Caucasian race. Six patients were former smokers, another 6 were non-smoking and 5 were actively smoking. In relation to the primary tumor, 35.3% were colorectal, 11.8% of the larynx and kidney (respectively), and 5.9% of the esophagus, breast, oropharyngeal, prostate, skin, and soft tissue sarcoma (respectively). Twelve cases were identified after the primitive tumor diagnosis (70.6%), whereas the remaining cases were simultaneously evidenced in extra pulmonary and endobronchial sites. The average latency from extra pulmonary tumor diagnosis and endobronchial metastasis was 34.5 months. Eleven metastases were found in the right bronchial tree (64.7%). The most frequent symptoms were dyspnea and cough, whereas 18% of patients were asymptomatic. At radiology, 8 patients had a lung mass, 7 presented multiple pulmonary nodules and 2 had pulmonary atelectasis. For patients who have died, the average survival after diagnosis of metastasis was 6.5 months. It is important to underline that 3 patients are still alive (cases diagnosed in 2013 and 2015). Two patients have an unknown date of death. In conclusion, EBM from extra pulmonary tumors account for about 5.8% of all detected endobronchial tumors. Colorectal cancer was presented as the most frequent primary tumor. It is unclear why endobronchial metastasis is more frequently found in the right bronchial tree, a finding similar to the results of the previous studies. The MEB often has a long latency period and is usually a manifestation of advanced neoplastic disease, which can justify the reduced survival after diagnosis.

Key words: *Endobronchial tumor. Metastases. Extra thoracic malignancies.*

P-041. INDWELLING PLEURAL CATHETER FOR THE PALLIATIVE TREATMENT OF MALIGNANT PLEURAL EFFUSIONS

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The patients with stage IV cancer with pleural involvement are a frequent challenge, because of the difficult palliation of their symptoms of dyspnoea caused by recidivant pleural effusion. Many times pleurodesis does not work or is not possible due to pulmonary incarceration. The recurring pleural effusion is the origin of multiple symptoms, and leads to bad performance status, leading to multiple commitments, thoracocentesis or chest tube insertions. We present our initial experience using indwelling pleural catheters for the management of pleural effusions that could not undergo pleurodesis. We placed 4 indwelling pleural catheters, some after VATS biopsies or VATS pericardial windows for pericardial effusions coincident with the pleural effusions, but others just with local anaesthetic. The patients had an average age of 69 ± 4 years and had different pathologies such as stage IV lung and ovarian cancer. There were no complications in placing the catheters and their long-term management. All patients were discharged alive and with improvement of their original symptoms. With this procedure there was an improvement in the quality of life of these patients, avoiding many toracocenthesis, and allowed maintaining their palliative chemo treatments. Also there were fewer emergency episodes and re-commitments because of the recurrent pleural effusion. In all the cases there was an easy adjustment to the intermittent drainage system by the patients and their caregivers.

Key words: *Indwelling pleural catheter. Palliative care. Malignant pleural effusion.*

P-042. DIAGNOSIS SUPERIORITY OF ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) COMPARED WITH CONVENTIONAL BRONCHOSCOPIC PROCEDURES IN SARCOIDOSIS. A CASE REPORT

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Bronchoscopy with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) provides reliable access to cytologic specimens from the mediastinal and hilar lymph nodes and has been reported to be an accurate and safe method to confirm a pathologic diagnosis of sarcoidosis. However, few studies have addressed its role in comparison to the traditional diagnostic approaches of transbronchial lung biopsy (TBLB), endobronchial biopsy (EBB), and bronchoalveolar lavage (BAL) in the diagnosis of sarcoidosis. The diagnosis of sarcoidosis is based on a compatible clinical and radiographic presentation with the demonstration of granulomas in 1 or more affected tissues. Previous studies demonstrated that EBUS-TBNA was the most sensitive method for diagnosing stage I and II sarcoidosis compared with conventional bronchoscopic procedures. We describe the case of a previously healthy 28 year old woman, occasional smoker (< 10 pack/year). She was observed by Rheumatologist for clinical symptoms with 4 weeks development characterized by widespread poliatralgias that not relieve with medication (anti-inflammatory and analgesic). Diagnostic tests were requested including a chest radiograph that revealed residual changes in Left Upper Lobe (LUL) with pulmonar hilar enlargement (mediastinal adenopathies?). A Thorax-CT was requested and revealed nodules and micronodules grouped in the LUL associated with volume loss and simultaneously mediastinal and hilar lymphadenopathy (right lower paratracheal, the larger with 14 mm; hilar bilateral, the larger with 15 mm on right side). She was referred to Pulmonology department. The patient was first submitted to a conventional bronchoscopy that didn't reveal endobronchial lesions. Samples performed were: 1. Bronchial aspirated sputum (BAS) microbiology: negative for bacteria, mycobacteria and fungi; 2. Bronchoalveolar lavage (BAL) from LUL with good recover (100/150 mL) and satisfactory for diagnosis: negative citology, with a macrophages predominance (90%) and a CD4/CD8 ratio of 3.39; 3. Blind transbronchial needle aspiration (TBNA) of lymph node stations: subcarinal 7 (3 aspirations) unsatisfactory for diagnostic; right paratracheal 4R (3 aspirations) satisfactory for diagnostic but without recognized abdormalities; 4. Fluoroscopy-guided transbronchial lung biopsy (TBLB) of LUL without histopathological abdormalities. Since it wasn't obtained a diagnosed the patient was submitted to EBUS with "rapid on-site

evaluation" (ROSE). Samples collected were EBUS-TBNA using needle suction (22G) from lymph node station: 4R (size 10.6 mm; short axis, oval, distinct, heterogeneous, with central hilar structure) and 7 (size 13.4 mm; short axis, oval, distinct and homogeneous). Cytopathologist identified granulomas in 4R lymph node aspiration providing sarcoidosis diagnosed. Despite the variety of samples obtained in first bronchoscopy, EBUS-TBNA was superior to blind-TBNA and fluoroscopy-guided TBLB providing sarcoidosis diagnosis from the lymph node station 4R which was previously punctured by conventional bronchoscopy methods. We concluded that EBUS-TBNA alone has a high diagnostic yield with a very low complication rate for patients with suspected sarcoidosis and should be considered first for the histopathologic diagnosis of stage I and II sarcoidosis. This approach to the lymph nodes of the mediastinum allows a definitive diagnosis for most patients using a well tolerated, safe, outpatient procedure.

Key words: *EBUS-TBNA. Conventional bronchoscopy. Sarcoidosis.*

P-043. ALFA 1 ANTITRYPSIN DEFICIENCY AND PROLACTIN. WHEN, HOW AND WHY

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Introduction: Alpha 1 antitrypsin is a protein responsible for the neutrophil elastase inhibition whose deficiency can achieve multiple organs and in the case of the lung, is responsible for the existence of emphysema and chronic obstructive pulmonary disease. This is an underdiagnosed disorder with autosomal co-dominant heritage, whose worldwide prevalence is estimated to range between 1-5%, which is why little is known about the most appropriate time to start replacement therapy or the more accurate tracking.
Objectives: Analyze and characterize the population with alpha 1 antitrypsin deficit under replacement therapy followed up in Pneumology Unit of a Central Hospital. Understanding the impact of the disease in terms of diagnosis and treatment.
Methods: Retrospective analysis of all patients with alpha 1 antitrypsin deficiency that are actually under replacement therapy with prolastin in a Pneumology Department. The authors evaluated demographic characteristics, therapeutic approach and efficacy outcomes.
Results: It was found that 7 patients are actually under alpha 1 antitrypsin replacement therapy, 5 women and 2 men, with 48.9 years old as mean age and ZZ phenotype. Only 1 patient was not smoking, the rest of them were ex-smokers in a smoking cessation program. At diagnosis, it was found that the average plasma level of alpha 1 antitrypsin was 24.86 mg/dL, and the value of FEV1 achieved 45%. In all patients it was found the presence of centrilobular emphysema but on the other hand, bronchiectasis were only present in 3 patients (at the time of diagnosis). One year after treatment with prolastin, it was observed that the average plasma level of alpha 1 antitrypsin was 72.84 mg/dL and FEV1 was 48%. With regard to symptoms, dyspnea was worse in only one patient, in all patients there was a reduction in the number of exacerbations without requiring hospitalization and any patient expressed extrapulmonary deficit of this protein. Three patients had indication to reference to lung transplant consult.
Conclusions: The alpha 1 antitrypsin deficiency is a serious pathology, with achievement of the skin, liver, and especially lung, whose approach depends on an accurate and early diagnosis. In our study, the deficit of this protein reached preferably women and no patients had extra pulmonary complications in the course of disease and treatment so far. Although the benefits verified with the replacement therapy, comproved by the improvement of pulmonary function, the raise of plasma level of alpha 1 antitrypsin and the decrease of symptoms during the treatment, 3 patients had to be referenced to lung transplant consult. However, until this moment, no patient had to be submit to surgery. Perhaps the low prevalence, also found in the reduced number of patients in this sample, alpha 1 antitrypsin deficiency disease is underdiagnosed, which leads to a delay in start of treatment and consequent worsening of the initial symptoms. For these reasons, in the light of current knowledge and the for the uniqueness of each case, the moment when replacement therapy should be started is not exact and more studies are needed to outline a precisely follow-up strategy.

Key words: *Alfa 1 antitrypsin deficiency. Prolactin.*

P-044. ALPHA 1 ANTITRYPSIN DEFICIENCY IN MADEIRA

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Introduction: In Madeira island it is recognized a high prevalence of alpha 1 antitrypsin deficiency (PI*S mutations - 18% e PI*Z - 2.5%). In July of 2014 it was created in our hospital a consultation for the diagnosis and follow up of these patients.
Objectives: Characterization of the patients followed in our consultation.
Methods: Cross-sectional, observational study conducted to patients in this consultation until July 2016. Variables analyzed: age, sex, place of birth, smoking, alpha 1 antitrypsin levels, FEV, liver function, family history and genetic study. The genetic study (detection by qPCR) was held at the Human Genetics Laboratory at the University of Madeira and DNA sequencing in the IPATIMUP laboratory. Data were obtained through the clinical process query and statistical analysis with Excel and SPSS Statistics 18.
Results: 105 patients had low levels of alpha 1 antitrypsin, of whom 53.3% (n = 56) were male. The mean age was 36.6 (± 17.9) years (minimum 5 and maximum of 74 years). Smoking were 10.6% (n = 11) and ex-smokers 17.3% (n = 18). The genetic study revealed: MZ 26,7% (n = 28); ZZ 19,0% (n = 20); SZ – 13,3% (n = 14); SS 4,8% (n = 5); MS 8,6% (n = 9); Mmalton 1,9% (n = 2) and 25.7% (n = 27) are waiting for the results. A family history of the disease was present in most of patients (53.3%, n = 56). Only 7.6% (n = 8) had FEV less than 70% and 11.4% (n = 12) had changes in liver function. Seven patients are in replacement therapy.
Conclusions: This study allows to highlight the importance of a specific consultation for diagnosis and monitoring of patients with alpha 1 antitrypsin deficiency. An effective family tracing is more feasible. Diagnostic criteria and uniform treatment were adopted. Despite the large number of patients with very low values of alpha 1 (ZZ and SZ mutations), it has not shown significant number of patients with pulmonary and/or liver dysfunction.

Key words: *Alpha 1 antitripsin. Madeira.*

P-045. ASTHMA: PECULIARITIES IN THE ELDERLY

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Introduction: Asthma is a chronic airway disease with high prevalence, estimated to affect up to 10 to 12% of the elderly population. Due to the aging characteristics, namely the coexistence of comorbidities, the diagnosis, treatment and follow-up of asthma in the elderly is more difficult and shows remarkable differences when compared to younger patients.
Objectives: To characterize patients aged 65 years-old or older, sent to a first Respiratory Allergology consultation over the past 5 years, who were diagnosed with asthma.

Methods: A retrospective study, analysing medical records of patients sent to a first Respiratory Allergology consultation at the Pneumology Department - Hospital Geral, CHUC from June 2011 to June 2016 who have been diagnosed with asthma and had the following characteristics: 65 or older (age at first consultation), minimum age of onset of 55 years and documented asthma. Demographics, comorbidities, allergen sensitization and clinical variables were analysed with SPSS®.
Results: Included 35 patients, 71.4% were female with a mean age of 70.4 years. Cough was referred in 82.9% of the cases, referred coughing, wheezing in 77.1% and dyspnoea in 71.4% dyspnoea, with a total of 34.3% with nocturnal complaints. Rhinosinusitis was observed in 51.4% of patients, 31.4% had psychiatric disorders, 20% gastro-oesophageal reflux, 11.4% thyroid pathology and 5.7% ACOS. Of notice, the 42.9% overweighted and 31.4% obese patients. Other comorbidities were hypertension in 54.3%, 25.7% with dyslipidaemia, heart failure and atrial fibrillation in 17.1%, sleep apnoea and diabetes in 14.3%, osteoarticular disease, ischemic heart disease and a history of neoplasia in 11.4%. Regarding therapy, 5.7% were under triple inhalation therapy (corticosteroids, anticholinergics and long-acting beta agonists), 60% with inhaled corticosteroids and long-acting beta agonists and 5.7% inhaled corticosteroids alone. Forty percent of patients took antihistaminic drugs, 51.4% nasal corticosteroids, 11.4% leukotriene antagonist and/or aminophylline. Allergen sensitization was documented in 20.0% of patients either by skin prick tests or by specific IgE. Total serum IgE was increased in 20.0% (average of 244.6 IU/ml ± 590.7). Lung function tests revealed obstructive ventilatory changes in 31.4% of patients, reversibility in 30% with moderate obstruction in 45.5% and also 45.5% with mild obstruction; average carbon monoxide diffusion of 97.84% (± 22.8) of predicted value; exhaled nitric oxide (FeNO) was increased in 43.5% (mean 44.8 ± 45.3 ppm) and eosinophilia in 29.0% (average of 257.4 eosinophil cells/ul ± 270.1).
Conclusions: The analysis of the sample shows a high incidence of comorbidities such as rhinosinusitis, gastro-oesophageal reflux disease, psychiatric disorders and overweight/obesity whose presence is important for diagnostic, control and therapeutic purposes. Only 20% of patients had allergic asthma and the majority showed no obstructive pattern. The elevation of IgE, FeNO and eosinophils was present in a minority of patients. Asthma in the elderly remains a clinical entity that is not completely known and therefore will require further work and investigation.

Key words: *Asthma. Elderly.*

P-046. EXHALED BREATH TEMPERATURE IN ASTHMATIC PRESCHOOL CHILDREN

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Introduction: The measurement of the exhaled breath temperature (EBT) has been suggested as an inflammatory marker, particularly in children. It is a non-invasive and easy to use test that possibly reflects inflammatory vasodilation in airway mucosa. Conflicting results have been obtained regarding the association between EBT and the level of asthma control.
Objectives: To assess the association of the EBT regarding the control of the respiratory symptoms and the fractional concentration of exhaled nitric oxide (FeNO), in preschool children with asthma.
Methods: A cross-sectional study was carried out in 98 children with asthma, aged 3 to 5 years, who performed animated spirometry in our Department, between July 2014 and July 2016. The measurements of EBT were compared with the level of asthma control, based in GINA (Global Initiative for Asthma) criteria, FEV_t and FeNO.
Results: EBT measurements were obtained in 88 out of 98 children (90%), 61.4% males, with a mean age of 4.9 years (SD: 0.7). In our sample, asthma was controlled in 51.1% of the studied children. The EBT median in controlled asthmatic children was lower than in non-controlled asthmatic children, 30.2 ºC (p25-p75: 29.6-31.7) vs 31.0 ºC (p25-p75: 30.0-32.2), p = 0.03. EBT was not associated with FEV_1 nor with $FEV_{0.75}$ (p = 0.74 and 0.71), as neither with FeNO (p = 0.95).
Conclusions: EBT was associated with the level of asthma control. No association was found between lung function and EBT neither between FeNO and EBT. Based on our results, the EBT might be a useful biomarker for the monitoring of asthma control, in this age group.

Key words: *Exhaled breath temperature. Inflammation. Preschool asthma. Children.*

P-047. PRACTICE OF SPIROMETRY AMONG PHYSICIANS CARING FOR CHILDREN WITH ASTHMA IN PORTUGAL. THE ESPIROPED SURVEY

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Introduction: Spirometry (SPR) is an underused diagnostic and monitoring tool in patients with asthma in Portugal, especially in the paediatric population.
Objectives: To evaluate and compare current knowledge and practice in SPR prescription and interpretation among four physician groups caring for children and/or adolescents with asthma in Portugal: paediatricians (Ped), pulmonologists (Pn), allergy and immunology doctors (AI) and general practitioners (GP).
Methods: An electronic survey was sent to members of the four national societies. Only completed surveys from doctors following asthmatic children and/or adolescents were considered. Survey items addressed SPR knowledge, accessibility, practices, interpretation, and knowledge of ATS/ERS guidelines on SPR interpretation and execution and national guidelines on the management asthma in adults and children. Survey Monkey® platform was used, with modified Dillman's technique and anonymized data. Descriptive and comparative analysis was done (χ^2 test). A local ethics committee gave approval.
Results: Data from 423 doctors (89 Ped, 40 Pn, 30 AI and 264 GP) was analysed; 4% referred training in Paediatric Respiratory Medicine. Concerning SPR ATS/ERS guidelines, 30% Ped, 90% Pn, 93% AI and 19% GP mentioned knowing about them (p < 0.001); with no differences among groups in the knowledge of national asthma guidelines. Regarding SPR execution, more than 80% of Pn and AI referred having "good/very good" knowledge of this item, whilst 47% Ped and 56% GP considered their knowledge insufficient (p < 0.001). For SPR interpretation, the differences amongst groups was

lower. As to using SPR in asthma diagnosis, 42% Ped, 75% Pn, 80% AI and 53% GP reported its use (p = 0.001) and for severity stratification 43% Ped, 68% Pn, 63% AI e 28% GP (p < 0,001) mentioned they would use it. More than 80% of doctors from all specialities agreed that SPR results would influence therapeutic decisions, valuing the different spirometric indices similarly. Most doctors from the four specialities considered ordering SPR from 5 years onwards. GP were the group most interested in further training in SPR in children [(87% Ped, 68% Pn, 87% AI e 94% GP (p < 0,001)].
Conclusions: AI and Pn reported more familiarity with SPR in asthmatic children than Ped and GP. Acknowledging these limitations will allow implementation of specific SPR dissemination strategies adjusted to each specialty.

Key words: *Spirometry. Asthma. Questionnaire. Paediatrics.*

P-048. PREDICTIVE VALUE OF POST-METHACHOLINE FEV1 DROP IN RESPIRATORY EXACERBATIONS

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Introduction: The bronchoprovocation tests are useful to demonstrate bronchial reactivity (bronchoconstriction) to various stimuli. The methacholine is the most widely used agent in bronchoconstriction tests. It is unknown whether the dose of methacholine used impacts on the number of respiratory exacerbations.
Objectives: Characterize the patients with positive methacholine test and analyze the relationship between the drop in Forced Expiratory Volume in 1s (FEV1) after methacholine challenge and respiratory exacerbations.
Methods: Cross-sectional study with 160 patients who underwent a bronchoconstriction test with methacholine in the period from January 2012 to December 2015. Data were obtained from medical records. Information regarding socio-demographic characteristics, the result of the methacholine challenge (CP20), spirometry results and exacerbations was collected. The Spearman's correlation coefficient was used for variables that did not follow a normal distribution. The t-Student test was used to compare continuous variables with normal distribution and the Mann-Whitney test for variables with non-normal distribution. Proportions were compared using the chi-square test.
Results: Thirty-five patients had a positive methacholine test. Patients with a negative test were excluded. Of those with a positive test 86.7% were female, with an average age of 51.3 (16.2) years and a Body Index Mass of 27.1 (4.6) Kg/m^2. Baseline FEV1 means was 99.1 (13.6), Tiffeneau Index 79.6 (8.9) and median (P25, P75) reduction in FEV1 from baseline was 24% (23:27 respectively). The mean dose of methacholine used in CP20 was 857.4 (547.9)μg. There was a positive correlation between CP20 and baseline FEV1 and a negative correlation between Tiffenau Index and age. It was also found difference between Tiffenau Index and history of hospitalizations. No other statistically significant correlations were found.
Conclusions: In this study it was found that the lower the functional respiratory compromise was, the higher the methacholine dose required for the bronchoconstrictor response was and the lower the incidence of hospitalization history and exacerbations in the previous year and in cumulative value (since 2012). However, given the small sample size, further studies are needed to better ascertain the relationship between the evaluated parameters.

Key words: *Metacholine. PC20. Exacerbations.*

P-049. SPUTUM EOSINOPHILS AND F_ENO IN A PAEDIATRIC SAMPLE OF ASTHMATICS

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Introduction: Most well validated techniques to study eosinophilic inflammation in asthma are Fractional exhaled nitric oxide (F_ENO) and sputum cellularity assessment. F_ENO is a simple and non-invasive method but may be elevated even in the absence of eosinophilic inflammation; Sputum eosinophil count is a more difficult to implement technique, particularly in children, but is seen as the gold standard for identifying airways eosinophilic inflammation and asthma phenotyping[1]. Additionally it has been considered more effective than F_ENO for tailoring asthma treatment.
Objectives: We aimed to assess the feasibility of sputum eosinophil count in a group of asthmatic children and to study the association between F_ENO and sputum eosinophils.
Methods: Thirteen asthmatic children were invited to participate in the study. Sputum induction and cellularity assessment were performed according to European Respiratory Society guidelines[2]. For safety reasons, FEV_1 and SpO_2 were monitored after each five minutes inhalation period. F_ENO was measured with a portable monitor (NIOX-VERO). To study the association between F_ENO and sputum eosinophil count the Spearman rank correlation coefficient (rho) was used.
Results: Eleven out of thirteen participants (85%) were successful in the sputum induction - six boys and five girls, with a mean age of 10.6 (SD: 3.7) years. No adverse events occurred during the induction. From the 11 sputum samples, eight presented eosinophils. The basal median value for predicted FEV_1 was 101% (p25-p75: 94-117%). For F_ENO and eosinophil count, medians were 39 ppb (p25-p75: 10-102 ppb) and 0.9% (p25-p75: 0-2.2%). F_ENO and sputum eosinophil count were positively correlated (rho = 0.64, p = 0.036).
Conclusions: Sputum eosinophil assessment was a safe and successful procedure in this sample of asthmatic children. It was possible to obtain viable sputum cell counts in most asthmatic children. Sputum eosinophils were correlated with F_ENO, reinforcing the quality of the cell count technique. Although the information given by each of these biomarkers might overlap, they measure different parts of the airways inflammation.

Key words: *Asthma. Children. Eosinophil. FENO. Sputum.*

P-050. OMALIZUMAB IN THE TREATMENT OF ALLERGIC ASTHMA. EXPERIENCE IN A PULMONOLOGY DEPARTMENT

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Introduction: Asthma is one of the most common chronic respiratory diseases that results in pulmonary inflammation and reversible lower airway obstruction. Immunoglobulin E (IgE) plays a central role in inflammation. Omalizumab (OMA), a humanized monoclonal anti-IgE antibody, is the preferred add-on therapy for patients with moderate-to-severe persistent allergic asthma and has demonstrated efficacy and safety.
Objectives: To evaluate the efficacy, safety, and tolerability of OMA therapy in patients with moderate-to-severe persistent allergic asthma treated for at least 3 years.

Methods: We retrospectively analyzed the demographic and clinical characteristics of patients medicated with OMA, between 2009 and 2015, in the Pulmonology Department of Centro Hospitalar de São João. The following parameters were analyzed: functional differences, number of asthma exacerbations and asthma control by Asthma Control Test (ACT) at baseline and after 36 months of OMA treatment; Peak Expiratory Flow (PEF) before, 16 weeks, 6, 12 and 36 months after initiation of OMA.
Results: A total of 20 patients received OMA during this period and only 10 are under OMA for at least 3 years. All were classified by GINA with uncontrolled asthma prior to treatment. All of patients were female, with an average age of 55.2 ± 8.4 years (40-67 years). Were found overlapping in the pre-and post-treatment functional assessment (FVC 103.1 ± 8.2% vs 94.9 ± 10.7%, p = 0.161; FEV_1: 72.3 ± 20.6% vs 68.4 ± 21.8%, p = 0.536; FEV_1/FVC: 65.1 ± 11.5% vs 60.7 ± 12.8%, p = 0.945). Significant clinical improvement was observed, with a reduction in the number of exacerbations and hospitalizations, 36 months after the start of OMA (number of exacerbations: 4.4 ± 2.8 vs 0.9 ± 1.1, p = 0.011, number of hospital admissions: 0.4 ± 0.5 vs 0, p = 0.037). At 36 months of treatment, all patients reported better control of asthma (average ACT before vs after OMA: 18 vs 24). There was a gradual increase in PEF in the first 6 months of treatment. Between 6 and 12 months of therapy, this improvement remained stable. After this period, there was a significant improvement in PEF. There were no changes in the inhaled corticosteroids and long-acting beta-agonist doses. Most of patients (90% - n = 9) did not experience any side effects associated with the drug, only one patient required its suspension due to headache. Two patients after OMA cessation showed worsening of asthma control and severe exacerbations.
Conclusions: OMA has shown clinical benefits and favourable cost-effectiveness in patients with moderate-to-severe persistent allergic asthma keeping lung function and improving asthma control with a good safety profile.

Key words: *Asthma. Omalizumab.*

P-051. BRONCHIAL ASTHMA HOSPITAL ADMISSIONS. 2015 IN REVIEW

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Introduction: Bronchial asthma (BA) is a chronic inflammatory disease of the airways that is a major cause of school and labor absence, health costs and according to recent published national data corresponds to 10.6% of all respiratory diseases admissions.
Objectives: Description of patients with Bronchial asthma exacerbation requiring hospital admission in a Pulmonology service during 2015 year.
Methods: The authors carried out a retrospective study through the clinical process consultation and conducted a retrospective evaluation of multiple variables: demographic, clinical, and functional.
Results: The authors evaluated 48 hospital admissions with bronchial asthma exacerbation, corresponding to a total of 39 patients (7 patients with 2 hospitalizations and 1 patient with 3 admissions). Most patients were female (69.2%), non-smokers (53.9%) and have an average of 62 years. The most identified comorbidities were cardiovascular disease and naso-sinus pathology but is was also identified gastroesophageal reflux, depressive syndrome, sleep apnea syndrome and obesity. Most patients had no allergic history, however, there was identified occupational exposure in 4 patients that could worsening asthma symptoms, drinking habits history in 2 patients and previous history of invasive mechanical ventilation (IMV) in 2 patients. The average hospital stay was 8 days with 2 patients requiring Intensive Care Unit admission for IVM. Of the remaining, 6 patients required proximal observation in an intermediate care unit. Stands out the fact that 64.1% of patients were not previously followed in specialty appointment and of these, 56% has not prior inhaled corticosteroids therapy. Regarding the lung function study it was found in the majority of patients bronchial obstruction with bronchodilator reversibility and the average value of forced expiratory volume in 1 second identified was 62.7%. Of all patients' stands out one death in a patient with 88 years old who presented cardiovascular disease during hospitalization stay. After discharge all patients were referred for specialty appointment, however, there was lack of adherence to the appointment or therapy in 20.5% of all patients.
Conclusions: As demonstrated in several documents asthma was responsible for a significant number of hospital admissions, however, when compared with the previous year local data, the values observed show a decrease in the hospitalization numbers. As in other studies it was observed female predominance, a high mean age and the presence of disease severity factors such as: significant percentage of patients with smoking history, lack of adherence to therapy/clinical appointment, lack of previous corticosteroids therapy and presence of comorbidity that may hamper disease control.

Key words: *Bronchial asthma exacerbation. Hospital admission.*

P-052. ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS: TWO CASE STUDIES

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Introduction: Allergic bronchopulmonary aspergillosis (ABPA) is an immunologic pulmonary disorder resulting from colonisation of the airways by *Aspergillus fumigatus* and occurring almost exclusively in patients with asthma or cystic fibrosis. Recognising and treating ABPA early improves the patient's symptoms and avoids permanent lung damage. This paper presents two cases of ABPA with distinct clinical presentations.
Case reports: Case 1: the patient was a 71-year-old, female non-smoker with a history of HIV infection under antiretroviral therapy, type 2 diabetes mellitus and arterial hypertension. The patient had been diagnosed with bronchiectasis and allergic asthma several years before. As she remained symptomatic (although optimised asthma therapy), she was sent to the Pulmonology department. The review of a previous chest CT revealed 13 mm ground-glass infiltrates in the right lower lobe and diffuse bronchiectasis. Due to high suspicion of ABPA, other tests were performed. A skin prick test for A. fumigatus was positive; total serum immunoglobulin E (IgE) was moderately elevated (998 kU/L); specific IgE against *A. fumigatus* was elevated (15 kU/L) and the patient had a history of elevated peripheral eosinophil count. Case 2: the patient was a 72-year-old, female non-smoker, who was sent to the Pulmonology department to investigate a 3 cm suspected cancerous lesion in the left upper lobe. She reported 15 days of continuous chest pain on the left side, aggravated by deep breathing and associated with an increased amount and purulence of sputum. She denied fever and shortness of breath. She had received levofloxacin and oral prednisolone, resulting in short-term improvement. The patient's medical record revealed a history of allergic asthma and rhinitis, which were diagnosed many years prior, medicated and fairly controlled. The physical examination was unremarkable. Transthoracic needle aspiration was performed and the histology was suggestive of eosinophilic lung disease. Further differential investigation was done. She had no prior history of travelling or relevant pharmacologic history. An immunologic study and a parasitology stool analysis were negative. The patient's total IgE was elevated (809 kU/L); specific IgE against A. fumigatus was detectable (15.75 IU/mL) and the patient tested positive for precipitating serum antibodies to *A. fumigatus* and elevation of peripheral eosinophil count. Both cases met the criteria for ABPA;

therefore, both patients received treatment with prednisolone (0.5 mg/kg/day). During the subsequent weeks, the dose was gradually reduced and the patients had clinical and radiological improvement.
Discussion: ABPA diagnosis can be challenging, as there is no individual test or single set of agreed-upon diagnostic criteria to confirm ABPA. High suspicion of ABPA should be maintained while managing patients with asthma or cystic fibrosis, as a delay in ABPA diagnosis may lead to permanent lung damage.

Key words: *Allergic bronchopulmonary aspergillosis. Asthma. Aspergillus fumigatus.*

P-053. BLOOD EOSINOPHIL COUNTS FOR THE PREDICTION OF INFLAMMATION IN ASTHMA

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Introduction: Eosinophils play a central role in asthmatic inflammation. Persistent eosinophilia in the airways of asthmatic patients has been suggested as a predictor of exacerbations and augmented asthma severity. Current available tools for assessment and monitoring of asthma activity do not include biomarkers of the inflammatory process. In the last decade, several biomarkers have been studied in an attempt to fill this gap in asthma management. However, peripheral eosinophilia continues to be the one with the best applicability in clinical practice, thanks to its simplicity, low-cost and wide availability.
Objectives: To describe the profile of blood eosinophil count in a cohort of asthmatic patients and its correlation with other markers of disease activity.
Methods: Clinical records of adult patients diagnosed with asthma and observed in the outpatient setting of our hospital during a period of 6 weeks were retrospectively reviewed. Those patients with at least one complete blood count test were included. Based on the blood eosinophil count, the patients were assigned to three discrete groups: group 1 with eosinophil level inferior to 0.15×10^9/L, group 2 with levels between 0.15 and 0.41×10^9/L and group 3 with level equal or superior to 0.41×10^9/L. For each group, the following parameters were analyzed: atopy, level of IgE, Forced Expiratory Volume in the first second (FEV1), fractional exhaled nitric oxide (FeNO), use of high dose inhaled or oral corticosteroids and number of severe exacerbations in the previous year (treated with systemic corticosteroids or hospitalizations).
Results: The overall sample included 150 asthmatic patients, mainly female (76.7%) with mean age 52 ± 14 years. Ninety seven patients (64.6%) had concomitant rhinitis and/or sinusitis and eight (5.3%) patients had nasal polyps. Most patients (43.3%) were included in group 2, with intermediate blood eosinophil counts. The remaining patients were equally distributed between groups 1 and 3 (28% and 28.7% respectively). Compared with the other groups, the patients of group 3, were significantly more atopic ($p = 0.029$) and had higher levels of FeNO ($p = 0.002$) and IgE ($p = 0.007$). Furthermore, severe exacerbations were twice as frequent in the group 3 as in group 2 (46.5% vs 21.5%; $p = 0.023$). Lung function and use of high dose inhaled or oral corticosteroids did not differ significantly across groups.
Conclusions: The current study suggests a strong correlation between an elevated blood eosinophil count of at least 0.41×10^9/L and the presence of atopy, higher levels of FeNO and IgE as well as higher risk of severe asthma exacerbations. These findings are particularly relevant in the era of anti-eosinophilic therapy, after promising results in asthmatic patients with eosinophilic phenotype. Further research is warranted to establish the clinically meaningful cutoff value for peripheral blood eosinophilia. In the near future, it's likely that the use of a panel of biomarkers will enable a more complete and accurate assessment of asthma, analyzing simply and noninvasively the airway inflammation.

Key words: *Asthma. Blood eosinophil. Severe asthma. Biomarkers.*

P-054. IMPACT OF AGING, RESPIRATORY INFECTION AND COMORBIDITIES IN DURATION OF HOSPITALIZATION IN ADULT PATIENTS WITH ASTHMA EXACERBATION

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Introduction: Over the years, although we did see a reduction in the number of episodes of annual hospitalization for asthma, this decrease is proportionally insufficient aware of the marked therapeutic evolution in this area. There have been few studies investigating the factors that delay recovery from asthma exacerbation in inpatients. In this context, it matters investigate the impact of age, since treatment for elderly patients with asthma is known to be challenging; respiratory infections and comorbidities.
Objectives: The authors examined the factors that prolonged the hospitalization duration for asthma exacerbation in adult patients in 2015.
Methods: The study comprised analyses of twenty-five adult patients with asthma, who needed hospitalization due to asthma exacerbation, and in accordance with the inclusion criteria. They were admitted to the General Pulmonology Unit at Hospital Pulido Valente-North Lisbon Hospital Center, from September 2015 to December 2015. The age was divided into elderly (≥ 65 years) and nonelderly (< 65 years). The number of patients and the duration of hospital stay were analyzed statistically according to age, sex, respiratory infection and comorbidities. The significance of differences was assessed using paired t-test and a difference of p-value (p) < 0.05 was considered statistically significant.
Results: The numbers of females and males were 15 and 10, respectively. The average duration of hospitalization in patients ≥ 65 years was 8.4 ± 2.6 days, and in those < 65 years of age was 5.0 ± 3.4 days ($p = 0.03$). In those < 65 years, from a total of 20 patients, 15 had respiratory infection. The duration of hospital stay in patients < 65 years of age with and without respiratory infection were 5.7 ± 3.2 and 2.8 ± 2.5 days, respectively ($p = 0.06$). For patients < 65 years, at least one co-morbidity of clinical relevance was observed in 75.0% of patients, but at least two in 40.0%, and three or more were found in 25.0% of cases. In the age group of ≥ 65 years, from a total of 5 patients, 2 patients had respiratory infection. The duration of hospital stay in patients ≥ 65 years with and without respiratory infection were 11.0 ± 1.4 and 6.7 ± 2.9 days, respectively ($p = 0.15$). At least three or more comorbid conditions of clinical significance were found in 100% of patients in this group.
Conclusions: The duration of hospitalization in elderly patients was higher than in the nonelderly group. Being elderly is a factor that prolongs the duration of hospital stay for asthma exacerbation and was statistically significant. Regardless of age, respiratory infection was a complication present in 80% of cases prolonging the length of stay in both groups, although not statistically significant. This study also highlights the spectrum of asthma as a multifaceted disease and constituent of a complex component of chronic multimorbidity.

Key words: *Asthma. Asthma exacerbation. Hospitalization.*

P-055. INFLUENCE OF PHYSICAL CONDITION IN TGLITTRE PERFORMANCE IN INDIVIDUALS WITH COPD

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a multi-systemic disease with repercussions on the functional status of the individual with COPD. In order to assess the functional capacity in individuals with COPD and in particular to measure the results of pulmonary rehabilitation programs, the six minutes walking test (6MWT) has been a widely used test, but the walk reflects only a life daily activity (ADL). For a more representative assessment of functional status, based on a set of activities similar to ADL's, such as walking, sit-to-stand, up and down stairs and moving objects with their upper limbs, it was developed the AVD Glittre test (TGlittre). Research proves that the TGlittre is a valid and reliable tool for measuring functional status in patients with COPD, with a strong correlation with the distance in 6MWT. However, the correlation with other components of physical condition, as the dynamic balance and strength of upper and lower limbs, is not yet described.
Objectives: To analyze the relation between TGlittre performance and fitness condition (strength of the lower and upper limbs, dynamic balance and endurance cardiorespiratory) in individuals with COPD.
Methods: A cross sectional study was performed with a sample 12 individuals (7 men, median age of 69,50) with stable COPD, in pulmonary rehabilitation in AIR Care Centre®-Pulmonary Rehabilitation Center of Linde Healthcare. Participants were classified according to the combined evaluation of GOLD (3 subjects A, 4-B, 3-C e 2-D), depending on the future risk (exacerbation in the last year and frequency), the airflow limitation severity (FEV_1) and the presence and intensity of symptoms (breathlessness - Scale modified Medical Research Council (MMRC) or the COPD Assessment Test (CAT)). It was evaluated the time taken to perform the TGlittre, the time obtained in 8-Foot up-and-go test, the knee extension 1RM testing and the handgrip and the distance in the 6MWT.
Results: The TGlittre was not correlated with the knee extension 1RM testing, with the handgrip and with the 8-Foot up-and-go. It was found as expected a significant, strong negative correlation between TGlittre and 6MWT (rs = -0.602; p = 0.038). Despite not being aim of the study, in this sample, there was no significant difference in performance in TGlittre and gender and there was a significant, strong and positive correlation between performance TGlittre and age (rs = 0.64; p = 0.026).
Conclusions: In this sample, the TGlittre was not affected by the physical condition (muscle strength and dynamic balance) but only by age. The small sample is the main limitation of this study, thus reinforcing the need to continue the study. The local muscle endurance tests of upper and lower limbs should also be the subject of study, as they may reflect better the kind of muscle work used in TGlittre.

***Key words**: COPD. TGlittre. Pulmonary rehabilitation. Exercise intolerance. Functional capacity.*

P-056. COPD PREVALENCE IN SMOKERS IN A SMOKING CESSATION CLINIC

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Introduction: COPD is one of the major causes of chronic morbidity and mortality. In Portugal, it reaches 14.2% in individuals older than 40 years. Smoking is the main risk factor, being present in over 90% of cases and about 20 to 50% of smokers will develop airflow obstruction. According to the literature, COPD is generally underdiagnosed, and many patients are diagnosed only when they already lost about 50% of their respiratory capacity. It is essential an early confirmation with spirometry, to slow the natural course of the disease.
Objectives: To determine the prevalence of COPD in smokers over 40 years and higher tobacco intake than 10 pack-year, enrolled in the specialized smoking cessation consultation at *Santo da Serra's* Health Center (SSHC) from 01/01/2014 to 31/07/2016.
Methods: We conducted a cross-sectional observational study in a target population whose inclusion criteria were all smokers over than 40 years, with tobacco exposure higher than 10 pack-year and attending a specialized smoking cessation clinic in SSHC from 01/01/2014 to 31/07/2016. The variables studied were sex, age, employment status, tobacco exposure, age at the beginning of habits, spirometric evaluation and cessation time. The data of the variables in study were coded, recorded and analyzed in Microsoft Excel 2013 software.
Results: In two and a half years, we observed for the first time at the clinic, 139 smokers, of which 60% (n = 83) had more than 40 years and tobacco exposure higher than 10 pack-year. Of these, it was requested a spirometry to 47% (n = 39), having 1 patient refused. Of the 38 performed spirometries, 39.5% (n = 15) had normal lung function, 28.9% (n = 11) had COPD, 7.9% (n = 3) had other respiratory diseases and 23.7% (n = 9) were waiting for the examination to be scheduled or validation of the results. Regarding the 11 smokers with COPD, 73% (n = 8) were male, have an average age of 50 years, 82% (n = 9) are professionally active, average tobacco exposure of 51 pack-year and average age of onset of smoking of 18 years. 18% (n = 2) of patients have quitted smoking for more than 6 months without relapse and 9% (n = 1) dropped out the follow-up consultation.
Conclusions: The results corroborate the COPD underdiagnosis described in the scientific literature, since spirometry was requested to less than half of the smokers who had indication to perform it. To all of those diagnosed with COPD, influenza and pneumococcal vaccines, the practice of physical activity were recommended. The adoption of risk reduction measures, the opportunistic screening and early detection are essential to reduce the incidence and morbility of COPD. These results require a reflection of the research team and the implementation of urgent corrective measures, such as spirometry request for all the risk patients promoting an early detection of COPD and appropriate guidance and treatment.

***Key words**: COPD. Smoking. Smoking cessation. Spirometry.*

P-057. WEIGHT LOSS AND PULMONARY LUNG FUNCTION IN PATIENTS WITH COPD AND CHRONIC RESPIRATORY FAILURE: DESCRIPTIVE STUDY

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Introduction: The chronic obstructive pulmonary disease (COPD) is a heterogeneous disease. Weight loss and low BMI are associated with poor prognosis and increased mortality (Ezzel at al, 2000), however malnutrition is largely under-recognized and undertreated. The pulmonary hyperinflation has important clinical consequences in patients, and could be associated with increased mortality (Celli at al, 2004).
Objectives: The primary end-point of this study was to establish the percentage of weight loss and association with pulmonary lung function in patients with chronic respiratory failure due to pulmonary obstructive pulmonary disease (COPD), over the course of a two-year follow-up period.
Methods: We conducted a descriptive, observational and retrospective study. The target population was composed of patients admitted to chronic respiratory failure hospital appointments. We reviewed all processes, and used SPSS®, version 21 to collect and analyze data. We applied the qui-square test, with

p > 0.05 taken as statistically significant, to study the association between variables.
Results: Eighteen patients were included in the study, out of the total number of enrolled patients (n = 96). The average age was 66.5 years old (σ = 11.72), and the majority of patients were male (66.67%). The average FEV_1 value was 0.73 L (men FEV_1 = 40.81%) and 88.9% had FEV_1 less than 50%. The percentage of FEV_1 loss was 2.32%. The majority of patients had weight loss (n = 10, 55.5%) and the average weight loss was 2.05 Kg (2.99%). Of patients with weight loss, 60.0% had TLC ≥ 120% and RV ≥ 140% (p > 0.05), 100.0% had RV ≥ 140% and 40.0% had CAT score ≥ 20 (p > 0.05).
Conclusions: There is a high prevalence of FEV_1 less than 50% among patients with COPD and Respiratory Failure (88.9%). The weight loss is frequent (2.05 Kg, 55.5%) between those patients. Among the patients with weight loss, we found a high prevalence of pulmonary hyperinflation, although there is no statistical significance. The authors think it is necessary to have more studies to evaluate the impact of weight loss on pulmonary lung function in patients with COPD and chronic respiratory failure.

Key words: *Weight loss. Pulmonary hyperinflation. COPD. Chronic respiratory failure.*

P-058. AWARENESS CAMPAIGNS AND SCREENING ON THE WORLD COPD DAY: A RETROSPECTIVE ANALYSIS

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a major cause of chronic morbidity affecting 14% of the Portuguese population.
Objectives: To analyze the epidemiological, clinical and functional data of the participants in a world COPD day awareness campaign; to determine the prevalence of COPD based on FEV1/FVC < 0.7 and based on functional values below lower limit of normal (LLN); to investigate the Respiratory Health Screening Questionnaire (RHSQ) validity to screen.
Methods: Invite those over 40 years old to answer a questionnaire and perform a spirometry.
Results: Included 193 subjects: 53% were women (mean age: 60 ± 11 years); 19% smokers and 24% former smokers (mean pack-year 20 ± 18); 45% had low education level; mean BMI was 27 ± 4 kg/m^2; 29% had history of respiratory disease and 33% reported a history of allergy. Only 20% acknowledged COPD, 19% spirometry and 22% had actually been previously screened for COPD. 40% reported having passive smoking exposure, 66% reported having smoke exposure from a fireplace or stoves inside home and 61% reported being or having been exposed to noxious gases/particles in their workplaces. Dyspnea was presented in half of the subjects. When asked about the presence of other symptoms, 47% reported having cough, 43% sputum and 42% wheezing. Seventeen spirometries were excluded for not meeting acceptability and reproducibility criteria. A positive RHSQ (> 16 points) was obtained in 50%. Obstructive respiratory syndrome was diagnosed in 10% (n = 19) and 89% (n = 17) had a positive RHSQ. In this sample 42% reported having dyspnea, 47% cough, 58% sputum and 63% wheezing. If we consider the LLN value for diagnosis of obstruction, the percentage of obstructive respiratory syndrome drops to 5% (n = 9). All subjects had positive RHSQ.
Conclusions: The prevalence of possible COPD in the study sample was 10%. If considered the LLN value, the prevalence drops to 5% (n = 9). In patients with functional obstruction the prevalence of symptoms was similar to the entire sample probably reflecting the devaluation of symptoms in these participants. RHSQ showed to be a sensitive screening tool with a hight negative predictive value for the diagnosis of obstruction, as described in the literature, especially If considered the LLN value for diagnosis.

Key words: *COPD. Spirometry. Screening.*

P-059. RISK FACTORS FOR INFECTIOUS EXACERBATIONS IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE GOLD 3 AND 4

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) has an estimated prevalence of 14.2% in the adult population above 40 years old, in Lisbon. Infectious exacerbations of COPD affect disease progression and strongly influence quality of life.
Objectives: Investigate potential risk factors for infectious exacerbations in COPD GOLD 3 and 4 patients.
Methods: Patients with COPD and severe or very severe airflow limitation in pulmonary function tests performed in 2014 were selected. They were characterized with regard to demographics, smoking habits, functional evaluation, comorbidities and treatment. These patients were prospectively followed up for a year and data on infectious exacerbations was collected. Potential risk factors were assessed.
Results: 57 patients were included: 83% were male, mean age was 65.3 ± 9.1 years and mean body mass index (BMI) was 26.7 ± 5.8 kg/m^2. One third were current smokers and mean pack-years was 59.6 ± 29.1. Mean forced expiratory volume in one second (FEV_1) was 38.5 ± 9.3% of predicted, mean residual volume (RV) was 196.5 ± 45.9% of predicted and mean diffusing capacity corrected for the alveolar volume was 59 ± 25.1% of predicted. The most common comorbidities were hypertension (67%), bronchiectasis (39%), anxiety/depression (37%), heart failure (28%), obstructive sleep apnea (21%) and type 2 diabetes (21%). 50 patients (88%) were on inhaled steroids and 43 patients (75%) were on triple therapy (inhaled corticosteroid, long acting β_2 agonist and long acting anticholinergic). 12 patients (21%) were on long term oxygen therapy. 54% had at least one exacerbation in the previous year. During follow-up, mean exacerbation rate of 1.4. Bronchiectasis and at least one exacerbation in the previous year were associated with more exacerbations (1.7 vs 1.2, p value 0.09 and 1.9 vs 0.9, p value 0.007, respectively). We also found a correlation between the number of exacerbations and FEV_1% predicted (r = -0.39), residual volume% predicted (r = 0.31) and diffusing capacity corrected for the alveolar volume (r = -0.31). There was no statistically significant difference between patients with and without exacerbations in terms of age, BMI, smoking habits, use of inhaled steroids or use of supplemental oxygen. Patients with anxiety or depression had a lower mean FEV_1 (36.4 vs 39.8, p value 0.09), a higher proportion of current smokers (0.52 vs 0.19, p value 0.004) and exacerbated more (2.19 vs 0.94, p value 0.002).
Conclusions: Poorer functional evaluation, bronchiectasis and exacerbations in the previous year are associated with a higher risk of infectious exacerbations in COPD GOLD 3 and 4 patients. Patients with anxiety or depression smoke more and have worse functional status which might contribute to a higher rate of infectious exacerbations.

Key words: *COPD. Exacerbations. Bronchiectasis. Functional evaluation. Anxiety. Depression.*

P-060. COPD IN HOSPITALIZED PATIENTS. CORRECT DIAGNOSIS?

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Introduction: Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable disease characterized by progressive airflow obstruction. The diagnosis is often assumed by the presence of a productive cough and dyspnoea in smoking

patients, but the definitive diagnosis requires the use of spirometry with the identification of FEV1/FVC < 0.70. In clinical practice it is common to observe clinical diagnosis of COPD without prior or subsequent spirometric confirmation. Despite the clinical suspicion, spirometry is essential to confirm or rule out the diagnosis of COPD and guide for alternative diagnoses.
Objectives: Evaluate the impact of admissions for COPD in the Internal Medicine Service of a University Hospital and confirm the diagnosis by spirometry in patients admitted with this diagnosis.
Methods: Retrospective study that include patients admitted with a COPD diagnosis, within one year, in a University Hospital. Clinical records of patients admitted with COPD diagnosis, in the Internal Medicine Service, were reviewed with assessment of age, length of stay, mortality and spirometry.
Results: In the period from January 1st to December 31st 2011, there were 1770 hospitalizations codified with primary or secondary diagnosis of COPD, corresponding to 1,421 patients. 569 (32%) of these admissions were in the Internal Medicine Service, 335 (19%) in the Pneumology Service, 127 (7%) in Cardiothoracic Surgery Service, 105 (6%) in the Cardiology Service and 634 (36%) in other services. The mean age was 73.6 years, the average length of hospital stay was 8.7 days, and mortality was 8.7%. With regard to admissions for COPD as a primary diagnosis, there were 245 hospitalizations in the hospital, 81 (33%) in Internal Medicine Service, 148 (60%) in Pulmonology Service and 16 (7%) in other services. During the analyzed period there were 4714 admissions in the Internal Medicine Service. Of these, 569 (12%) were tagged with primary or secondary diagnosis of COPD, 81 (14%) as a primary diagnosis, and 488 (86%) as secondary diagnosis. The mean age of patients admitted in this service with COPD diagnosis was 79.3 years, the average length of hospital stay was 10.5 days and mortality was 8.4%. The 569 admissions in internal medicine corresponded to 433 patients. 103 (23.8%) of these 433 patients underwent spirometry. Of the total number of tests performed, 41 patients (40%) had spirometry consistent with obstructive syndrome, 21 (20%) restrictive syndrome and 41 (40%) were within the normal parameters.
Conclusions: The authors concluded that the diagnosis of COPD is still often established incorrectly and present this study to emphasize the importance of spirometry to confirm and rule out the diagnosis of COPD, so that patients can get appropriate treatment to their disease and its classification.

***Key words**: COPD. Spirometry. Exacerbations. Hospitalization.*

P-061. THE ROLE OF A CLINICAL MANAGEMENT CENTER IN THE TRIAGE OF COPD TELEMONITORED PATIENTS

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Introduction: A triage system allows the management of clinical priorities. Telemedicine is the systematic collection of clinical data from the patient's home and its examination by a healthcare team. It is mainly important in patients who live in remote and rural areas because it allows access to clinical information in real time. COPD exacerbations contribute to disease progression and worse prognosis.
Objectives: To describe the value of a specialized clinical management center (CMC) composed by health professionals, who will triage the received alerts, notify the doctors only regarding the confirmed COPD exacerbations, and stratify them according to their level of severity.
Methods: 15 male COPD ("c" and "d" GOLD) patients were followed, average of 65 years old, living in Alentejo. They were given devices to remotely measure the following bio signals: pulse oximetry, heart rate, blood pressure and temperature. For each patient, individual alert thresholds were defined and calculated. A clinical alert is described as at least one registered bio signal outside of the calculated threshold and a technical alert is defined as the absence of received measurements. Clinical alerts led to a telephone contact with the patient to evaluate symptoms through a clinical questionnaire (including CAT). This allows the confirmation of an exacerbation, according to clinical criteria, and its classification, by the use of a unique algorithm, as level I, II or III in order to refer the patient to the right level of care. In level I exacerbations, remote therapeutic optimizations were carried out. In level II, patients were referred to doctor appointment in the next 24h and in level III, the patients were referred to emergency care. If a technical alert was detected, the patient was contacted to confirm measurement registers and support in problem solving.
Results: During 18 months of monitoring, 1,137 clinical alerts were detected among 31,615 measurements, and only 4.3% were true positives. Of these, 55.1% were level I, 36.7% level II and 8.2% level III. The most common alert was the decrease in average oxygen saturation (greater than or equal to 3%), which occurred in 78% of level II exacerbations and 100% of level III. 1,202 technical alerts were recorded. Alerts related with patient's lack of knowledge regarding technology decreased along the study period, reflecting a learning ascending curve. Increased compliance to telemonitoring was shown by the low number of technical alerts due to demotivation: 4.4%.
Conclusions: Not all bio-signal alterations are translated into an exacerbation, and for that reason clinical triage conducted by patient enquiry is essential. In this type of telemonitoring, a CMC plays an essential role in the identification of real alerts and in the referral to the doctor of a small fraction of critical patients, increasing the efficiency of clinical follow up. Further detailed analysis of individual alert thresholds must be considered in the future.

***Key words**: Telemedicine. Clinical management centre. COPD.*

P-062. COMPARATIVE ANALYSIS OF RESPIRATORY FAILURE IN PATIENTS WITH COPD STAGES III AND IV

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Introduction: Respiratory failure in patients with Chronic Obstructive Pulmonary Disease (COPD) is a poor prognostic factor, being an important cause of mortality in these patients.
Objectives: comparative study of patients with COPD and FEV1 < 50%, with and without chronic respiratory failure (CRF), followed on an outpatient basis.
Methods: This was an exploratory and descriptive analysis. It was included patients with the diagnosis of COPD, with severe (stage III) and very severe (stage IV) spirometric obstruction according to GOLD, who performed pulmonary function study in 2015 in the Santa Marta Hospital and follow-up consultation COPD and/or respiratory failure. The data (clinical and diagnostic tests) were collected after consulting the clinical processes and their analysis was done using SPSS version 20.0. For the study of association between variables, the chi- square test and Mann- Whitney test were applied, with a 5% significance level. Patients under the age of 40, α1 antitrypsin deficiency and other obstructive lung diseases were excluded.
Results: Of 50 patients include, with a mean age of 66.8 years, 41 (82%) were male. Thirty patients (60%) had CRF, of whom 10 (33.3%) global respiratory failure. In the group with CRF, 15 patients (50%) had excess weight or obesity and five (16.7%) low weight. In the non-CRF patients, the majority, 13 (65%) had normal weight and

none were underweight (p 0.038). The remaining data are presented in the table.

	CRF	Non-CRF	p value
Mean age, years	67.5	68	0.86
Active smoking	8 (26.7%)	7 (35%)	0.37
Number of pack year	47.5	63.5	0.113
FEV 1, %	30.8% ± 8.5 DP	37.1% ± 7.7 DP	0.015
RV, %	192% ± 57 DP	174% ± 41.6 DP	0.394
DLCO, % (n = 20)	47.7%	27.4%	0.019
6-minute walk test, meters (n = 26)	306.8	383	0.013
Obstructive Sleep Apnea Syndrome	4 (13.3%)	1 (5%)	0.32
Heart Disease	5 (16.7%)	2 (10%)	0.41
Exacerbator phenotype	15 (50%)	4 (20%)	0.031

Conclusions: The prevalence of CRD in patients with severe and very severe COPD in this sample is high (60%). Comparing the data presented, patients with CRD have more severe bronchial obstruction are more exacerbators and run shorter distance in 6-minute walk test, with statistical significance. This group also has greater prevalence of obesity and lung hyperinflation, although without reaching statistical significance level. The highest value of DLCO in patients with CRF was not expected; but these patients have more severe bronchial obstruction and lower lung volumes, and it was not possible to estimate the DLCO in a large percentage of these patients, making the sample bit representative. Our sample was few, making necessary prospective and randomized studies. These data come to reinforce the concept of heterogeneity in patients with COPD and understanding of risk factors for respiratory failure.

Key words: *Chronic Obstructive Pulmonary Disease. Functional evaluation. Severe/very severe obstruction.*

P-063. PREVALENCE OF CHRONIC OBSTRUCTIVE LUNG DISEASE (COPD) IN PATIENTS HOSPITALIZED BETWEEN 2000 AND 2015

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Introduction: In people over 40 years the COPD has a prevalence of 14.2% and increasing with age and use of tobacco reaching 30.8% in the age of 70 overall and 47.2% in male. The purpose of this study is to evaluate which the prevalence of this disease in hospitalized patients (HP).
Methods: Retrospective study based on data extracted from anonymised database of homogenous diagnostic groups concerning all cases of COPD hospitalization recorded in the period between 2000 and 2014. The following variables were analysed: age groups (G1-between 19 and 40; G2-between 41 and 65; G3-between 66 and 80 and G4-more than 81 years), sex (S), hospital stay (HS), mortality (MO). The ANOVA model and the chi-square model with significant values of p < 0.01 are used ("two-tailed probabilities").
Results: The % of COPD in the HP increased from 18.7% in 2000 to 38.6% in 2015 (p < 0.01). There were different evolutions in each age group (G1-between 3.7 and 7.6%, G2-between 15.4% and 26.4%, G3-between 33.3% and 52.5% and G4-between 44.2% and 70.2%, p < 0.01). The HS has constant over the study period except in G1 that drop from 11 to 8 days. The patients with COPD have higher HS than the others. We found that the difference were 2 days in G4, and 4 days in the others groups. The % of smokers increase in all groups (G1-4.7 to 17.6%, G2-6.3 to 24.3%; G3-2.3 to 9.7% and G4-0.5% to 2.7%, p < 0.01). In patients with COPD the% of smokers are 2-3 times higher than in patients without COPD and in G1 and G2 groups there was a predominance of males. The presence of COPD increases mortality in all groups, namely in G1-0.4 to 4%, G2-2.4 to 7.7%, G3-6.0 to 14% and in G4- 15% to 24%. We found a decrease in the mortality associated with COPD between 2000 and 2013.
Conclusions: COPD is a disease of high prevalence in inpatients, and being a very important factor in increasing the HS and the mortality. The tobacco consumption, as the vast scientific evidence demonstrates, presents itself as an important determinant in this disease.

Key words: *COPD. Prevalence. Patients hospitalized.*

P-064. THERAPEUTIC SUBGROUPS IN COPD

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Introduction: In the Chronic Obstructive Pulmonary Disease (COPD), the severity of obstruction, symptomatology, number of exacerbations and patient hospitalisations, and co-morbidities allow the differentiation of patients into therapeutic subgroups. In addition to establish patient risk, this strategy also allows the development of personalised treatments.
Objectives: Classification of acute exacerbation COPD (AECOPD) inpatients in therapeutic subgroups.
Methods: Retrospective analysis of medical records of patients admitted for AEDPOC in Pneumology B Unit between January 2014 and December 2015. Demographic, functional and clinical data were analysed. Statistical analysis was performed using Microsoft Excel®. Subgroups were established in accordance with the guidelines defined by COPD research group as: AX1 (FEV1 > 80%) and AX2 (50% < FEV1 < 80% and/or annual FEV1 deterioration); BX1 (mMRC = 2 and FEV1 > 70% without cardiovascular co-morbidities) and BX2 (mMRC > 2 or FEV1 < 70% or cardiovascular co-morbidities); C1 and D1 (bad respiratory function); C2 and D2 (exacerbators) and C3 and D3 (both).
Results: The study included 122 patients (80.3% male), aged 41 to 93 years. Regarding the therapeutic subgroups, 4 patients (3.3%) were classified as group A (AX2), 26 (21.3%) as group B (1.6% BX1 and 19.7% BX2), 13 (10.6%) as group C (4.9% C1 and 5.7% C2) and 79 (64.7%) as group D (27% D1, 11.5% D2 and 26.2% D3). The most common co-morbidities found were hypertension (60.7%), heart failure (HF) (54.9%), depressive syndrome/anxiety (34.4%), emphysema (32.8%), atrial fibrillation (AF) (32.8%), diabetes mellitus (DM) (19.7%), bronchiectasis (14.8%), OSA (12.3%), ischemic heart disease (11.2%) and obesity (10.7%). Regarding hypertense patients, 24% were classified as group BX2 and 52% as group D (20% D1 and 32% D3); 27% of the patients with HF were classified as group BX2 while 27% were group D1; 19% of the depressive syndrome/anxiety were group BX2 and 59% were group D (40% D1 and 19% D3); 30% of patients with emphysema were classified as group D1, 23% of patients with AF as group BX2 and 67% as group D (23% D1 and 35% D3), DM patients 16% as group BX2 and 66% as group D (33% D1 and 33% D3), bronchiectasis 78% as group D, OSA 27% as group BX2 and ischemic heart disease 70% as group BX2. Regarding the treatment, 2.5% of the patients were medicated with LAMA, 9% with LAMA/LABA, 12.3% with ICS/LABA and 76.2% with

LAMA+LABA+ICS. 59.1% of patients were under home oxigenotherapy (75% belonging to group D) and 47.5% were under ventilotherapy (72% belonging to group D).
Conclusions: The majority of AECOPD inpatients were classified as BX2, D1 and D3. Among these, most patients were under triple therapy (LAMA+LABA+ICS), in agreement with their status as group D patients. Patients under oxygen- and/or ventilotherapy were also mostly in this group. Co-morbidities were mostly found in groups B and D, namely BX2, D1 and D3, the most frequent being hypertension and heart failure.

Key words: *COPD. Therapeutic subgroups. Co-morbidities.*

P-065. CHALLENGES IN SPIROMETRY QUALITY CONTROL IN CHILDREN. WHAT ARE THE CLINICAL IMPLICATIONS?

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Introduction: The reliability of spirometry is dependent on strict quality control (QC) during execution. It has been suggested that ATS/ERS QC criteria are too demanding for the paediatric population.
Objectives: Calculate the success rate in spirometry execution in a paediatric lung function laboratory (PLFL), report compliance with spirometry QC criteria and identify the least fulfilled criteria.
Methods: Pre-bronchodilation spirometries performed in children from January-March 2016, age groups: A 3-5 years, B 6-10 years and C 11-18 years, were assessed. We recorded: start of test criteria [back-extrapolated volume (BEV), peak expiratory flow (PEF) and artefacts], end of test criteria [forced expiratory time (FET), early termination, presence of plateau (group C)] number of acceptable and reproducible manoeuvres and number of visits to the laboratory. Descriptive and comparative (χ^2 test) analysis was done (SPSS® 21.0).
Results: After sample size calculation, 214 spirometries were reviewed: 13 (6%) group A (median age 5, min 4 max 5 years), 81 (38%) group B (median age 9, min 6, max 10 years) and 120 (56%) group C (median age 13, min 11, max 18 years); 124 (58%) were male. All acceptability and reproducibility criteria were achieved in 143 (67%) spirometries [group A, 9 (69%), group B, 59 (73%) and group C 75 (63%)], no significant differences amongst age groups were present (p = 0,271) or regarding the previous number of visits to the PLFL (p = 0,306). Start of test criteria were satisfied in over 90% of cases and the end of test criteria were the least fulfilled [FET 166 (78%), absence of early termination 174 (81%) and in group C plateau 77/120 (64%)]. Concerning the spirometries that did not fulfil QC criteria [71 (33%)], only 7 (9%) did not comply with any criteria. Of the spirometries that partially fulfilled QC criteria, 58 (82%) obeyed all start of test criteria [BEV 62 (87%), PEF 62 (87%) and free from artefacts 58 (82%)]. Only 3 (4%) fulfilled all end of test criteria [FET 29 (41%), absence of early termination 32 (45%) and in group C plateau 2/45 (4%)]. In group A, 2/4 (50%) fulfilled start of test criteria and none fulfilled the end of test criteria; in group B, 15/22 (68%) complied with start of test criteria and none fulfilled the end of test criteria; in group C, 41/45 (91%) fulfilled start of test criteria and only 2/45 (4%) obeyed end of test criteria. In the tests where only one of the QC criteria were not attained, that criteria were FET in group B 7/22 (32%) or plateau in group C 17/45 (38%).
Conclusions: 2/3 of children attained age-related spirometry quality control criteria as defined by international guidelines, ATS/ERS 2005 and 2007. The end of test criteria, FET and plateau, were the least fulfilled, as has been previously described in the literature. The clinical repercussion of these findings must be further evaluated.

Key words: *Spirometry. Quality control. Paediatrics.*

P-066. PREDICTIVE FACTORS OF A POSITIVE METHACHOLINE CHALLENGE RESPONSE BASED ON DATA FROM A BASELINE LUNG FUNCTION TEST

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Introduction: Airway hyperresponsiveness (AHR) is defined as an excessive response to an aerosolized agent that elicits little or no response in a normal person. Methacholine Challenge Testing (MCT) is one method of assessing AHR that is one of the features that may contribute to a diagnosis of asthma. However MCT has some handicaps: high economic costs, involves a complex process of preparation, a rationalizing use of the substance, requires time to perform with qualified technician and can only be performed in specialized centers.
Objectives: The aim of this study was to identify predictive factors of a positive MCT on data from a baseline lung function test (LFT).
Methods: Between 2011 and 2015, a total of 447 patients underwent MCT (on a pletysmograph Masterscreen VIASYS with APS, using an adaptation of the short protocol from ATS/1999 by VIASYS plus addition of one dose, and the agent was Provocholine® 16 mg/ml) after performing a baseline LFT (according to ATS/ERS 2005). The test was considered positive when a decrease of at least 20% of the baseline Forced Expiratory Volume on the 1st second (FEV_1) occurred. t-test with a significant level of 95% ($p < 0.05$) was used to work data statistically.
Results: A positive MCT was observed in 252 subjects (56.4%) with a mean age inferior to the group with negative response (35.2 years versus 42.2 years). Positive MCT correlated statistically with age (p = 0.000) and the following LFT values FEV_1% (p = 0.001), FEF50% (p = 0.001), RV% (p = 0.049) and airway resistance (Raw) (p = 0.005). However lung inflation and specific conductance (sGaw) had no correlation with MCT.
Conclusions: The knowledge of which lung function parameters can predict a positive response to MCT is important in order to allow physicians and laboratories to prioritize patients and optimization of resources.

Key words: *Predictive factors. Methacoline.*

P-067. COMPARISON OF PATIENTS REFERENCED TO PULMONARY REHABILITATION ACCORDING TO MICROBIOLOGICAL ISOLATION

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Introduction: Pulmonary rehabilitation (PR) is now established as a reference treatment in patients with stable chronic respiratory disease as well as during exacerbations.
Objectives: Compare demographic characteristics and respiratory function parameters between patients with and without isolation of microorganisms in respiratory specimens.
Methods: Retrospective analysis of medical records of patients referenced to PR between 2013 and 2015. Demographic data, respiratory disease, program duration, exacerbations during program and respiratory function parameters were collected. The data was analyzed before and after PR taking into account isolation (I) or non isolation (NI) of microorganisms in respiratory specimens before or at the beginning of PR.
Results: A total of 209 patients were referenced to PR: 57.4% (n = 120) presented microorganisms' isolation (I) vs 42.6% (n = 89) (NI).

67.5% (n = 141) were male, with a median age of 61.0 years (20-83 years). Of these patients, 53.1% (n = 111) were ex-smokers, 26.8% (n = 56) nonsmokers and 16.2% (n = 34) were lung transplant candidates. Chronic Obstructive Pulmonary Disease (COPD) was the most frequent disease (44.5%, n = 93), followed by bronchiectasis (29.7%, n = 62) and diffuse pulmonary disease (6.7%, n = 14). The median duration of the program was 12 weeks and 83.7% (n = 175) of patients concluded it. In the first evaluation, median values of FVC, FEV_1 and FEV_1/FVC were 70.0%, 37.6% and 45.3%, respectively, and at the end of PR were FVC 73.4%, FEV_1 37% and FEV_1/FVC 43.7%, which was not statistically significant. During PR program, 29.5% (n = 62) presented at least one exacerbation of respiratory symptoms. Gender distribution was similar in both groups (NI vs I: men 67.4% vs 67.5%, women 32.6% vs 32.5%). There were no statistically significant differences in relation with age (NI: 61.2 ± 11.3 vs I: 58.5 ± 14.6 years, p = 0.122), in exacerbations during PR or in program cooperation. The most prevalent disease in NI was COPD (56.2%, n = 50) and in I was bronchiectasis (43.3%, n = 52). We found no difference in the functional assessment before and after PR between groups (NI vs I before: FEV_1: 41.3 ± 18.6% vs 41.8 ± 16.7%, p = 0.83; FVC: 70.9 ± 19.4% vs 69.2 ± 19.0%, p = 0.55, FEV_1/FVC: 49.4 ± 22.1% vs 49.2 ± 16.2%, p = 0.93 and after: FEV_1: 41.3 ± 20,0% vs 43.2 ± 17.2%, p = 0.55; FVC: 72.1 ± 22.1% vs 72.0 ± 21.5%, p = 0.99, FEV_1/FVC: 47.9 ± 23.11% vs 48.0 ± 14.9%, p = 0.987). There was a statistically significant difference in the 6-minute walk test values between the two groups before and after PR (I vs NI before: 372.3 ± 130.5m vs 322.2 ± 132.4m, p = 0.011 and after: 391.6 ± 120.6 vs 350.7 ± 113.0m, p = 0.036).

Conclusions: Cooperation was generally satisfactory. In the NI group, COPD was the most frequent disease and its systemic impact may explain the lower exercise capacity in this group of patients.

Key words: *Pulmonary rehabilitation. Microbiology. Lung function.*

P-068. IMPACT OF NOCTURNAL NON INVASIVE MECHANICAL VENTILATION IN TRANSCUTANEOUS CO2 VALUES IN PATIENTS WITH CHRONIC RESPIRATORY FAILURE

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Introduction: The Non-invasive Mechanical Ventilation (NIV) is a major therapeutic procedure for the treatment of chronic respiratory failure (CRF). The positive effects of NIV usually appear after the first use, maintaining long-term physiological benefits. One of the goals is the reduction of hypercapnia. Transcutaneous CO2 measurement (PtCO2) is a simple technique, and a noninvasive monitoring of ventilatory efficiency which has been shown to be reliable and comparable with the values obtained in arterial blood gas analysis.

Objectives: Assess the CO2 values evolution in patients with chronic respiratory failure before and after adaptation to NIV in the laboratory and after 1 month of use (follow-up).

Methods: Retrospective analysis including patients with CRF and specific criteria for domiciliary ventilation evaluated by arterial blood gas analysis, sleep study/nocturnal oximetry and respiratory function tests. All patients were adapted to NIV in the laboratory over a period of 1 to 2 hours with monitoring and recording of oximetry values (SpO2), PtCO2, Respiratory rate (Fr), Tidal volume (Vt) and Air leaks. Ventilatory pressures were gradually increased and adjusted according to the monitored values and patient comfort. The PtCO2 values were further evaluated within 1 month of follow-up and were also recorded nocturnal SpO2, Apnea-Hypopnea Index (AHI) and the average daily use of NIV.

Results: 87 patients (64.4% women) with CRF and an average age of 70.1 ± 9.9 years were included. The mean baseline AHI and nocturnal SpO2 were 31.9 ± 29.2 events/hour and 86.2 ± 7.1%, respectively. Mean values of IPAP and EPAP measured after adaptation to NIV were 19.2 ± 4.2 cm H2O and 7.3 ± 2.1 cmH2O, respectively. Mean NIV daily use was 6.7 ± 3.2 hours. Statistically significant differences were found between the mean values of PtCO2 before and after adaptation to NIV in laboratory: 52.1 ± 7.4 mmHg vs 43.9 ± 8.2 mmHg (p < 0.001). In the follow-up period of 1 month there were significant differences in PtCO2 values (45.0 ± 6.6 mmHg, p < 0.001), AHI (4.0 ± 4.7 events/hour, p < 0.001) and nocturnal SpO2 (92.5 ± 3.3%, p < 0.001). Significant correlations were observed between the PtCO2 values after 1 month of follow-up with mean NIV daily use (r = 0.421; p < 0.001).

Conclusions: Despite the great heterogeneity of diagnosis causing CRF, this study confirms that NIV significantly improves a number of physiological parameters in patients with CRF and has a significant impact on decreasing PtCO2 values that may remain after 1 month if there is good adherence to therapy. Thus, non-invasive monitoring of CO2 values should be used in assessing NIV and studies to prove its usefulness in following these patients at long-term will be required.

Key words: *Transcutaneous CO2 (PtCO2). NIV. IRC. AHI.*

P-069. INFLUENCE OF BODY MASS INDEX OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE UNDER PULMONARY REHABILITATION PROGRAM

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Introduction: The benefits of pulmonary rehabilitation (PR) are well established in the management of chronic obstructive pulmonary disease (COPD), an entity that is invariably associated with multiple co-morbidities. Among these, are the related to the nutritional status of patients, including malnutrition and weight excess/obesity, and information regarding to its impact on exercise capacity during a PR program is scarce.

Objectives: Clinical and functional characterisation and determination of the influence of nutritional status of COPD patients, including malnutrition and weight excess/obesity, on performance and exercise capacity during the PR.

Methods: Evaluation of patients who were enrolled and completed PR program from 2013 to 2015. We recorded functional values, blood gas analysis and six minute walking test (6MWT) data before and after the program ending. Patients were classified according to their body mass index (BMI) as malnourished if BMI < 18.5 kg/m^2, or overweight/obese if BMI > 25 kg/m^2.

Results: We included 45 patients with a mean age of 65.3 (± 9.9) years, of which 37 (82.2%) were male. The majority (n = 43) had a severe obstructive ventilatory defect, with mean baseline FEV_1 of 33.2% (± 9.4) and FVC of 74% (± 18) and RV of 235.1% (± 61.4). The median duration of the program was 12 weeks. Initial 6MWT with mean walked distance of 355,2 (± 101.7) meters. The mean difference of the walked distance after the program ending was 25 (± 67.9) meters. Regarding nutritional status, 11 patients (24.4%) presented themselves malnourished, 11 (24.4%) with overweight and 4 (8.9%) obese. There were no statistically significant differences neither in initial or final exercise capacity nor in the increase of exercise capacity after the PR program evaluated by the 6MWT among patients with malnutrition (respectively, p = 0.302, p = 0.909, p = 0.257), overweight/obesity (respectively, p = 0.673, p = 0.722, p = 0.312) nor between patients with ideal weight and the

remaining (respectively, p = 0.612, p = 0.651, p = 0.965). Also, there were no significant differences between the FEV_1 values, FVC or gasometric for each BMI group (respectively, p = 0.51, p = 0.258, p = 0.206).
Conclusions: In the studied patients with COPD, the nutritional status assessed by BMI was not associated with significant differences neither in gasometric or functional findings nor in the 6MWT walked distance, requiring more specific assessments of body composition to determine its influence on exercise capacity.

Key words: *COPD. Pulmonary rehabilitation. Body mass index.*

P-070. *MYCOBACTERIUM ABSCESSUS* LUNG DISEASE: A CASE REPORT

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Introduction: Rapid-growing mycobacteria (RGM) are ubiquitous environmental pathogens whose role in human disease is increasingly recognized and *Mycobacterium abscessus* accounts for approximately 60 to 80% of lung disease by RGM. The American Thoracic Society (ATS)/Infectious Diseases Society of America (IDSA) recommends multiple intravenous treatment with amikacin, cefoxitin or imipenem and an oral macrolide. Treatment of *M. abscessus* lung's disease is challenging, given the need for a prolonged intravenous treatment and the resistance to several antibiotics, which establishes a high failure rate. The identification of the subspecies can be crucial, given the different patterns of antibiotic susceptibility and prognosis.
Case report: A 38-year-old female, with history of diffuse cylindrical bronchiectasis of unknown etiology, in follow-up on Pulmonology consultation since 2007. She was diagnosed with pulmonary infection with *Mycobacterium avium* in 2008 and treated during a year. *Mycobacterium abscessus* was isolated (in March and August of 2012) with positive bacilloscopy, concurrently with clinical, functional (FVC 79%, FEV1 59%, TI 64%) and radiological deterioration with appearance of diffuse tree-in-bud pattern and increase of bronchiectasis with mucoid impaction. In September she was admitted to hospital to mycobacteriosis' empiric intravenous antibiotic treatment: cefoxitin 200 mg/kg/day, amikacin 10 mg/kg/day and clarithromycin 500 mg 12/12h. Given the good clinical response and drug tolerance, the patient was discharged after 14 days and remained receiving intravenous treatment at the local health center. In October, a pruriginous rash appeared on the upper limbs and abdomen, so the treatment was temporarily replaced by an oral scheme with ciprofloxacin and doxycycline, maintaining claritomicine. As full resolution of the rash, imipenem 500 mg/8h was initiated, amicacine resumed and clarimomicine replaced by azithromycin 250 mg/24h. The antibiogram from November of 2012, revealed sensitivity to amikacin and clarithromycin and resistance to ciprofloxacin and sulfamethoxazole and identification of the subspecies: *Mycobacterium abscessus massiliense*. Intravenous therapy was maintained until January of 2013, when was implemented oral therapy with azithromycin 250 mg/24h and doxycycline 200 mg/12h, after confirmation of the first negative culture (from October 18th of 2012). The patient revealed progressive clinical and radiological improvement, without new exacerbations. The treatment was suspended after one year and six months. Presently, the patient maintains respiratory clinical stability, without new microbiological isolations in sputum and lung function improvement, with the last functional evaluation from March 2015: FVC 101%, FEV1 83% and TI 70%.
Discussion: *M. abscessus* lung's disease is rare in Portugal and with specific features regarding to the treatment. This clinical case highlights the feasibility of intravenous prolonged treatment in an outpatient setting, good tolerance and efficacy and absence of recurrence after 4 years of follow-up. This case is in line with recent reports of better prognosis associated with infection by *Mycobacterium abscessus massiliense*.

Key words: *Rapid-growing mycobacteria. Mycobacterium abscessus.*

P-071. IT CAN ALWAYS BE TB? PSEUDOMONAS INFECTION MIMICKING TUBERCULOSIS REACTIVATION

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Introduction: Respiratory infections may have an atypical presentation in patients with a complex medical history who are immunocompromised. We present the case of an 88-year-old fully active retired lawyer with cough and small amount of haemoptysis.
Case report: He was an ex-smoker of 50 pack year with a past medical history of pulmonary tuberculosis six years prior to presentation. He had bronchiectasis post tuberculosis together with chronic renal failure with GFR of 24ml/min, multiple myeloma, ischaemic heart disease, hypertension, non-insulin dependent diabetes mellitus and biliary stenosis with permanent stenting. On presentation the patient had a 3-week history of tiredness and showed low grade fever on admission. Chest X-Ray showed bilateral bronchiectasis and chest CT showed cavitating nodules with bilateral lower lobe condensation. He was initially suspected of having reactivation of tuberculosis, hence, he was isolated and an active search for mycobacteria was started. Surprisingly his sputum cultures were negative for acid fast bacilli, together with bronchoalveolar lavage but both medium isolated *pseudomonas aeruginosa* with the same antibiotic sensitivity profile. Although he was already on broad spectrum antibiotics these were adjusted to the isolated agent. The patient became apyrexial within 24 hours, his inflammatory markers normalized and he became clinically asymptomatic. Further investigations included negative blood cultures, normal bronchoscopy and echocardiogram. Despite his fast and surprising recovery co-infection with tuberculosis was still suspected and blood cultures in BACTEC medium were performed as well as transbronchial biopsies for citology and mycobacteria which came back negative for neoplasia and tuberculosis. Having made a full recovery, the patient was very keen on early discharge, however, he completed a 2-week course of tazobactam+piperacillin and linezolid having been discharged with ciprofloxacin in order to achieve a 3-week antibiotic course.
Discussion: We believe his past medical history caused the patient to become significantly immunocompromised and together with post tuberculosis bronchiectasis these lead to an atypical presentation of *pseudomonas aeruginosa* infection.

Key words: *Tuberculosis. Pseudomonas. Immunocompromised.*

P-072. GUILLAIN-BARRÉ SYNDROME AND PULMONARY TUBERCULOSIS: A RARE ASSOCIATION

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Introduction: Guillain-Barre Syndrome (SBG) is the most common cause of muscle paralysis. In 60% of cases, it is possible to identify a previous question, in most cases, infectious (bacterial or viral).

Case report: Male, aged 80, history of silicosis, hypertension, dyslipidemia and benign prostatic hyperplasia, visited the emergency department (ED) in early October 2015 with headaches affecting the whole head, progressive asthenia and productive cough with purulent features, that had begun 3 days before. Additionally, he had episodes of diarrhea for 2-3 days about a week ago and a respiratory infection about a month ago, treated with amoxicillin-clavulanic Acid. He presented decreased muscle strength of the lower limbs with inability to maintain the standing position. The chest X-ray showed a condensation on the right lung base and analytically an elevated CRP (71 mg/L). It was interpreted as a community-acquired pneumonia and piperacillin-tazobactam was started. Still in the ED, a sudden onset of decreased muscle strength in the upper limbs was observed. After observation by the Neurology assistant tetraparalysis and arreflexia (grade 3-4, distal and proximal) was diagnosed, without sensory level, sphincter or cranial nerve changes. Brain CT scan showed no change and the CSF showed albumin-cytological dissociation. The diagnosis of SGB with acute onset was made. The patient was admitted in the Intensive Care Unit (ICU) to start intravenous immunoglobulin therapy and in the set of possible need for invasive ventilation, given the development of respiratory failure. In this unit, and after the first dose of immunoglobulin, he developed an anaphylactic reaction with the need for invasive ventilatory support. The prophylaxis for immunoglobulin-allergic reaction was started, making it possible to complete the 5-day treatment. The patient was extubated on day 7 and discharged from the ICU four days later. The electromyography revealed criteria for electrophysiological diagnosis of acquired sensorimotor polyneuropathy, especially in the lower limbs and with acute onset. The microbiological and immunological studies were inconclusive - immunity was found for CMV, EBV, HBV, HSV and *Campylobacter jejuni*, screening for influenza A and B was negative as well as for *Chlamydia* and *Mycoplasma*. The patient maintained a good response during the remaining hospital stay (46 days in total), completing 14 days of antibiotics. At the time of discharge he had tetraparesis (degrees 2+ to 3+) but allowing walk, and hypoesthesia in both hands and feet. On January 2016, the chest CT scan revealed persistent pulmonary consolidation and micronodular pattern in the right upper lobe, already present in CT scan of September 2015. Bronchoscopy was performed and the bronchoalveolar lavage revealed Mycobacterium tuberculosis (positive for direct, PCR and cultural examination). Antituberculosis drugs were started and, to date, he is stable without recurrence of neurological symptoms. Considering the temporal coincidence and the results of the examination, the clinical findings were interpreted as SGB associated with pulmonary tuberculosis (PT).
Discussion: SGB and TP association is not fully understood and only a few cases are described. Tuberculosis should be considered as a possible related disease in the evaluation of patients with GBS, especially if infectious causes are suspected.

Key words: *Guillain-Barré syndrome. Pulmonary tuberculosis. Polyneuropathy.*

P-073. IMMUNOSUPPRESSION ADJUSTMENT IN INFECTION IN LUNG TRANSPLANT RECIPIENTS. IMPLICATIONS

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HSJ.

Introduction: Opportunistic fungal infections due to immunosuppression, such as invasive aspergillosis, often happen in lung transplant patients. The reduction/withdrawal of immunosuppressive drugs can lead to an immune reconstitution syndrome (IRS), mimicking the worsening of infection. If not recognized as an inflammatory entity, therapeutic failure or infection recrudescence may be assumed.

Case reports: Two cases of possible IRS in lung transplant patients treated with steroid, tacrolimus and mofetil mycophenolate, are described. Sixty nine year-old female, right lung transplant patient for idiopathic pulmonary fibrosis, under prophylactic inhaled amphotericin, was admitted in the context of a respiratory infection in the 10th month after transplant. *Pseudomonas aeruginosa* was isolated in sputum and antibiotic was initiated according to the susceptibility test. Due to clinical and radiological worsening, a thorax CT scan was performed showing consolidation in the left inferior lobe with consolidation foci in the remaining lobes of the native lung and vancomycin and voriconazole were associated. Immunosuppressive doses were adjusted for a possible fungal infection. The patient maintained radiological deterioration needing invasive mechanical ventilation (IMV) and intensive care unit (ICU) admission. Bacteriological cultures were negative and an *Aspergillus fumigatus* was isolated in bronchoalveolar lavage (BAL). In the 4th day in ICU, liposomal amphotericin was initiated and the immunosuppresion was reduced to minimal therapeutic levels. After initial recovery, there was clinical and radiological worsening with negative BAL microbiology tests. The patient died in the 14th day in the ICU. Forty eight year-old man, bilateral lung transplant recipient due to suberosis. Admitted in the 6th month after transplantation with necrotizing pneumonia with respiratory failure. Broad spectrum antimicrobials were initiated and the immunosuppresion was reduced to minimal therapeutic range. The initial microbiological screening was negative. The patient was admitted in an intermediate care unit to initiate non invasive ventilation (NIV). Right pulmonary infiltrate evolved to all lung opacity with necrosis, cavitation and ground glass. A *Pseudomonas aeruginosa* was isolated in sputum. The meropenem dose was adjusted and voriconazol was associated due to pulmonary invasive aspergilosis suspicion, since the patient had a positive polymerase chain reaction (PCR) for *Aspergillus fumigatus* in a previous, but recent, BAL. Due to clinical worsening a bronchoscopy was performed with bacteriological e mycological cultures negative in BAL, and IMV support was needed. The microbiological screening was negative at ICU admission, except for positive PCR for *Aspergillus fumigatus*. During the ICU stay, poor clinical condition and adverse radiological evolution with severe respiratory failure (restraining more invasive diagnostic tests) were observed and the patient died in the 6th day after admission.
Discussion: An IRS-like entity is described in invasive aspergilosis in lung transplant recipients with clinical or radiological worsening, even though the correct therapeutic measures are taken. It's possible that IRS occurs simultaneously with infection progression and they are exclusive phenomena. With these cases the authors intend to explore the complex nature of these patients in whom an apparently adequate measure as reducing immunosuppression, can have to the graft and point out the need of considering an IRS-like entity in the differential diagnosis.

Key words: *Immune reconstitution syndrome. Pulmonary invasive aspergilosis.*

P-074. BARRIERS TO HEALTH CARE FOR IMMIGRANTS: PROBLEMS IDENTIFIED IN A POPULATION AT HIGHER RISK OF TUBERCULOSIS

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Introduction: The use of health care services, preventive or curative, has important implications for the health of the population.

Table P-074

	Difficulties- no	Difficulties- yes	No answer	p value
	59 (74.7)	18 (22.8)	10 (11.49)	
Marital status				
Not married	26 (44.1)	10 (55.5)		0.263
Married or de facto union	24 (40.7)	3 (16.7)		
Other	7 (11.9)	4 (22.2)		
Residence time in Portugal (years)	6.7 (0.57-43.6)	6.9 (0.58-46.3)		0.763
Education (years)	12 (0-21)	12 (5-22)		0.350
Employment situation				
Full-time employee	17 (28.8)	5 (29.4)		0.663
Unemployed without unemployment benefits	9 (15.3)	4 (23.5)		
Student	9 (15.3)	3 (17.6)		
Other	24 (40.7)	5 (29.4)		
Salary				
≤ minimum wage	33 (55.9)	12 (70.6)		0.464
> minimum wage	26 (44.1)	5 (29.4)		
Discrimination due to ethnicity or country of origin	18 (30.5)	9 (52.9)		0.217

Immigrants constitute a group with limited access to health care and in whom tuberculosis (TB) is present in a relevant way. TB in immigrants is mainly attributable to latent TB activation, acquired before arrival in the host country, being high the risk of disease even after several years following the immigration.
Objectives: Identify the structural, cultural and socio-economic obstacles that difficult access to health care services for immigrants, as well as risk factors for TB.
Methods: An online and anonymous questionnaire was applied national institutions that support this population. Participants over 18 years and resident in Portugal for more than 6 months were included. Sociodemographic variables and related with the use of health services and the risk of TB were analyzed. The chi-squared test (or Fisher test) was used to assess the statistical significance of the association between two categorical variables and Mann-Whitney test was used to compare medians.
Results: Eighty-seven questionnaires were submitted. Participants had a median age of 34 (20-81) years and 51.2% were female. About half of the participants (50.6%) were born in Brazil, Ukraine and Angola. Nine percent of participants presented previously TB, mostly diagnosed in Portugal (75%), and half of the cases in the last two years. Only 28.7% of participants were screened for TB since their arrival in Portugal. Regarding the difficulties in access to health services results are presented in the following table, in absolute frequencies (relative) or median (min-max), according to the nature of the variables (table).
Conclusions: In this sample there were barriers to health care especially for single participants, with low incomes and who felt discriminated, despite the absence of statistically significant differences. In majority of participants who had previous TB the diagnosis was made in Portugal, but less than 1/3 of the participants were screened for TB since their arrival in our country. TB screening programs in immigrants at time of entrance in the host country may be a useful tool in control and eradication of TB in immigrants. Accessibility to health services in this population should be ensured to allow the early diagnosis of TB.

Key words: *Immigrants. Barriers. Health care. Tuberculosis.*

P-075. PULMONARY TUBERCULOSIS: A DIAGNOSIS CHALLENGE

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Introduction: Tuberculosis is one of the most common infectious diseases in the world and has a high mortality rate. The diagnosis of tuberculosis at an early stage is not always clear. The older methods of diagnostic present some limitations, such as low sensitivity of bacilloscopy, the microbiological cultures exam takes too long and low specificity of the tuberculin test. It was in this context that the IGRA test has emerged, easy to implement, with high sensitivity and specificity.
Case report: We report the case of a 44 year-old man, born in India, residing in Portugal for five years, cooker, non-smoker, without intravenous drugs and ethanol consumption habits, with known diagnosis of hypertension and diabetes mellitus non-insulin-treated. Turned up in the emergency service with a clinical condition of about 1 month of non-productive cough, fever, asthenia, anorexia and non-quantified weight loss. He had been previously treated with amoxicillin + clavulanic acid and doxycycline without any success. The examination revealed subcrepitant bilateral dispersed fervors. Laboratory tests showed blood count with mild thrombocytopenia, creatinine - 1.5 mg/dL, LDH 859 U/L and CRP 6.2 mg/dL; HIV test was negative. Chest teleradiography - diffuse micronodular pattern in both lung fields. Chest CT- standard in ground glass with areas of confluence and consolidation on the upper floors and thickening of the interlobular septa. Performed bronchoscopy that revealed endoscopic findings suggestive of abundant tracheobronchopathia osteochondroplastica. The mycobacteriological direct examination of bronchial secretions and gastric juice was negative. The IGRA was negative. Serologies were negative to atypical agents. Sensitive to cefuroxime *Klebsiella pneumoniae* was isolated in bronchial secretions, having the patient started the mentioned antibiotic. However, there was an unfavorable development, the patient presenting progressive

worsening of the respiratory condition and requiring invasive mechanical ventilation from the 9th day of hospitalization. At this point bronchoscopy with BAL was repeated whose mycobacteriological direct examination was negative, and *Klebsiella pneumoniae* with overlapping antibiogram was again isolated. Systemic corticosteroid therapy was initiated but the clinical, laboratory and imaging condition got worse. He then started meropenem and vancomycin. Given that the clinical condition wasn´t improving after 22 days of hospitalization, empirical antituberculosis therapy was started, with favorable clinical outcome. Later, in the second bronchoscopy's BAL, the PCR for *Mycobacterium tuberculosis* was positive, as well as the cultural examination. Lung biopsy showed infiltration by granulomas with central necrosis. The IGRA, repeated after 25 days of hospitalization, was positive.
Discussion: The authors present this case to evidence the difficulties that can arise in the diagnosis of tuberculosis. It´s also noteworthy that the IGRA may be negative between the third and the eighth week after infection.

Key words: *Mycobaterium tuberculosis. IGRA.*

P-076. THE ROLE OF FLEXIBLE BRONCHOSCOPY IN TUBERCULOSIS DIAGNOSIS

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Introduction: Lisbon is still an intermediate-incidence area of tuberculosis (between 20 and 50 cases/100,000 inhabitants). Earlier diagnosis by means of faster laboratory tests is essential in controlling disease transmission. Tuberculosis diagnosis is confirmed when culture is positive for *Mycobacterium tuberculosis* or when both nucleic acid amplification test and smear microscopy are positive. There are numerous nucleic acid amplification techniques.
Objectives: To study the yield of bronchoscopy in diagnosing tuberculosis. Compare bronchoalveolar lavage (BAL) and bronchial wash (BW) smear microscopy, culture and *GenoType MTBDRplus ver2.0*. Correlate radiographic features with microbiological exams sensibility.
Methods: It is a retrospective study of tuberculosis patients hospitalized in Infectiology ward of Hospital Beatriz Ângelo between January 2013 and April 2016. Clinical data was reviewed and the sample was characterized regarding demographics, case classification (confirmed/probable/possible), radiographic features and clinical exams performed.
Results: 89 patients were included with a mean age of 43.4 ± 17.3 years and 70% were males. Diagnosis was confirmed in 67 (75%). Flexible bronchoscopy was performed in 58 (65%) with diagnosis confirmation in 44 (76%). Sensitivity was similar in BW and BAL smear microscopy (39% vs 31%, p value 0.43). It was also similar in BW and BAL culture (70% vs 62%, p value 0.42). On the other side, culture was superior to smear microscopy in both BW and BAL (BW: 70% vs 39%, p value < 0.05; BAL: 62% vs 31%, p value < 0.05). Among 58 bronchoscopies, *GenoType MTBDRplus* was performed in 25 (43%) BAL samples and was positive in 16 (64%). Its sensitivity was superior to smear microscopy (64% vs 24%, p value < 0.05) but similar to culture (64% vs 60%, p value 0.77). Comparing BAL smear positive and negative patients, *GenoType MTBDRplus* sensitivity was superior in the first group (100% and 67%, respectively). Endobronchial ultrasound complemented bronchoscopy in 4 patients with 3 diagnosis of granulomatous lymphadenitis (75%). BAL culture was positive in only one of them. In patients with cavitations in chest X ray or computed tomography, smear microscopy and culture of sputum, BW and BAL had superior sensitivity.

	Sensitivity (%)		p value
	With cavitation	Without cavitation	
Sputum – smear microscopy (n = 67)	70	24	< 0.001
Sputum – culture (n = 67)	89	50	< 0.05
BW – smear microscopy (n = 46)	53	7	< 0.001
BW – culture (n = 46)	78	50	< 0.05
BAL – smear microscopy (n = 54)	44	14	< 0.05
BAL – culture (n = 55)	75	44	< 0.05

Conclusions: Bronchoscopy led to diagnosis confirmation in 76% of the cases, showing its importance in diagnosing tuberculosis. *GenoType MTBDRplus* sensitivity in BAL was similar to BAL culture. Endobronchial ultrasound might have a growing role in tuberculosis diagnosis. Microbiological tests sensitivity is superior in patients with cavitations.

Key words: *Tuberculosis. Diagnosis. Flexible bronchoscopy. Genotype MTBDRplus. Cavitation.*

P-077. THE ROLE OF THORACIC SURGERY IN THE TREATMENT OF TUBERCULOSIS IN PEDIATRIC AGE

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Introduction: Pulmonary tuberculosis is a rare pathology in developed countries, but its incidence is still relatively high in Portugal. The disease can be quite incapacitating and even lead to death if not diagnosed in an early stage. Thoracic surgery takes a fundamental role in the diagnosis and treatment of the complications associated with this pathology. In the past year the cardiothoracic surgery department of the Santa Marta Hospital underwent diagnostic or therapeutic procedures in ten patients because of tuberculosis. Among these patients two were children of 12 and 16 years, with different presentations of this disease and that, therefore, required different approaches. With this work we want to illustrate the clinical presentation, radiology and therapeutic approach of these two patients.
Case reports: Case 1: the first case was a 16-year-old boy that had high fever (40 ºC), cough, left chest pain, nocturnal sweating and a significant loss of weight in the previous two months. He was committed and studied and was found to have anaemia and a positive IGRA. Echography and chest X ray showed a massive pleural effusion. The fibroscopy was negative for BAAR but the cultural exam was positive for mycobacterium tuberculosis. Gastric juice was positive for BAAR. He then underwent a chest CT that confirmed the organized pleural effusion, suggestive of empyema with atelectasis of the left lower lobe. A Left VATS was performed to drain the effusion and pleural biopsies were taken. The pathology confirmed a caseous inflammatory process and he started antibacillar medical therapy. Due to a persistent air leak the lung became incarcerated and the patient was referred for thoracic surgery. After one month of medical therapy he became non-contagious and formal decortication was then performed by left thoracotomy. There was a gradual clinical and imagiological improvement. He then completed 9 months of medical treatment and is now clinically well with minimal radiological abnormalities. Case 2: we describe a distinct case of tuberculosis in a 12-year-old

with a history of poorly controlled asthma that was hospitalized for cough and hemoptysis. Chest X-rays revealed changes consistent with bilateral cavitations. The chest CT scan confirmed the presence of two lung abscesses in the right upper lobe and left lower lobe. He held a wide range of antibiotic therapy, with clinical worsening at the 7th day of hospitalization. At this point cooperation of Thoracic Surgery has been requested that performed percutaneous drainage of lung abscesses, guided by CT scan. Microbiology revealed a Streptococcus constellatus, as well as Mycobacterium tuberculosis. The patient had a clinical and imagiological improvement, with thoracic drainage removal after one month. Surgical intervention was decided to treat the sequelae about 6-8 months after hospitalization.
Discussion: We want to remind the importance of a high level of suspicion of this pathology, especially in paediatric age. The multidisciplinary approach, early diagnosis and adequate treatment are fundamental to diminish the comorbilities and sequels especially in this young population.

***Key words**: Thoracic surgery. Tuberculosis.*

P-078. TUBERCULOSIS: BEYOND THE DIAGNOSIS

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Introduction: Lymph node tuberculosis (LNT) is one of the most frequent form of extra-pulmonary tuberculosis. Immunosuppression is a risk factor for LNT. Lymphoma and LNT are hard to differentiate without histologic characterization, and their simultaneous occurrence is rare.
Case report: The authors present a case of a 75 year old woman, with previous history of hiatal hernia, arterial hypertension and dyslipidemia. She had no previous history of tuberculosis, besides contact with her husband who had pulmonary tuberculosis 40 years ago. On the first doctor's appointment the patient presented with a painful cervical swelling, of about 15 mm, with a 2 months evolution. The patient also mentioned weight loss, nocturnal sweating, anorexia and dysphonia. After imaging study, cervical, supraclavicular and retroperitoneal lymphadenopathies were detected. Excisional biopsy of a cervical lymphadenopathy was positive for LNT on the acid fast bacilli direct exam, on the nucleic acid amplification and on histology. Anti-tuberculous therapy was initiated. The cultural exam was positive for *Mycobacterium tuberculosis*, with susceptibility to all first line anti-tuberculous agents. Clinical and radiological improvement of cervical lymphadenopathies was observed. However retroperitoneal lymphadenopathies remained the same. Excisional biopsy of these lymph nodes was preformed simultaneous to the hiatal hernia correction surgery. The histology revealed follicular lymphoma. The patient finished anti-tuberculous treatment and was sent to a Haematology Oncologic consult, where she's receiving treatment for the lymphoma. Given the radiological and clinical similarities between LNT and lymphoma, the differential can be hard without a final histologic analysis.
Discussion: There's few cases described in literature of the last 10 years with the concomitant diagnosis of LNT and lymphoma. However LNT with retroperitoneal localization is infrequent. In this case, the absence of improvement in this localization was paramount to the progression in investigation. The authors find that clinical as radiological vigilance after beginning anti-tuberculous therapy is of major importance in remembering that there's other possible diagnosis.

***Key words**: Lymph node tuberculosis. Lymphoma.follicular. Diagnosis.*

P-079. TUBERCULOUS ARACHNOIDITIS. A RARE CASE AFFECTING CENTRAL NERVOUS SYSTEM IN AN IMMUNOCOMPROMISED PATIENT WITH EXTENSIVELY DRUG-RESISTANT TUBERCULOSIS

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Introduction: Mycobacterium tuberculosis infection is prevalent in more than 2 billion people worldwide, with about 15 million of these individuals with active infection. Central nervous system tuberculosis is a rare presentation of active tuberculosis and it can affect either immunocompromised or immunocompetent people. The three clinical categories of central nervous system tuberculosis include meningitis, intracranial tuberculomas and tuberculous spinal arachnoiditis. As a cause of spinal arachnoiditis or radiculomyelitis, the tuberculous infection appears to be very rare in the advanced countries of the western world and it is mostly attributed to factors such as the pandemic of acquired immunodeficiency syndrome (AIDS) and increased migration in a globalized world. We report a case of a human immunodeficiency virus (HIV)–infected patient with active extensively drug-resistant tuberculosis who developed tuberculous spinal arachnoiditis.
Case report: We report a Portuguese 44 years-old patient diagnosed with: in 1996 – HIV-1 and hepatitis C infection, with non-adherence to antiretroviral therapy; in 2009, 2011 and 2013 - pulmonary and bone tuberculosis with dorsal and lumbar spine surgery in 2013; since 2011, extensively resistant tuberculosis (sensitivity to streptomycin, cycloserine, para-aminosalicylic acid and linezolid; resistance to isoniazid, rifampin, pyrazinamide, ethambutol, amikacin, ethionamide and ofloxacin); and in 2015 - miliary tuberculosis. The patient was admitted with paraparesis and hyporeflexia and decreased sensitivity of the lower limbs. Direct mycobacteriological sputum exam was negative. HIV viral load was positive and lymphocyte T CD4+ count equal to 208 cells/Ul. Mycobacterium tuberculosis and Cryptococcus in the cerebrospinal fluid was negative. Dorsal and lumbar spine CT scan excluded relevant acute lesions. Electromyography objectified signs of motor and axonal polyneuropathy with coexisting root injury. Lumbar spine magnetic resonance imaging (MRI) with contrast revealed linear enhancement of the signal of meninges involving cone and roots of cauda equina. After discussion with Neurology, we concluded the diagnosis of tuberculous arachnoiditis and the patient was treated with corticosteroid therapy and physiotherapy, and discharged clinically improved, maintaining anti-bacillary drugs.
Discussion: Of the nine million new cases of active TB annually, 13 to 15% of all cases are associated with HIV. An increase in the incidence of extrapulmonary tuberculosis, including of central nervous system, is related mainly but not exclusively to the HIV epidemic. Uncommonly, tuberculous radiculomyelitis has been reported in developed countries, mostly in immigrants and elderly. As so, paraplegia due to spinal cord tuberculosis is even rarer in developed countries. It is therefore important that physicians and radiologists understand the wide variety of symptomatic and imaging manifestations of central nervous system tuberculosis. In resume, tuberculous arachnoiditis should be suspected whenever a patient with known tuberculosis develops spinal cord symptoms. Neuroimaging with MRI is critical for diagnosis and given the exuberant nature of the inflammatory process at the spinal level, steroid treatment is indicated.

***Key words**: Extensively Drug-Resistant Tuberculosis. Human Immunodeficiency Virus. Arachnoiditis. Radiculomyelitis.*

P-080. ACUTE EOSINOPHILIC PNEUMONIA SECONDARY TO MINOCYCLINE. A CASE REPORT

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Introduction: Eosinophilic pulmonary diseases are a heterogeneous group of entities characterized by eosinophilia in the blood count with radiological changes in the lung parenchyma; eosinophilia in the bronchoalveolar lavage and tissue eosinophilia identified in biopsies and can be divided in acute and chronic forms. The nonsteroidal anti-inflammatory drugs and antibiotics are the most commonly implicated drugs in the occurrence of these situations.
Case report: A 67 year old woman, with allergic rhinitis, non-smoker, was evaluated at the emergency room for dyspnea, non-productive cough, pleuritic chest pain located in the right hemithorax, asthenia, anorexia, myalgia and dizziness with two weeks, when she started to take 100 mg of minocycline for the treatment of rosacea. She denied fever or other relevant signs and symptoms as well as recent trips. On initial exam she was hemodynamically stable, afebrile and tachypneic with oxygen saturation of 93% while breathing ambient air. Inspiratory crackles at the bases in both hemithoraces were present to pulmonary auscultation. A complete blood count showed elevated C-reactive protein, eosinophilia and elevated liver enzymes and the arterial blood gas analysis demonstrate type 1 respiratory failure with respiratory alkalosis. A chest radiography revealed pulmonary infiltrates in both lower lung fields, more evident on the right. She started empiric antibiotic therapy with amoxicillin/clavulanic acid 1,200 mg IV 8/8h and azithromycin 500 mg IV 24/24 and minocycline was suspended. To clarify the etiology of infection, a bronchofibroscopy was performed and the bronchoalveolar lavage differential cell counts showed eosinophilia (32%). The patient started corticosteroid therapy (oral prednisolone 60 mg 24/24h) in regressive scheme for a month with clinical, analytical and radiological improvement. The blood cultures and the cultures of respiratory secretions were negative; the study of autoimmunity was negative, as well as parasites in stool.
Discussion: The authors of this case intended to alert to the importance of recognizing minocycline as a cause of acute eosinophilic pneumonia since its withdrawal and treatment with corticosteroids were critical to the resolution of the clinical case.

Key words: *Eosinophilic pneumonia. Eosinophilia.*

P-081. Q FEVER: A PNEUMONIA AS (A)TYPICAL AS ONE WOULD SUPPOSE. A RETROSPECTIVE STUDY (2010-2014)

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Introduction: Q fever is a zoonosis caused by *Coxiella burnetii*, endemic in Portugal. It is a challenging underdiagnosed illness once its symptoms are usually nonspecific. The most common clinical manifestations in symptomatic acute Q fever are: nonspecific febrile syndrome, pneumonia, and/or hepatic involvement. Pneumonia is an important clinical manifestation and it may be an under recognized cause of community-acquired pneumonia. The importance to increase awareness on the characteristics of Q fever has led to the development of this epidemiological study in order to understand its clinical manifestations and identify the limitations and utility of the serologic testings.
Methods: We developed a retrospective cohort, in the Figueira da Foz District Hospital. There were 69 specific serologic tests requested, corresponding to 64 patients admitted from 2010 and 2014 whose medical records were reviewed. We identified 18 with antibodies to phase I and II antigens associated with compatible clinical syndrome, whose demographic, clinical and laboratorial variables were analyzed using descriptive statistics and categorical and numerical data were compared by the chi-square test and T Student's test, respectively.
Results: There were 17 patients with acute and one chronic Q fever. Most patients (72.2%) were male. The median age was 51.5 years. The most frequent clinical sign was fever (83.3%). Half of the patients had normal leukocyte count. Thrombocytopenia occurred in 22.2%. Increased levels of C-reactive protein (88.2%) were reported. The most common increased liver enzyme was gamma-glutamyltransferase (61.1%). Hepatic (77.8%) followed by pulmonary (50%) involvement were the most common. Patients with hepatic and pulmonary involvement were more likely to develop it in winter along with dyspnea, cough and increased aspartate aminotransferase (OR:16.3 [IC95% 1.349-197.769]; p-value 0.025). Among those with pneumonia, 89% (8/9) had increased liver enzymes. The most common International Classification of Diseases (ICD-9) code assigned was *pneumonia, organism unspecified (486)*. The median time between early symptoms setting and the request for the first serology was 8.5 days, higher among isolated nonspecific febrile syndromes (16 days). A single serum titer was the most applied diagnostic criterion (15/18). Seven patients had anti-Coxiella IgM, while 18 had phase II IgG and five had phase I IgG antibodies. Only 3 patients had follow-up serologies, one of whom confirmed the development for chronic disease.
Conclusions: The singularities of Q fever make it an underappreciated cause of community-acquired pneumonia warranting its attention. Its features are similar to other etiologies. For a definitive diagnosis in the early stages of acute Q fever, serologic testing along with PCR (polymerase chain reaction) is recommended. One should have in mind that seroconversion typically occurs 7-15 days after symptoms onset, and most patients seroconvert by the third week of illness. The serologies requested confirm that the diagnosis was thought of early on, but most patients lacked a serological follow-up. The assessment of Q fever's real incidence is limited. Better epidemiological surveillance systems and intensified collaboration between health institutions is advised.

Key words: *Q fever. Coxiella burnetii. Pneumonia. Serologic testing.*

P-082. BRONCHIECTASIS AND INFECTION BY *ASPERGILLUS* SPP IN A IMMUNOCOMPETENT PATIENT. CASE REPORT

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Introduction: *Aspergillus* spp can affect the lungs in several syndromes: allergic bronchopulmonary aspergillosis (ABPA); aspergilloma; invasive aspergillosis and chronic necrotizing *Aspergillus* pneumonia.
Case report: Female patient 51 years old, non-smoker with chronic sinusitis that reported symptoms of persistent cough with purulent sputum, dyspnea and wheezing after a flu episode, treated with short course of oral corticosteroids and inhaled bronchodilator. As previous diseases, she referred bronchiectasis in the middle lobe with 3 years of onset. She was admitted to study, with marked hypoxemia and dullness to percussion on the left lung base. The complementary study stands out: arterial blood gases in ambient air: pH 7.55; pO2: 61.1 mmHg; pCO2: 29.3 mmHg. Leukocytosis of 11.8×10^9/L, without eosinophilia; C-reactive protein: 2.91 mg/dL (N < 0.5). Chest X-ray: consolidation of the left lower lung field with parapneumonic effusion. CT scan of the chest: discrete inflammatory changes of the middle lobe and left pleural effusion with lower lobe opacity (9 × 6.6 cm - pneumonic consolidation). BK research in sputum: negative. Bacteriology sputum: isolation of *Aspergillus fumigatus* (in 3 consecutive samples) and *Haemophilus*

parainfluenzae (2 samples; later). Serology for HCV, HBV and HIV: negative. Skin prick tests to inhalant allergens (mm): Histamine: 7; Olive tree: 5; *Cladosporium:* 5; *Aspergillus:* 4; *Dermatophagoides pteronyssinus*: 5; *Lepidoglyphus destructor*: 3. IgG: 12.2 g/L; IgM: 0.83 g/L; IgA: 3.57 g/L; IgE: 3.600 UI/mL. IgE *Aspergillus fumigatus:* 47.7 kU/L (class 4). IgG *Aspergillus fumigatus:* 59.6 mgA/L (n < 83 mgA/L). CT scan of the paranasal sinus without significant changes. Galactomannan antigen: 0.10 (n < 0.5). Determination of alpha-1-antitrypsin: negative. Lung function tests: mild obstruction of the small airways. The patient presented favorable evolution under treatment with voriconazole 100 mg twice a day for 3 months and Levofloxacin 500mg daily for 8 days, with radiological resolution.
Discussion: The authors emphasize the importance for research and clarification until definitive diagnosis in this patient with *Aspergillus* pneumonia, taking into account the different treatments proposed according to the differential diagnosis.

Key words: *Aspergillus. ABPA. Invasive aspergillosis. Pneumonia.*

P-083. KAPOSI SARCOMA AND LUNG TRANSPLANT: TWO CASE REPORTS

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Introduction: Solid organ transplant recipients have an increased risk of developing malignancies, becoming one of the leading causes of morbidity and mortality in these patients. Lung transplant is associated with a higher incidence, particularly squamous cell and basal cell carcinomas of the skin.
Certain viral infections are associated with the development of tumours, both in immunocompetent and immunosuppressed patients. In the latter, the permanent state of immunosuppression, make them more susceptible to new infections or reactivations. The human herpesvirus 8 (HHV8) is associated with Kaposi Sarcoma (KS), which can manifest in very different ways.
Case reports: The authors describe two case reports of lung transplant patients diagnosed with KS. Case 1: 63 years old male patient, ex-smoker, with COPD, submitted to bipulmonar transplant when he was 61 years old and history of colitis by cytomegalovirus in the 10th month after transplant. In the 11th month after transplant, he was referred to the Dermatology outpatient clinic after identification of two small purpuric skin lesions in the patient´s chest; clinical vigilance was decided. By 16th month after transplant, due to numeric and dimensional progression of the skin lesions, he was submitted to cutaneous biopsy whose pathology revealed morphological features and HHV8 positive cells compatible with KS. Digestive tract involvement was excluded. In this period, he also showed functional decline and the diagnosis of bronchiolitis obliterans was made. By the 20th month, he presented clinical worsening with dyspnoea, new bilateral pulmonary infiltrates and respiratory failure without response to NIV, portrayed as a possible pulmonary involvement by KS, associated with transplant rejection. The patient died 2 days after these symptoms began, without having started therapy for KS. Case 2: 35 years old male patient with bronchiectasis of unknown aetiology, submitted to bipulmonar transplant when he was 30 years old. Regarding complications post-transplant the authors emphasise acute rejection with progression to bronchiolitis obliterans with functional stability and without respiratory failure, and development of renal atrophy secondary to drugs. By the 50th month post-transplant, he was hospitalized for prostatitis and acute cholecystitis, undergone emergency cholecystectomy. Due to severe anaemia (haemoglobin 6.8 g/dL) the endoscopic study was performed, with the identification of multiple, vascular, round and elevated lesions in the stomach, suggestive of KS. The histological examination confirmed this diagnosis after identification of positive cells to HHV8. The HHV8 serology was negative. The patient died after the onset intra-abdominal sepsis.
Discussion: With these two cases the authors pretend to demonstrate different clinical expressions of KS and the importance of eventual development of malignancies in lung transplant patients.

Key words: *Lung transplant. Kaposi sarcoma. Infection. Malignancy.*

P-084. A RARE PRESENTATION OF NONTUBERCULOUS MYCOBACTERIAL INFECTION

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Introduction: *Mycobacterium lentiflavum*, a slow growing nontuberculous mycobacterium (NTM), is an uncommon cause of pulmonary disease, has rarely been described in immunocompetent patients, and its association with Staphylococcus aureus in patients with bronchiectasis is uncommon. On the other hand, this NTM is rarely isolated in respiratory tract samples from cystic fibrosis (CF) patients, a predominantely early-onset disease.
Case report: A 64-year-old never-smoker women with a previous history of depression and chronic sinusitis, was referred to our center due to chronic productive cough, purulent sputum, anorexia and non-quantified weight loss. In the past, she had had a pulmonary infection with *Mycobacterium xenopi*, treated with a combination of antibiotics covering this pathogen, a fungal pleural effusion treated with fluconazole, and since then presented *Staphylococcus aureus* chronic colonization of the respiratory tract. Chest computed tomography exhibited bronchiectasis, mucous impactation and multiple areas of centrilobular nodules with a linear branching pattern described as tree-in-bud. Sputum samples were collected and Mycobacterium lentiflavum was identified in three consecutive times. Blood samples analysis showed no significant change and no primary or secondary immunodeficiency. Subsequent investigation for an acquired cause of bronchiectasis revealed an alpha-1 antitrypsin deficiency (60 mg/dL) with a PiMM genetic presentation, and two borderline chloride sweat tests. She began treatment with antibiotic treatment with clinical improvement.
Discussion: In this report, we present an extremely rare case of isolation of *Mycobacterium lentiflavum* from respiratory tract samples in an immunocompetent host, with chronic colonization with *Staphylococcus aureus*, alpha-1 antitrypsin deficiency despite a normal genotypic evaluation, and a possible late-onset cystic fibrosis. This suggests that *Mycobacterium lentiflavum* can be a human pathogen responsible for pulmonary infections that may be correlated to other uncommon pulmonary diseases, for which the diagnostic workup has a key role.

Key words: *Non-tuberculous mycobacteria. Cystic fibrosis.*

P-085. THORACIC NOCARDIOSIS: NOTES ON A CLINICAL CASE

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Introduction: Nocardiosis is an infection that can either be localized or disseminated and that is caused by a Gram+ bacteria from the *Nocardia* genus. This opportunistic microorganism affects mainly immunocompromised hosts, with pulmonary affection being the most common. Both the clinical presentation and imaging are very variable, leading to a broad spectra of differential diagnoses. The authors present a case of thoracic nocardiosis in a patient with

bronchiectasis and fibrotic changes secondary to pulmonary siderosis, and rectum adenocarcinoma.
Case report: 61 year old male with previous history of pulmonary siderosis (surgical lung biopsy in 2006). Imaging presented cylindrical, varicose bronchiectasis and honeycomb pattern; initial respiratory functional study with no significant changes. In 2013 he was diagnosed with rectum adenocarcinoma, having undergone anterior resection of the rectum with neoadjuvant radio and chemotherapy, kept under follow-up with no need for additional therapy. From the respiratory point of view there was slight progressive worsening of exertional dyspnoea and in October 2015 he developed complaints of moderate volume haemoptysis, associated with chest seethe sensation. Microbiological negative sputum for both aerobic and mycobacteria. High resolution chest computed tomography showed two irregular cavitations in the left upper lobe, the biggest with 3x2 cm, with inside opacity, compatible with aspergillomas, in addition to the changes previously observed. Performed bronchoscopy which showed moderate signs of inflammation in the bronchial mucosa in left B and left b1+2. Cytology of bronchoalveolar lavage (BAL) showed macrophages, inflammatory cells, abundant polymorphonuclear leukocytes (PMN's) and absence of neoplastic cells. Bronchial biopsies suggested bronchial involvement by chronic inflammation with no features suggestive of infection by *Aspergillus* or neoplastic infiltration. LBA microbiology identified *Nocardia spp*, and therapy with cotrimoxazol was started. However, due to cotrimoxazol dermal toxicity it was replaced by linezolid. Despite adequate treatment, there was an increase of cavitated lesions in imaging control and persistent hemoptysis, thus surgical resection was proposed and upper left lobectomy was performed yielding clinical improvement.
Discussion: The existence of sequelar and/or fibrotic pulmonary lesions constitute an ideal niche for housing and proliferation of various pathogenic microorganisms, such as bacteria, fungi and mycobacteria. Moreover, due to the increasing number of cases of pathological or iatrogenic immunosuppression, we have increasingly more individuals susceptible to infectious processes. In the present case, the combination of parenchymal changes, favorable to colonization, and the patient's immunosuppression status, both were determining factors for *Nocardia* infection. With the work presented herein, the authors wish to draw attention to nocardiosis in the differential diagnosis of pneumonia in immunocompromised patients, particularly those with necrosis, abscess or cavitation. A high degree of suspicion is particularly important given the slow growth of this microorganism, so cell culture should be extended up to 30 days. The first therapeutic approach consists of antibiotic treatment, reserving surgical treatment to cases of failure to antibiotic therapy.

Key words: *Thoracic nocardiosis. Nocardia. Pulmonary infection. Lung abscess. Immunosuppression.*

P-086. PULMONARY NOCARDIOSIS: AN UNEXPECTED DIAGNOSIS

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Introduction Pulmonary nocardiosis manifests as an acute, subacute, or chronic pneumonitis, usually in immunocompromised hosts. Clinical manifestations include inflammatory endobronchial masses, localized or diffuse pneumonias, which may be accompanied by cavitation, abscess formation, pleural effusion, or empyema.
Case report: The authors describe the case of a 74 years-old male with hypertension, diabetes mellitus and dyslipidemia, that develops a tumefaction on the left side of the chest, fever and ipsilateral chest pain within the last 3 weeks. Laboratory tests showed normocytic anemia, elevation of inflammatory parameters and negative blood cultures. Thoracic ultrasound at left mid-axillary line showed a fluid collection under the muscle level, best characterized by computed tomography (CT) as a hipodense lesion with thick wall enhanced by contrast and a maximum diameter of 5.3 cm. It also identified several infiltrates at the right upper lobe, vaguely nodular with air bronchogram and irregular contours. He underwent aspiration biopsy of the chest wall lesion, which microbiological examination was positive for *Nocardia* spp. Bronchoscopy showed no significant changes of the tracheobronchial tree and driven lavage was negative for dysplasia. Serum tumor markers assay was normal. Immunosuppression causes were surveyed. The ongoing empirical antibiotic therapy was directed to pulmonary nocardiosis with clinical and analytical response. There was resolution of the injury of the chest wall and pulmonary infiltrates in the CT after 3 months. The longstanding diabetes, poorly controlled, has been the only cause of immunosuppression diagnosed.
Discussion: At least 40% of patients with disseminated nocardiosis have pulmonary infection; therefore, the clinical presentation may be dominated by the pulmonary symptoms. Ninety percent of pulmonary infections can be cured with appropriate therapy.

Key words: *Infection. Nocardia. Lung.*

P-087. SUBACUTE LUNG DISEASE IN IMMUNOSUPPRESSED PATIENTS: FROM ANTIBIOTICS TO THE DIAGNOSE

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Case reports: Case 1: 58 years old male with history of cirrhosis Child-Pugh class A due to chronic viral hepatitis C and alcohol abuse. Currently abstinent from alcohol consumption and with suppressed viral load 6 months after the end of therapy with ledispavir + sofosbuvir + ribavirine. History of *Pyoderma gangrenosum* (PG), treated since 2011, now under corticotherapy, and refractory to multiple immunosuppressive schemes. During hospital admission due to exacerbation of PG, patient presented with purulent sputum, hemoptysis, elevation of inflammatory markers and type 1 respiratory failure. Multiple bilateral areas of pulmonary consolidation were present in the thoracic CT scan. Sputum culture and broncoalveolar lavage were preformed, being negative for tuberculosis or any other infectious agent. Lung cryobiopsy was compatible with organizing pneumonia. Due to also presenting pyrosis and dysphagia, upper endoscopy with biopsy was performed showing multiple esophageal erosions and pleomorphic superficial ulcers. A nonspecific characteristic in biopsy and it was negative for infectious agents. Immunologic study showing elevation of rheumatoid factor and polyclonal cryoglobulins IgA, IgM and IgG, compatible with type 2 cryoglobulinemia, in context of HCV infection. Compatible with this the patient had evidence organ damage, namely vasculitic skin lesions (previous to hospital admission), and more rare organ involvement in a gastrointestinal level with esophageal lesions, and pulmonar with organizing pneumonia. Patient started treatment with cyclophosphamide with respiratory clinical improvement, resolution of esophageal lesions and without development of any new vasculitic skin lesion since. Case 2: 60 years old male, smoker. Diagnosed in November 2015 with non-Hodgkin lymphoma with high mitotic activity. Treated with chemotherapy: first with cyclophosphamide, vincristine and prednisolone, followed by 4 cycles of rituximab, doxorubicin, cyclophosphamide, vincristine and prednisolone, with good response. After chemotherapy, patient presented with progressive worsening of baseline dyspneia from a MRC breathlessness scale grade 2 to grade 4. Without evidence of heart failure, infection or pulmonary

lymphoproliferative disease, excluded by bronchoscopy. CT scan showed usual interstitial pneumonia, and no evidence of pulmonary embolism. Pulmonary toxicity due to chemotherapy was assumed, being impossible to specify the responsible drug. Scarce improvement with corticotherapy. Severe type 1 respiratory failure with permanent dependence of oxygen therapy - 4 L/min in rest, 10L/min while walking. Unfavourable clinical evolution with increasing needs of supplementary oxygen. Without criteria for lung transplantation, due to absence of chemotherapy regimens with healing potential composed by drugs without known lung toxicity.

Key words: *Type II cryoglobulinemia. Organizing pneumonia. Iatrogenic pulmonary fibrosis.*

P-088. PREDICTORS OF MULTIDRUG RESISTANT AGENTS ISOLATION IN PATIENTS HOSPITALIZED IN A PULMONOLOGY SERVICE FOR PNEUMONIA

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Introduction: The isolation of multidrug resistant microorganisms (MDR) in respiratory infections has been increasing, what is thought to be due to the frequent contact of patients with health care services. Health Care Associated Pneumonia (HCAP) was presented as a new disease entity that came to fill this gap. In order to assess the predictive factors of isolation of MDR in patients hospitalized for Pneumonia, and their outcome, the authors developed the present study.
Methods: A longitudinal retrospective study of patients hospitalized in a Pulmonology service from 2013/01/01 to 2015/12/31 diagnosed with pneumonia. There were included all patients with microbiological isolation. Patients were categorized into 2 groups, MDR and without MDR, and multidrug resistance was assumed if there was isolation of *Pseudomonas*, Gram negative agent ESBL, *Acinetobacter baumanni* and MRSA. Clinical and radiological characteristics, severity scores, length of stay and mortality were compared between the 2 groups. The χ^2 test and Fisher's Exact Test were used to compare categorical variables. HCAP was assumed when at least one of the criteria presented by the ATS/IDSA was present.
Results: There were 120 (32.9%) microbiological isolations in 365 hospitalized with Pneumonia. 31.7% (n = 38) were MDR. MDR group had mean age of 72.8 ± 9.7 years and the Without MDR group had 64 ± 15.5 years (p = 0.002). No association with gender (male n = 84, 70%) was found (p = 0.34). Totally dependent patients (10.8%) didn´t have higher MDR isolation. Immunosuppression (14.17%; p = 0.002), heart failure (25%; p = 0.041) and chronic renal disease (7.5%; p = 0.002) had higher proportion of MDR isolations, unlike COPD (24.2%; p = 0.080), diabetes mellitus (14.2%; 0.829) and lung cancer (14.2%, p = 0.829). Pulmonary effusion and (15%, p = 0.042) and admission in intensive care units (11.7%; p = 0.037) had a negative association; patients with PSI > 3 were more prevalent, but showed no association. HCAP (38.3%) was associated with MDR isolation (p = 0.003). However, the criteria for PACS had different degrees of relevance: hospitalization ≥ 2 days in the past 90 days (26.7%; p < 0.001), residence in a nursing home or extended care facility (8.3%; p = 0.04) and antibiotic infusion in the last 30 days (18.3%; p < 0.001) had statistical significance association, unlike Chemotherapy (7.5%, p = 0.462). Length of stay was longer (median = 13,5 (21); 12 (10); p = 0.378) and mortality was higher (p = 0.002) in MDR group.
Conclusions: Although it is a relatively small sample of hospitalized patients with microbiological isolations, it was clear that the classification in HCAP alone is not enough to predict the isolation of MDR (ie, the difference between treating these patients as hospital acquired pneumonia or not). Only hospitalization ≥ 2 days in the past 90 days, residence in a nursing home or extended care facility and antibiotic infusion in the last 30 days could be associated with MDR isolation, agreeing with the international literature. There is greater likelihood of MMR pneumonia in older patients with more comorbidities, namely heart failure and immunosuppression, and these should be the main factors to be taken into account in the choice of empirical antibiotic therapy.

Key words: *Pneumonia. Health care associated pneumonia. Multidrug resistance.*

P-089. *CANDIDA* – INFECTION OR COLONIZATION. A CASE REPORT

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Introduction: Pneumonia due to *Candida* is extremely rare and generally is limited to severely immunocompromised patients. *Candida* pneumonia remains poorly defined as a clinical entity because positive cultures cannot distinguish between true infection and either colonization or contamination of samples. However, it should be considered as a differential diagnosis in the presence of pneumonia resistant to antibiotics.
Case report: A 61 year old woman with depressive disorder, overweight, never smoker and domestic worker, was transferred from a private hospital to the Centre of Pneumology of Coimbra University Hospital with dyspnea, productive cough with purulent sputum, wheezing and fever with two weeks. She was previously treated with levofloxacin 750 mg 24/24h in ambulatory. After 5 day of antibiotic treatment she presented worsening of symptoms and was admitted in this private hospital and treated with piperacillin/tazobactam 4,500 mg IV 8/8h, without showing, however, improvement, reason why she was transferred to the Coimbra University Hospital 4 days after hospitalization. On initial exam she was hemodynamically stable, with 37.8 ºC of body temperature, showing tachypnea with oxygen saturation of 91% under O2 at 2 L/min by nasal cannula. Crackles were audible in all left hemithorax and in lower half of the right hemithorax to pulmonary auscultation. A complete blood count showed elevated inflammatory parameters and arterial blood gas analysis demonstrate type 1 respiratory failure. A chest radiography revealed bilateral diffuse pulmonary infiltrates. She started empirical antibiotic therapy with meropenem 1,000 mg IV 8/8h and Vancomycin 1,000 mg IV 12/12h. To clarify the etiology of infection, a bronchofibroscopy was performed and the bronchial aspirate cytology revealed the presence of abundant hyphae and spores of *Candida*, suggestive of infection by this microorganism. The chest CT scan showed bilateral ground glass opacities, with peripheral predominance, in relation with infectious process. The pulmonary function tests demonstrated reduction of TLCO (4.03 mmol/min/KPa; 60.1%), without other alterations. Since this is a pneumonia resistant to antibiotics, with no isolation of other causal agent in blood cultures and cultures of respiratory secretions, combined with the maintenance of radiological findings, it was decided to start fluconazole 400 mg of 24/24h for two weeks. Causes of primary and secondary immune deficiency were excluded. She was re-evaluated after two months, presenting asymptomatic, with a control chest CT scan showing marked reduction of parenchymal infiltration and ground glass opacities, as well as normalization of TLCO values.
Discussion: Although the diagnosis of *Candida* pneumonia is supported by isolation of the organism from a bronchial aspirate specimen, a firm diagnosis requires histopathological evidence of invasive disease. Despite the significant clinical and radiologic improvement, we continue to ask whether colonization/infection were the etiology or merely the result of use of previous antibiotic of broad spectrum and/or a marker of severity of pneumonia.

Key words: *Infection. Candida.*

P-090. LUNG ABSCESS. A 10-YEAR RETROSPECTIVE ANALYSIS OF ADMISSIONS

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Introduction: Lung abscess is a necrotic and suppurative infectious complication of the pulmonary parenchyma. Usually the clinical presentation is indolent. Lung abscess diagnosis courses with long periods of broad spectrum antibiotic therapy and prolonged hospital admissions.
Objectives: Clinical, epidemiological, microbiological, radiological and therapeutic approach characterization of patients admitted in Serviço de Pneumologia B – CHUC – with the diagnosis of lung abscess, in the last 10 years.
Methods: Retrospective study of clinical records of patients admitted with lung abscess diagnosis, between January of 2006 and May of 2016, with posterior descriptive analysis.
Results: 28 patients were included (26 male/2 female), with medium age of 60 ± 18 years. The initial most referred symptoms were cough (71%), purulent sputum (54%), loss of weight (46%), chest pain (42%), fever (32%) and shortness of breath (28%). The main identified comorbidities were pulmonary neoplasm (29%), type 2 diabetes mellitus (21%), chronic pulmonary obstructive disease (18%), arterial hypertension (18%) and dyslipidemia (11%). About 75% of patients had chronic tobacco smoke exposure, 42% had significant alcoholic consumption and 4% had history of substances abuse. All patients had chest X-rays, with an image compatible with lung abscess observed in 82% of them. Of our 28 patients, 79% conducted thoracic CT, with abscesses located primarily in the inferior right (25%) and left (25%) lobes, and others on the superior right lobe (18%), superior left lobe (14%), medium lobe (14%) and lingula (4%). Isolation of causal agent was only possible in 42% of patients: MRSA (14%), A*cinetobacter baumanii* (11%) e *Klebsiella pneumoniae* (7%), with 14% in which more than an agent was observed. All patiens were treated with antibiotics, mainly with piperacillin-tazobactam (68%), levofloxacin (43%), clindamycin (36%), vancomycin (21%), trimethoprim-sulfamethoxazole (14%) and linezolid (11%). The medium duration of antibiotic therapy was 39 days. Only 5 patients needed surgical therapy. The medium duration of admission was 18 days. Two patients need to be re-admitted. Six patients died during hospital admission (medium age - 73 years), five of whom had the diagnosis of pulmonary neoplasm. The remaining demonstrated a favorable progress and were discharged.
Conclusions: As verified in case series already published, in our group of patients the symptoms were unspecific and mainly observed in males, smokers and patients with associated comorbidities. There was a higher prevalence of abscesses in the right lung. Concerning the difficulty of isolating causal agents, the antibiotic therapy performed was mainly of broad spectrum and prolonged. Most patients demonstrated a favorable progress during admission, with no need for surgical therapy. The referred deaths corresponded, almost exclusively, to patients with neoplastic pulmonary disease and with advanced age.

Key words: *Lung abscess. Infection. Treatment.*

P-091. LUNG ABSCESS: THE PURPOSE OF A CLINICAL CASE

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Introduction: Lung abscess is a collection of necrotic and suppurative tissue in the lung parenchyma. Their development reflects high load infection of microorganisms and/or deficit of the clearance mechanisms of the respiratory tract. Aspiration is the most common cause of lung abscess. The clinical manifestations are typical of a respiratory infection. The chest X-ray usually shows an infiltrate with or without cavitation. The chest tomography computerised allows better define the location and size of lung abscess. The identification of the causative organism is very important and constitutes a challenge in many cases. The culture of sputum, blood and pleural fluid, are also important. It is extremely important to obtain samples before the start of antibiotic therapy. The use of bronchoscopy with bronchoalveolar lavage is controversial. Bronchoscopy is useful to exclude the presence of airway obstruction, cancer or infection by mycobacteria. The differential diagnosis of lung abscess is varied and includes cancer, pulmonary infarction and infected blisters. The lung abscess is caused primarily by anaerobic microorganisms (89%). The treatment is based on the use of proper antibiotics whenever possible in accordance with the antibiotic susceptibility test. This clinical entity requires prolonged periods of antibiotics. However, there are poor prognostic factors such as malnutrition, advanced age and immunosuppression.
Case report: Female patient, 72 years old, institutionalized, totally dependent, history of diabetes mellitus type 2 non-insulin-treated, anorexia and dementia. Sent to the emergency department with dyspnea in the context of placing nasogastric tube in the home for food refusal. Objectified partial respiratory failure, analytically with CRP of 1.53 mg/dL. Radiologically with condensation in the right lung base. Diagnosed aspiration pneumonia and empirically started amoxicillin/clavulanic Acid 2.2 g iv. It was admitted to the Internal Medicine Service. For therapeutic insufficiency with worsening respiratory failure and feverish temperatures, moved to antibacterials for piperacillin/tazobactam. It was repeated imaging study, for which was requested CT chest: "Cavitation with parietal enhancement and fluid levels with about 7 × 5 cm axial axis". Kept worsening of clinical respiratory, having associated Vancomycin. The case was discussed with the pulmonology. Fiberoptic bronchoscopy was performed and bronchial aspirate, where isolated *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. It was decided, with the support of pulmonology, suspension of piperacillin/tazobactam and colistin combination for 6 weeks. Did radiological reassessment after six weeks with improved abcedada opacity. The patient was discharged with guidance for pulmonology consultation. Kept antibiotic therapy with ciprofloxacin at home.
Discussion: As the lung abscesses one entity with prolonged antibiotic therapy it is extremely important to identify the micro-organisms in question and antibiotic susceptibility test. Clinical this case serves to illustrate the importance of inter-disciplinary discussion of the patient between different specialties. Despite malnutrition in anorexia context, as poor prognostic factor, the patient recovered favorably.

Key words: *Lung abscess. Imaging.*

P-092. MASKED LUNG ABSCESS

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Introduction: Most patients with lung abscesses present with indolent symptoms suggestive of pulmonary infection, as well as evidence of chronic systemic disease. Most lung abscesses arise as a complication of aspiration pneumonia. Frequently these infections are polymicrobial (40% of all cases) including both anaerobic and aerobic bacteria. The most common aerobes are *Streptococcus* spp, mainly members of the *S. anginosus* group, known for their tendency for abscess formation. The resulting necrosis leads to lung abscess and/or an empyema, due to a bronchopleural fistula or direct extension of infection into the

pleural space. CT scanning is helpful distinguishing between lung abscesses and empyema, which are managed very differently.
Case report: 66-year-old male, former smoker (60 pack-years) with a past medical history of alcoholism. He presented to our emergency department complaining of small-volume hemoptysis. He reported a previous two-month history of productive cough with purulent sputum, right pleuritic chest pain, orthopnea, asthenia and unintentional weight loss (20 kg in 3-4 months). At physical examination he was pale and emaciate. His heart rate was above normal and his temperature was subfebrile; remaining vital signs were stable. Pulmonary auscultation revealed rales on the anterior right field and absent breath sounds on the lower-half of the right hemithorax. His blood tests results revealed increased inflammatory markers, anemia of chronic disease and hypoalbuminemia. Arterial blood gas analysis performed at rest without supplemental oxygen was normal. His chest X-ray revealed a nearly total opacification of the right hemithorax. Chest ultrasound showed a large pleural effusion. A diagnostic thoracentesis was performed. Pleural effusion was purulent and had a putrid smell. Due to the suspicion of empyema, a chest tube thoracostomy was placed. The patient was treated with piperacillin-tazobactam and clindamycin and was admitted to the Pulmonology Department. Chest CT scan revealed a pleural fluid collection with pleural thickening, suggestive of empyema. Although *Streptococcus anginosus* was isolated from the pleural fluid microbiologic examination, the foul-smelling pleural effusion was suggestive of a polymicrobial infection with anaerobic bacteria. He later developed an air leak from the chest tube drainage and a second chest CT was performed to rule out bronchopleural fistula. The CT scan showed a large thick-walled cavity containing an air-fluid level suggestive of a lung abscess. The cavity was compressing the surrounding lung parenchyma and no bronchopleural fistula was found. The chest tube was placed inside the abscess cavity and was later removed. The patient was treated with a five-week course of antibiotics and was later discharged after achieving clinical and radiologic improvement. The control CT scan performed before discharge showed reduction of the size of the abscess and pleural thickening. He was referred to pulmonary rehabilitation, as well as Pulmonology and Thoracic Surgery outpatients' setting.
Discussion: This case depicts an unusually large lung abscess, initially thought to be an empyema because of the clinical and radiologic similarities with this entity. The initial misdiagnosis led to incidental percutaneous drainage of the lung abscess. In this case there was a microbiologic diagnosis, which rarely happens in lung abscesses.

Key words: *Lung abscess. Empyema. Streptococcus anginosus. Chest tube thoracostomy.*

P-093. ACUTE EXACERBATION OF BRONCHIECTASIS – REALITY OF A PNEUMOLOGY DEPARTMENT

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Introduction: The term bronchiectasis (BQ) generally means a pathological and irreversible dilatation of the airways. It is assumed that excluding chronic obstructive pulmonary disease (COPD) and asthma, BQ are the third chronic inflammatory airway disease. The concept of acute exacerbation of BQ is based primarily on clinical criteria and is generally described as an increase in volume, purulence and consistency of sputum, with or without hemoptysis, other symptoms or analytical and radiological abnormalities.
Objectives: To characterize the patients hospitalized in the last five years with an acute exacerbation of BQ and compare those with only 1 exacerbation to those with 2 or more exacerbations.
Methods: A retrospective study, analyzing the medical records of all patients admitted to the Pulmonology Department of Hospital Geral-CHUC from January 2010 to December 2015 with an acute exacerbation of bronchiectasis and in need of hospital admission. Demographics, comorbidities and clinical variables were analysed with SPSS®. Then, the sample was divided into two groups based on the number of exacerbations: one consisting of patients with one exacerbation and the other with 2 or more exacerbations.
Results: The sample consisted of 63 individuals, 52.4% male, mean age 73.4 years. Twenty point six percent of patients had COPD, 19% had asthma, 19% had pulmonary tuberculosis sequelae and 1.6% alpha-1 antitrypsin deficiency. The most common comorbidities were hypertension in 30.2% of patients, heart failure in 20.6%, diabetes, atrial fibrillation and neuro-psychiatric disease in 11.1% respectively. With regard to therapy, 44.4% were treated with triple inhalation therapy (corticosteroids, anticholinergics and long-acting beta agonist) and, alone or in combination, 60.3% used inhaled corticosteroids. Of the total, 4.8% were on inhaled antibiotic therapy, 9.5% in domiciliary non-invasive ventilation and 39.7% under long-term oxygen therapy. Bacterial colonization was present in 17.5% of patients. In total there were 165 exacerbations requiring hospitalization in the 5 years of the study, 47.6% of patients had only 1 exacerbation and 52.4% had 2 or more. It was found that most patients with more exacerbations (≥ 2) were those using non-invasive ventilation ($p = 0.016$), long term oxygen therapy ($p = 0.02$) and were colonized ($p = 0.005$). There was no statistically significant difference for the use of inhaled corticosteroids.
Conclusions: From the analysis it was concluded that for this sample, the patients with more exacerbations have statistically significant difference in the domiciliary non-invasive ventilation, long term oxygen therapy and colonization variables. From the available literature it is known that colonization participates substantially in exacerbations which, together with the results, emphasizes the need for active search of colonization and its appropriate therapy. Patients on non-invasive ventilation and oxygen therapy tend to have more severe disease, which is also consistent with the results obtained.

Key words: *Bronchiectasis. Acute exacerbation.*

P-094. CHALLENGES IN DIAGNOSING PULMONARY ASPERGILLOSIS

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Introduction: The fungus *Aspergillus* are widespread in the environment. Pulmonary disease is caused mainly by *Aspergillus fumigatus* and has a spectrum of clinical syndromes, determined by the interaction between fungus and host. Invasive pulmonary aspergillosis (IPA) is a life-threatening pneumonia characterized by lung parenchyma invasion and necrosis. It is caused by airborne opportunistic fungi belonging to the species *Aspergillus*. The classic risk factor for invasive IPA is neutropenia and the likelihood for IPA correlates with its duration and depth. IPA is well known to account for a large number of mortalities due to fungi in haematological and solid-organ transplant patients. However, there are increasing numbers of reports documenting IPA in immunocompetent patients who do not have the classic risk factors (patients with COPD and critically ill patients). Growing evidence suggests that COPD patients are at higher risk of developing IPA, although IPA incidence in this population is poorly documented. Chronic necrotizing aspergillosis (semi- invasive) is an indolent, cavitary and infectious process of the lung parenchyma secondary to local invasion by *Aspergillus* species. It usually affects middle aged and elderly patients with altered local defenses, associated with underlying chronic lung diseases (such as COPD).
Case report: We report a case of a smoker 72 years old woman, Caucasian with history of breast cancer, depression and COPD. She presented with lethargy, dyspnea, cough and sputum production for

the last 8 days and weight loss for the last three weeks. Hemogram showed leukocytosis and biochemical high PCR. Thoracic radiogram showed parenchymal consolidation. She was admitted to the pulmonology department with diagnosis of pneumonia. Thoracic TC demonstrated consolidation with air bronchogram, cystic areas in middle lobe, right lower lobe and pleural effusion. The blood cultures, serum galactomanan (GM) and serum antibody test for *A. fumigatus* were negative. The microbiological and cytological analysis of bronchialveolar lavage did not present any abnormality but was positive for GM assay. The poor clinical outcomes with antibiotic therapy and the finding with imaging and laboratory were interpreted as pulmonary aspergillosis. Clinical and radiological improvement with voriconazole association therapy reinforced the hypothesis. We assumed IPA by the time of evolution. Cannot be excluded bacterial pneumonia without agent or bacterial superinfection of a chronic necrotizing aspergillosis. Diagnosing IPA in patients with COPD remains challenging, largely because the pathophysiology of the disease in COPD patients is different from that in patients with hematologic disorders or transplanted, owing to host factors.

Discussion: Early diagnosis is difficult and a high index of suspicion is necessary in patients with risk factors. The main clinical sign in COPD patients with IPA is a nonspecific antibiotic-resistant pneumonia associated with exacerbated dyspnea. Although published data specific for COPD patients are lacking, it seems reasonable to recommend a thoracic CT scan as soon as IPA is suspected. There is an increasing tendency to perform GM detection in BAL, which may be appropriate to diagnose IPA. In case of compatible lesions, treatment must be initiated promptly, followed by diagnostic procedures to better classify IPA.

Key words: *Aspergillosis. COPD. Galactomanan.*

P-095. PULMONARY INVOLVEMENT IN CRYPTOCOCCOSIS: AN UNCOMMON CASE IN A NON-HIV PATIENT

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Introduction: In spite of the high prevalence of *Cryptococcus neoformans* in environment, cryptococcal infections in humans are unusual, except in immunosuppressed patients. Meningoencephalitis is the most frequent manifestation of cryptococcosis, however the gateway of *Cryptococcus neoformans* is by inhaled route and pulmonary parenchymal lesions are occasionally found. The natural history of pulmonary cryptococcosis varies between a localized and auto limited disease to a progressive and severe disease, many times observed in immunosuppressed hosts.

Case report: The authors present a 65 years old, male, non-smoking patient. He has history of pulmonary tuberculosis, syphilis and chronic alcoholism. He was hospitalized for study after admission on emergency department due to a clinical condition with weight loss, asthenia, bitemporal headache, ataxia and an exuberant oropharyngeal candidiasis. In imagiologic study, chest X-ray showed an hypotransparency in the upper third of the right hemithorax, with loss of substance, and a thin hypotransparency in the middle third of the left hemithorax; in computed tomography (CT) of the skull significant changes were not observed. The direct test examination of sputum for mycobacteria was negative. Thus, it was empirically decided to start antibiotic and antifungal treatment with piperacillin/tazobactam and fluconazole 100 mg/day. The diagnosis study in admission showed the following information: the human immunodeficiency virus (HIV) was negative; thoracic CT showed a consolidation in the right upper lobe with a cavitation image of 34 mm inside and another subsegmental consolidation in the apical segment of the left upper lobe with small cavitations associated (the largest with 15 mm); bronchial fibroscopy (BF) with bronchoalveolar lavage that showed, in cytological examination, spherical structures with peripheral marking by Groccot staining, compatible with fungal structures (whose morphology didn't allow to establish the nature or characterization), and other mycobacteriology, bacteriological and cytological results were negatives. Given these results, we performed a new BF with biopsy through mini-probe, whose results indicated an infection by *C. neoformans* (sensitive to fluconazole), and so, the patient was discharged with the indication to take fluconazole 400 mg/day for 6 to 12 months. In reappraisal in the consult, in spite of the clinical improvement, given the serological value of cryptococcal antigen 1:1,280 and prior neurological symptoms, it was decided to perform a lumbar puncture which showed a high protein level, pleocytoses and CSF culture compatible with disseminated infection into the central nervous system. So, it was initiated endovenous therapeutic with amphotericin B (0.7 to 1 mg/Kg/day) plus flucytosine (100 mg/Kg/day) for 4 weeks, followed by oral fluconazole 400 mg for 4 weeks and 200 mg for 6 to 12 months.

Discussion: We present this case to highlight the difficulty of diagnosing a cryptococcal infection given the indolent course and the similarity of symptoms with other lung infections or neoplastic diseases. The diagnosis becomes challenging and often requires the use of invasive techniques and histological examinations. We also try to emphasize the need to consider cryptococcal disease as differential diagnosis even in patients not infected with HIV. Besides, should be reinforced the possibility of the spreading of *C. neoformans*, because of the high risk of recurrence after treatment with subtherapeutic doses.

Key words: *Cryptococcus neoformans. Lung. Non-HIV. Mini-probe.*

P-096. HEALTHCARE-ASSOCIATED PNEUMONIA CAUSED BY *CITROBACTER KOSERI* AND MRSA IN AN IMMUNOCOMPETENT PATIENT: A CASE REPORT

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Introduction: *Methicillin-resistant Staphylococcus aureus (MRSA)* remains one of the principal resistant pathogens causing severe healthcare associated infections. *Citrobacter* infections characteristically occur in hospital settings in patients with numerous comorbidities and infrequently cause disease in the general population. *Citrobacter koseri* is a rare and serious cause of sporadic and epidemic septicemia, and meningitis in neonates and young infants, particularly immunocompromised. In the literature though, there is no information of healthcare-associated pneumonia (HCAP), in an immunocompetent adult patient due to multiple microorganisms including *Citrobacter koseri*.

Case report: A 78-year-old immunocompetent male patient with chronic obstructive pulmonary disease GOLD D secondary to smoking and obesity hypoventilation syndrome was admitted to our hospital with complaint of dyspnea, productive cough and mucopurulent sputum. He was hospitalized as a case of severe pneumonia, with risk factors for HCAP, consistent with respiratory examination, blood gas analyses, analytical and radiological findings. A flexible broncoscopy was performed in order to isolate the potential pathogenic microorganisms. Bronchoalveolar lavage revealed *Citrobacter koseri* and *Methicillin-resistant Staphylococcus aureus (MRSA)* with distinct antimicrobial susceptibility testing. With the introduction of a dual antibiotic therapy with amoxicillin/clavulanic acid and cotrimoxazol, based on both cultural data, there was a favorable trend, although slow, from the clinical point of view, analytical, blood gas analysis and imaging. So a diagnosis of HCAP secondary to *Citrobacter koseri* and *MRSA* was made. A possible respiratory colonization from *Citrobacter koseri* was

addressed, but only the targeted treatment of the microorganism dictated the favorable development recorded during hospitalization.
Discussion: *Citrobacter*, a Gram-negative bacterium belonging to Enterobacteriaceae, is a rare cause of respiratory infection. Though *Citrobacter* strains, colonizing the human gastrointestinal tract, were conventionally considered to have low virulence, they can be the foundation of several types of infections, such as respiratory system infections. In adult patients, thus uncommon, *Citrobacter* infections commonly occur in patients with underlying comorbidities or immunosuppression. In our case, the patient was an immunocompetent adult with significant comorbidities, making this an infrequent clinical case since this organism regularly affects neonates and immunocompromised infants. The present case highlights *Citrobacter koseri* as a rare cause of HCAP in association with a largely known microorganism. The literature review indicated, attending to a respiratory point of view, previously, only one case of community-acquired pneumonia and empyema caused by only *Citrobacter koseri* in an immunocompetent adult patient was reported.

Key words: *Healthcare-associated pneumonia. Citrobacter koseri. MRSA.*

P-097. PULMONARY INFLAMMATORY PSEUDOTUMOR WITH MEDIASTINAL INVASION: A SURGICAL CHALLENGE

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Introduction: The pulmonary inflammatory pseudotumor (PIP), also known as myofibroblastic inflammatory tumor, is a rare entity, representing only 0.7% of pulmonary tumours. The clinical and radiological presentation is quite variable. Surgery has fundamental therapeutic role in this pathology and the surgical approach depends on its location and the involved neighbouring structures.
Case report: We describe the case of a 22-year-old young woman, from Angola, that had complaints of persistent haemoptoic cough and a weight loss of 7 kg. The CT scan showed a right upper lobe mass invading the apical segment of the lower lobe. The 6.2 × 8 cm tumor invaded the azygos vein and didn't have any dissection planes with the mediastinum. There were also some enlarged para-tracheal and sub-carinal lymph nodes. The transthoracic biopsy was compatible with PIP. Considering the little effect of other therapeutic options surgery was offered. The procedure started with a median sternotomy with extended dissection to free the tumor from the innominate artery, the innominate vein, the subclavian vein, the superior vena cava and the trachea. The right main pulmonary artery was controlled intra-pericardially. After freeing the tumor from the mediastinum the sternotomy was closed. In the same operating time we underwent a right thoracotomy and completed the right upper lobectomy "en bloc" with an inferior lobe wedge and section of the azygos vein. There was also preformed a frenoplicature. After a complicated post-op period the patient was discharged on the 25th day. The final pathology confirmed the diagnosis of PIP. The mediastinal margins coincided with the lesion. The lymph nodes were not pathological. Nine months after surgery the patient is clinically well, without signs of recurrence. Was previously presented by our group there can be a variety or presentations including solitary nodules or multiple bilateral nodules. However the disease might also manifest as in this case as a volumous aggressive mass invading the mediastinum.
Discussion: The complete surgical excision is the best prognosis factor in these patients. So even if it implies aggressive surgery this should be the indicated therapy.

Key words: *Pulmonary inflammatory pseudotumor. Thoracic surgery. Surgical challenges.*

P-098. MALIGNANT PLEURAL MESOTHELIOMA POST LIVER TRANSPLANT. A CLINICAL CASE

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Introduction: Patients undergoing solid organ transplantation are at high risk of post-transplant malignancies related to immunosuppression. As described in the literature, the most commonly diagnosed cancer after liver transplantation are non-melanoma skin cancer, followed by lymphoma and colorectal cancer. Pleural mesothelioma is a rare, insidious malignancy with poor prognosis. Exposure to asbestos is the major risk factor associated with this disease, and its association with solid organ transplantation is rare but is described in the literature.
Case report: We report the case of a 67-year-old man, heavy truck driver, that underwent a liver transplantation in April 2004 because of alcohol induced chronic liver disease. He received the liver of a patient with familial amyloid polyneuropathy (FAP). The patient had a smoking history and chronic renal failure on hemodialysis as comorbidities. There was no personal or family history of asbestos exposure. Approximately 10 years after transplantation the patient presented with dyspnea and tiredness. The first evidence of a left pleural thickening was detected on March 2014 and left pleural effusion was diagnosed approximately 4 months later. Thoracentesis was performed with evacuation of serohematic fluid. As pleural effusion recurred, a chest tube was inserted with drainage of an hematic fluid. The patient underwent a left Videoassisted thoracoscopic surgery to remove blood-clots and to perform pleural biopsies. Histological examination revealed the presence of epithelioid mesothelioma. The case was discussed in a multidisciplinary meeting and palliative therapy recommended. The patient died about 5 months after diagnosis due to disease progression.
Discussion: The first and only case of a post liver transplantation mesothelioma with probable association with immunosuppression was published this year in the literature. As in this case, the patient had no personal or family history of exposure to asbestos, or typical imaging of asbestosis. In conclusion, this case highlights the importance of suspicion and follow-up of post-transplant immunosuppressed patients, since even rare tumors such as mesothelioma may arise in these patients.

Key words: *Mesothelioma. Liver transplant. Immunosuppression.*

P-099. ABERRANT ANEURYSM OF ADULT-TYPE PULMONARY SEQUESTRATION. CASE REPORT

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Introduction: Pulmonary sequestration is a lung malformation, consisting with non-functional lung parenchyma supplied by systemic arterial flow. Pulmonary vessel in the adult-type pulmonary sequestration is affected over decades by much higher blood pressure than the ordinary pulmonary circulation. The vessels might be degenerated under such a high blood pressure. Surgical division of the aneurysmal artery has the risk of stapling failure and peri-operative hemorrhage. These complications can be avoidable by strategies to aim controlling the systemic blood flow prior to malformation resection. We report a case of intralobar pulmonary sequestration, having a giant aneurysmally dilated aberrant systemic artery, diagnosed by computed tomography with angiography and referred to our hospital for surgery.

Case report: A 45-year-old man who had been told that he had an aneurismatic lesion in the right lung, 10 years before, with persistent cough complaints, was presented to our center. The patient had no prior history of significant medical disease and no habit of smoking. Physical examination showed mild rhonchi in the right lung. A chest x-ray film showed a calcified mass in the right lower lobe. Subsequent computed tomography with angiography scan of the chest revealed a fusiform bulky lesion, 15.0 × 8.2 cm, with slight densification of the lung parenchyma in the right lower lobe behind. The image demonstrated that the "mass" was a markedly dilated anomalous artery with a diffusely calcified wall, having branching distal runoffs and a large feeding vessel which was originated from the left side of the lower thoracic aorta. The patient underwent a bilateral thoracotomy: a left thoracotomy for suture closure of the large feeding vessel and a right thoracotomy for lesion (aneurysm) and lung wedge resection. The postoperative course was uneventful, and the patient was discharged on the third postoperative day. Pathological examination revealed an intralobar bronchopulmonary sequestration. Aberrant aneurysm was accompanied with highly arteriosclerotic change and collapse of the arterial tunica intima with the lumen fully occupied by thrombus in organization.
Discussion: Adult-type sequestration may accompany a degenerated aberrant artery exposed by a high blood pressure. Arterial division during surgery is dangerous for its frailness, having a risk of stapling failure or development of stump aneurysm after surgery. Such risks are avoidable by complete resection of the aberrant artery including its origin at the thoracic aorta artery, which in this case required additional contralateral thoracotomy before sequestration/lung resection.

Key words: *Pulmonary sequestration. Anomalous vessel aneurysm.*

P-100. CONGENITAL LOBAR EMPHYSEMA – 2 CLINICAL CASES WITH SURGICAL TREATMENT

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Introduction: The congenital lobar emphysema/hyperinflation is a rare malformation of the lower respiratory tract of unknown etiology, characterized by hyperinflation of one or more lobes, leading to compression of adjacent normal lung tissue and mediastinum. Symptoms usually appear in the neonatal period and early childhood. Males are affected more often than females and the uppers lobes are most often affected. The standard treatment in symptomatic patients is surgical resection.
Case reports: Case 1: man, ex-smoker, obese. At 15 years old, after going to the emergency department with dyspnea for efforts and chest pain, he initiated clinical research in pediatric consultation. Chest X-rays showed no significant changes and atopy investigation was negative. Spirometry showed slight obstructive ventilatory pattern with bronchodilator response. Chest computed tomography (CT) was suggestive of congenital lobar emphysema in the posterior region of the right lower lobe (RUL). It was excluded associated cardiac malformation, as well as bronchial obstruction. Ventilation/perfusion scintigraphy showed partially concordant defect of ventilation/perfussion in the posterior segment of the RUL. The case was discussed with thoracic surgery and decided conservative attitude. For clinical and functional worsening (moderately severe obstructive ventilatory pattern and changes consistent with "air trapping", with CO diffusion (carbon monoxide) normal), it was again evaluated by thoracic surgery at age 23 and accepted for right lower lobectomy. The postoperative period was complicated with suspected bronchopleural fistula requiring reoperation and infection of the surgical wound. He had clinical and functional improvement. Case 2: woman, no smoking. At 7 years old she initiated clinic of dyspnea for efforts, reason why she starts investigation in another institution. Chest X-rays showed hyperinflation and parenchymal thinning in the left upper lobe (LUL). Respiratory function tests showed changes consistent with "air trapping" and normal CO diffusion. Chest CT was suggestive of congenital lobar emphysema LUL. Bronchoscopy excluded bronchial obstruction but showed that the upper division of the LUL had only 2 holes (supposed absence of right B1). Ventilation/perfusion scintigraphic showed defect of ventilation/perfusion in the LUL and apical region of the LIL. At age 14 he was referred to thoracic surgery consultation, but abandoned it. It was again referred at age 23 for maintenance of dyspnea, being accepted to upper left lobectomy. The postoperative period was complicated with hydropneumothorax requiring reintroduction of chest tube, leaving an apical pleural loca sequela. She had clinical improvement.
Discussion: Although being a rare entity, the congenital lobar emphysema should be considered in the etiological investigation of dyspnea in infants, children or even teenagers, as in the first case described. CT is an essential examination to diagnosis. Symptomatic patients can opt for a conservative approach, however there is a tendency to clinical and functional worsening and surgery is the only curative option.

Key words: *Congenital emphysema. Surgery.*

P-101. FOLLICULAR BRONCHIOLITIS: A RARE PRESENTATION

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Introduction: Follicular bronchiolitis is a benign lymphoproliferative disorder characterized by the development of lymphoid follicles with reactive germinal centers in the walls of small airways. As a result of bronchiolar narrowing, there is a purulent bronchitis with subsequent pneumonitis. This disorder can be idiopathic/primary or occur in association with connective-tissue disorders – particularly rheumatoid arthritis, immunodeficiency syndromes including AIDS, pulmonary infections, or ill-defined hipersensitivity reactions. Secondary follicular bronchiolitis is a relatively common disease and may occur at any age, while the idiopathic form is rare and most commonly seen in middle-age and elderly patients. Pulmonary symptoms are unspecific and include cough, dyspneia, fever, recurrent pneumonia, weight loss or fatigue. The most common features of follicular bronchiolitis on high resolution CT scan consist of bilateral and diffusely distributed centrilobular nodules (1 to 12mm in diameter), variably associated with peribronchial nodules and patchy areas of ground-glass opacity. In secondary follicular bronchiolitis, management is usually aimed at treating the underlying condition. The prognosis of idiopathic form is generally favorable, but no treatment guidelines have yet been established. However, corticosteroids and macrolide antibiotics have been used in the treatment of idiopathic form with symptomatic improvement.
Case report: We report a case of a 71-year old man, non-smoker, with history of recurrent respiratory infections in the last 4 years, who presented a spiculated nodular lesion, with 10mm, in the left lower lobe on a routine chest CT scan. On suspicion of lung cancer, the patient performed a PET-CT scan that showed no hypermetabolic focus. After discussion, a video-assisted thoracoscopy wedge resection was performed for a definitive diagnosis. The histopathological examination was consistent with follicular bronchiolitis. As the patient appears asymptomatic and presents a normal pulmonary function study, after ruling out the presence of a underlying disease, it was decided not to perform therapy. However, he is under regular follow-up in pneumology clinic.

Key words: *Lymphoproliferative disorder. Bronchioles. Pulmonary nodule. Idiopathic.*

P-102. A COMPLICATED PULMONARY HYDATID CYST

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Introduction: Hydatid cyst is a disease caused by the larval stage of the parasite *Echinococcus granulosus* and is still a problem in endemic areas. Humans (intermediate hosts) contract the disease from water or food or by direct contact with dogs (definitive hosts). In adults, cysts occur more frequently in the liver, followed by the lungs. Pulmonary hydatid cysts are often asymptomatic and are diagnosed incidentally on chest radiography. Clinical symptoms occur when the cysts grow large enough to compress adjacent structures or to develop complications, such as rupture, secondary infection, pneumothorax and suppuration. The rupture of cysts may occur spontaneously or as a result trauma or secondary infection, and may be associated with the sudden onset of chest pain, cough, fever, hemoptysis and anaphylactic reaction. Diagnosis is obtained by imaging evaluation, confirmed by serology in the majority of cases. Surgery is the main therapeutic approach in pulmonary hydatid cyst though medical therapy with benzimidazoles, may also be useful.
Case report: We report the case of a 50 year-old non-smoking businesswoman, presented with a history of cough, fever and hemoptysis for 2 months. Despite several courses of antibiotic therapy, the patient did not have any improvement. Chest X-ray revealed a homogenous opacity occupying two-thirds of the left hemithorax. CT scan showed a 9cm cystic lesion that causes atelectasis of left upper lobe and PET-CT revealed accentuated uptake in this lesion (SUV 8.3). The patient underwent bronchoscopy which demonstrated a whitish membranous material at the orifice of B4 and presented positive serology to *Echinococcus*. Based on these findings, she was diagnosed to have a pulmonary hydatid cyst and submitted to surgery (left upper lobectomy and empyemectomy) plus chemotherapy with albendazole. The histopathological examination and culture of the pleural fluid was consistent with complicated hydatid cyst superinfected by *Actinomyces* spp. The postoperative stay was uneventful and the patient was discharged asymptomatic on albendazole and penicilin.
Discussion: The diagnosis of complicated pulmonary hydatid cyst may be challenging, because this can mimic tuberculosis, lung cancer, empyema or abscess. Early identification and treatment (surgical plus perioperative chemotherapy) will improve the prognosis. In endemic areas this diagnosis should always be suspected.

Key words: *Echinococcus granulosus. Complicated cyst. Lobectomy. Empyema. Actinomyces spp.*

P-103. NONINTUBATED (AWAKE) UNIPORTAL VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR AN INFERIOR LEFT LOBECTOMY

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Introduction: Video-assisted thoracoscopic surgery (VATS) has become a common and globally accepted approach for thoracic surgery. Recently, advances in the field have developed new procedures that do not require tracheal intubation. In this case report, we present a case of a patient submitted to an inferior left lobectomy by nonintubated uniportal video-assisted thoracoscopic surgery.
Case report: 78 years-old female patient, with history of dyslipidemia, osteoporosis and a rectal neoplasia, submitted to neoadjuvant chemoradiotherapy right after the diagnosis in 2014 and to anterior rectal resection in 2015. During a follow-up chest CT in 2016, a pulmonary nodule was diagnosed in the left lung inferior lobe. PET/CT-scan revealed hypermetabolic activity (4.3-4.8 SUV) in the inferior left lobe. The patient was proposed for an atypical lung resection. The surgery was performed with uniportal VATS, with a 3cm coetaneous incision on the 5th intercostal space. A left inferior lobectomy was performed due to the nodule's locations and dimension, without any complication. Tracheal intubation was not used, with the surgery performed with mild sedation (patient *awake*). A 28F chest was inserted at the end of the surgery. The patient recovered at Unidade de Cuidados Intensivos Respiratórios of Hospital de Santa Maria, and on the day after the surgery she was transferred to the ward. The chest tube drained 400 cc of serohematic fluid in the first 24 hours, total draining 700 cc. It was removed on the third day after the surgery. Follow-up chest radiography revealed complete lung expansion. The pain was controlled with a patient controlled analgesia (PCA) continuous perfusion of ropivacaine and oral paracetamol and metamizole (0 with visual analog scale for pain). There were no postoperative complications. The patient was discharged on the fourth day after surgery. One-week follow-up chest radiography after discharged had no evidence of pneumo or hemothorax, with total expansion of the lung.
Discussion: The awake uniportal VATS procedure is a safe and efficient technique for the surgical treatment of pulmonary and mediastinal diseases. Comparing to the procedures with tracheal intubation, awake procedures speed up post-op recovery and have lower incidence of peri-operative complications. It is essential in critical patients and in patients with neuromuscular diseases, as tracheal intubation worse the prognosis. However, more studies are needed, especially to state the long-term results (incidence of complications and overall survival), as they are not yet known, particularly in thoracic surgical oncology.

Key words: *Thoracic surgery. Oncology. Lung. Awake.*

P-104. RVATS (ROBOTIC VIDEOASSISTED THORACIC SURGERY) LOBECTOMY: A SINGLE REPORT

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Introduction: Thoracic robotic surgery is having its first steps in Portugal, now at the end of its first decade of existence. The initial results are similar to those reported from the videoassisted techniques in the last 20 years. We present a report of RVATS lobectomy.
Case report: A 71 years old female, former smoker (28 packs unit/year), asymptomatic, a right lower lobe nodule found in routine tests. Lung CT (computed tomography) scan showed a right lower lobe nodule and bilateral small subpleural nodules. PET (positron emission tomography) scan detected a right lower lobe lesion (SUV (standardized uptake values) 10), subcarinal lymph node (SUV 3) and unreactive bilateral small subpleural nodules. The patient presented normal respiratory function tests. A transthoracic fine-needle aspiration biopsy of the right lower lobe nodule was performed that confirmed ADC (adenocarcinoma). An attempt was made to puncture a left nodule unsuccessfully. A *single port* wedge resection of nodules from the left superior and left inferior lobe plus mediastinal lymphadenectomy was then performed: without neoplastic tissue; and in a multidisciplinary meeting was decided to perform a right lobectomy. A right lower lobectomy plus mediastinal lymphadenectomy through RVATS was performed. The postoperative period was uneventful. A total drainage of 400 cc in the first 24

hours was reported and the chest tube was taken out in the 2nd day after surgery. The patient was discharged in the 3rd day after surgery. The pain control was well achieved, with a maximum of pain grade 2 in the Visual Analog Scale reported in the first day. The final histology confirmed a acinar type intermediate grade ADC (G2), R0 resection, a para-oesophageal lymph node positive for carcinoma metastasis (pT1bN1). The patient started chemotherapy 4 weeks after surgery (Cisplatin + Permetrexed).
Discussion: Robotic thoracic surgery must not be viewed as an experimental procedure, as it has proved with good results, similar to VATS (VideoAssisted Thoracic Surgery), being published all over the world, keeping all the advantages reported as less pain, rapid recovery and return to active life and low rate of complications, as in the case presented with an uneventful postoperative period, quick discharge and possibility to start chemotherapy in a short term. We must state that technological innovation that starts with similar results as already established techniques tend to overcome the previous technology as time goes by, with the acquisition of greater experience.

Key words: *Thoracic surgery. Robotics. Lung cancer. Lobectomy.*

P-105. A LATE ONSET COMPLICATION ON AN UNCOMMON TUMOR. ABOUT AN ALMOST COMPLETE EXSANGUINATION-TRANSFUSION CASE

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Introduction: Pancoast tumours represent < 5% of bronchopulmonary cancers. Their surgical approach is associated with complications due to the complex surgical technique, the anatomic particularities of the thoracic inlet and the transformation of this anatomy after chemoradiotherapies. Adding to the complications of a major pulmonary surgery (bleeding, air leak, infection and dysrhythmias) is the specific complications of the Pancoast tumour (Horner's syndrome, brachial plexus injury and cerebral spinal fluid leak).
Case report: Male, 58 years old, smoker until 9 months ago, Non-Hodgkin's splenic marginal zone lymphoma on Oct/2010 (status post-laparoscopic splenectomy and 8 cycles of chemotherapy), chronic C hepatitis. For 3 months he presented with right hemithorax and shoulder pain radiating to the arm and associated with paraesthesias of its distal extremity and unilateral hiperhidrosis (face and right arm). Thoracic CT: solid mass at the right pulmonary apex with pleural invasion and destruction of the posterior arch of the second rib. Diagnosis on May/2015 by transthoracic needle biopsy: lung adenocarcinoma. He was submitted to treatment with radiotherapy (60 Gy) and chemotherapy (vironelbine, cisplatin e carboplatin), with good progression by reduction of the tumour size (6 cm to 4.5 cm). It was assumed Pancoast Tumour in cT3N0M0 staging. He was submitted to Paulson's thoracotomy: Right superior lobe and chest wall *en bloc* resection including the posterior arch of the 1st to 4th ribs. Mediastinal lymph node resection. Initially there was a clinic favourable evolution with hemodynamic stability of the patient. The patient maintained thoracic tube drainage due to air leak in regression. On the 8th day after surgery the patient presented with non-traumatic syncope, without a triggered factor identified. He was immediately admitted to the Intensive Care Unit (ICU) by altered level of consciousness (disorientation and incoherent speech), severe hypotension (64/34 mmHg), tachycardia (103 bpm), peripheral hypoperfusion, skin and mucosal pallor, hyperlactacidemia (5.4 mmol/L) and warm tube drainage with immediate leave of 850 mL of red blood. A central venous catheter was implanted and the patient was reanimated with blood components and fluids. He was quickly submitted to the operating room for haemostasis revision due to massive haemothorax. An active intrathoracic bleeding was found due to the contact of an artery originating from the subclavian artery with a bone tip of the first rib. The artery was cauterized. Total blood loss was estimated at 4,000 mL (1,500 mL before surgery and 2,500 mL in the operating room). He was treated with 6 transfusions of red cells concentrate, 2 of plasma, 1 of platelet and 2g of fibrinogen. Hemodynamic stability prevailed after surgery with favourable clinic and blood components evolution. He was discharged 11 days after surgery with 11.2 g/dL of haemoglobin.
Discussion: The authors present an almost complete exsanguination-transfusion case of a late onset haemothorax. There have been rare reports about this complication and it was never before diagnosed at our hospital. This prompted a multidisciplinary (Thoracic Surgery, Anaesthesia, Transfusion Medicine, Intensive Care) and quick approach with efficient resolution of the clinical situation.

Key words: *Pancoast tumour. Late onset surgical complication. Massive haemothorax.*

P-106. BRONCHIAL SLEEVE LOBECTOMY BY UNIPORTAL VIDEO-ASSISTED THORACOSCOPIC APPROACH

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Introduction: Video-assisted thoracic surgery lobectomy, by uniportal approach (UP-VATS), was started by Diego Gonzalez-Rivas and his colleagues in 2010. In 2013, the same team reported the first case of bronchial sleeve lobectomy by UP-VATS, and in the last two years this procedure has been initiated by other surgical teams. In this presentation, we report the first bronchial sleeve lobectomy by UP-VATS performed by our team.
Case report: A 31 years old woman, without comorbidities and non-smoker, was diagnosed (by thorax CT-scan and biopsy by bronchoscopy) with a carcinoid tumor, with 23 mm in size, at the origin of the left upper lobe bronchus. After multidisciplinary discussion, it was decided surgery. Using an UP-VATS approach, the left hilar structures were isolated and the left upper lobe bronchus, with part of the main bronchus, was sectioned for tumor isolation; then the bronchoplasty of the main and lower lobe bronchi was performed; the upper left lobectomy was completed and finally the mediastinal lymph node were dissected. The surgical time was 310 minutes and the only complication was a small vascular laceration, during the isolation of the hilar structures, controlled with local tamponade and a single suture stitch. The postoperative course had no complications, and the patient remained hospitalized 6 days, performing prophylactic antibiotics. The final pathological analysis showed a neuroendocrine tumor grade I (carcinoid) with no lymph node involvement. After discharge, the patient was followed regularly in consultation, with no complications to report so far.
Discussion: A resection with bronchial sleeve is the approach that most bronchial tumors require. Given the complexity of the procedure, these tumors were considered contraindications for video-assisted thoracic surgery. Currently, with technical advances and experience in video-assisted surgery, this procedure has become possible, safely, by UP-VATS, being now performed routinely at centers with extensive experience in this technique. In March 2016, after 3.5 years of experience in UP-VATS, we decided to perform our first bronchial sleeve lobectomy by UP-VATS, with success. To our knowledge, this is the first reported case of bronchial sleeve lobectomy by UP-VATS performed by a Portuguese thoracic surgery team.

Key words: *Lobectomy. Sleeve. Vats. Uniportal.*

P-107. PENETRATING CHEST TRAUMA: THORAX CT SCAN IS ESSENTIAL

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Introduction: Penetrating chest trauma is a rare situation with an estimated incidence under 4% in trauma patients in Europe. Injuries on the thoracic structures will depend according to the instrument used in the attack. It may affect lungs, heart and great vessels, thoracic wall, among others. Pulmonary lesions include pneumothorax, hemothorax, lung contusion or laceration. Clinical manifestations depend on the location of the wound. The patient can be stable and with few symptoms, or in the need of advanced life support with haemodynamic instability. Treatment depends on the severity of the situation. It may vary from a simple surveillance to a treatment with a chest tube or emergency thoracotomy.
Case report: White female patient, 43 years old with no relevant medical history. Admitted in the emergency department after a domestic violence situation with a penetrating trauma on the left anterior chest caused by a knife. She also presented a blunt trauma on the head, cervical spine and abdominal wall. She had a Glasgow Coma Scale of 15, haemodynamic stability and normal breathing. No jugular distension. Pulmonary sounds were decreased at left side. There was a 5 cm incision in the anterior left wall at the 4th intercostal space. The pleural cavity was not apparently injured at wound exploration. Admission exams showed a normal arterial blood gas and normal trans-thoracic echocardiogram. Thoraco-abdominal-pelvic CT scan showed discrete pleural effusion, a small pneumothorax and superior left lung laceration. Mediastinum and great thoracic vessels were normal. Head CT with minor right frontal bruising. Cervical CT was normal. The wound was sutured with no need for a chest tube. Patient was admitted at Thoracic Surgery Ward where she stayed 48 hours for observation and was discharged with no complications.
Discussion: Penetrating chest trauma is rare and can cause major damage. Clinical examination is very important but it does not exclude the need for an echocardiogram and a thoracic CT scan to fully comprehend the extension of the lesion. In this case, the CT scan was essential to visualize lung laceration and pneumothorax without mediastinic implication which allowed a conservative treatment.

Key words: *Penetrating trauma. Pulmonar laceration.*

P-108. PNEUMONECTOMY FOR BENIGN DISEASE – VENTILATION PERFUSION SCAN AS A DECISION HELPING TOOL

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Introduction: Pneumonectomy as a major pulmonary resection implies important figures of mortality and morbidity. It's mostly performed for lung cancer but it's also an important tool for a subset of patients with benign disease. The reported mortality and morbidity for pneumonectomy in benign cases ranges from 0 to 25% and 23 to 63%, respectively, and it's know to be higher in the emergency setting. The most common indication for pneumonectomy in benign cases is lung destruction from pulmonary tuberculosis sequelae in endemic countries. Other reported indications are bronchiectasis, chronic suppurative lung disease, invasive opportunistic infection, benign hilar lesions, and situations requiring emergent surgery like massive pulmonary trauma, massive haemoptysis and bronchovascular fistula, although rare in our practice. Most of the non-emergent conditions may be associated with a prolonged disease course frequently related to a diminished quality of life caused by recurrent complications as pneumonia, empyema, haemoptysis and septicaemia. It is also known that these patients have a diminished lung function that reflects lung parenchyma destruction of the affected lung. Standard pulmonary function tests (PFT) show decreased values of FVC, FEV1 and DLCO but only ventilation/perfusion scintigraphy (V/Q scan) can show the functional contribution of each lung. Several reports also state that V/Q scintigraphy is as good as PFT on predicting post-operative lung function.
Case reports: We retrospectively reviewed two cases of pneumonectomy performed for benign disease, the diagnostic work up and decision rational. Case 1: 38 yo male, admitted for hypoxemic pneumonia, diagnosed as pulmonary tuberculosis. He completed 9 months of antibacilar therapy, achieved negative sputum, and was referred to our Department presenting a destroyed left lung as a consequence of tuberculosis infection. Case 2: 41 yo male, with known history of tuberculosis ten years ago and recurrent pulmonary infections since then. He was referred to our Department due to chronic suppurative illness and worsening of his condition. His CT scan showed a large cavity of the right upper lobe and saccular bronchiectasis of middle and lower lobes. The patient enrolled a pulmonary rehabilitation program to improve drainage of secretions and functional reserve. Both patients presented with decreased FVC, FEV1 and DLCO. V/Q scan was performed to assess the relative contribution of each lung to overall pulmonary function. On both cases the affected lung was mainly non-functional with a relative perfusion of 10% and 3% respectively. The two patients were submitted to pneumonectomy according to the rational that the extension of the resection would not further compromise function. There were no post-operative complications to be registered.
Discussion: The clinical management of these patients is challenging and the therapeutic decision should involve a multidisciplinary approach. V/Q scintigraphy may help strengthen the decision of proceeding to major resection regardless of the patient's decreased pulmonary function and the procedure's high morbidity and mortality. Optimization of clinical status and careful investigation of pulmonary function is of paramount importance in order to reduce post-operative complications.

Key words: *Pneumonectomy. VQ scan. Benign disease.*

P-109. IMPACT OF CIRCUIT REHABILITATION CLASS IN RESPIRATORY DISEASE

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Pulmonary rehabilitation (PR) is a key intervention in respiratory patients, being unambiguous the benefits in symptomatic relief, improving the quality of life and exercise tolerance. Despite the benefits demonstrated, the dropouts still achieve high values, varying between 10% to 32%. We proposed to evaluate the impact of a circuit rehabilitation class in the dropout numbers. The authors included 12 patients in a class, all male, average age of 71.4 years. The group included 11 patients ex-smokers and 1 nonsmoker. The identified respiratory pathologies were, COPD, Sarcoidosis, bronchiectasis, idiopathic pulmonary Fibroses, silicosis, HTP (S. Rendu-Osler-Weber) and diaphragmatic paresis by partial lesion off the phrenic nerve. All patients were clinical assessed in pneumology and physical medicine and Rehabilitation. The 6-min walk test (6MWT), was employed to evaluate exercise capacity, and evaluate program response in chronic respiratory diseases, and applied evaluation instruments to evaluate the functional status of each

patient, psychological profile managing the disease: The hospital anxiety and depression scale (HADS), modified baseline dyspnea index (BDI), London Chest Activity of Daily Living (LCADL), Euro-Qol 5. Anthropometric features (age, weight and height) were also assessed. Program took 8 weeks, with 2 classes weekly, approx. 1 hour. Various modes of training were used in the circuit training method, regarding cardiorespiratory endurance, strength, flexibility, and respiratory pattern training. The results of the applied methodology match the ones found in the diverse literature, with a better result in the dropout rate (8.33%). We concluded that the establishment of working groups in classes can be a strategy to increase the motivation and decrease the rate of dropout's from the program.

***Key words**: Rehabilitation. Physiotherapy. Circuit training. COPD. Exercise.*

P-110. RESPIRATORY REHABILITATION OUTCOMES IN A SPECIALIZED CENTER FOR AMBULATORY PATIENTS

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Introduction: Pulmonary rehabilitation (PR) is an intervention designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors. PR has a high level of scientific evidence concerning exercise capacity, functional status, health-related quality of life, symptoms and health care costs reduction and survival improvement. The ratio of patients in pulmonary rehabilitation in Portugal does not exceed 1-2% of those that require it and it exists almost exclusively in the hospital setting. The AIR Care Centre® is the first Respiratory Rehabilitation Centre owned by Linde Saúde in Lisbon opened in April 2014 and is the first proximity Centre specialized in PR outside the hospital setting. This Centre provides a set of services guided towards the integrated and interdisciplinary rehabilitation of the chronic respiratory patient, founded on 3 pillars: evaluation and clinical control, exercise training and education. It is supported by an experienced team of physicians (pulmonologist, physiatrist and cardiologist), physical therapists, psychologist, nurse, nutritionist, occupational therapist and cardiopulmonologist technician, and it works with full compliance to the most recent guidelines.
Objectives: We aim to present the organization and model of care as well as the clinical outcomes of a sample of 54 patients treated and followed-up in the AIR Care Centre®.
Methods: We conducted an observational study of a cohort of 54 patients with prospective analysis of the outcomes, composed by a sample of 54 individuals (31 women, median of 71 years old) with several conditions (COPD - 67%, pulmonary fibrosis - 17% and others - 17%). Of the 36 patients with COPD 11 are GOLD A, 5 B, 10 C and 10 D. The individualized rehabilitation programme had a minimum duration of 6 weeks but for most patients it lasted longer than 10 weeks (67%). All patients went through exercise training (aerobical - continuous and/or interval, strength and flexibility), education (structured group sessions or individually), respiratory physiotherapy (eg. breathing exercises, bronchial mucus clearance techniques, among others), 30% had psychological intervention and 50% had nutritional intervention. Functional capacity was evaluated through 6-minute walking-test (6MWT) and for dyspnea the modified Medical Research Council (mMRC) questionnaire was used. Health-status of COPD patients was assessed with the COPD Assessment Test (CAT).
Results: At the 6MWT (n = 54) 87% of the patients walked on the 2nd evaluation a distance equal or greater than 30m (minimal clinical important difference (MCID) between 25 and 33 meters). At the mMRC 55% (21/38) of the patients after the PR programme reached a MCID (1 reduction point). At the CAT 73% (22/30) of the patients reached a MCID (reduction ≥ 2 points).
Conclusions: The results obtained in this small sample of patients followed at AIR Care Centre® are in agreement with those presented by current literature and are a strong indicator that more specialized Centres should be developed to increase the availability of differentiated and multidisciplinary PR care, which follows the best practices recommended by current guidelines.

***Key words**: Pulmonary rehabilitation. Functional status. Quality of life. Dyspnoea. Outcomes.*

P-111. NON-INVASIVE VENTILATION IN ACUTE HYPERCAPNIC RESPIRATORY FAILURE DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction: Non-invasive ventilation (NIV) is an important weapon for the treatment of acute hypercapnic respiratory failure (AHRF) in patients with chronic obstructive pulmonary disease (COPD). It is known that patients who survived an AHRF have a poor prognosis but the benefit of domiciliary NIV after an AHRF episode is not well established. Both Ankjaergaard et al and Budweiser et al studies, suggest that long term NIV after an AHRF episode is able to reduce future hospital admissions and improve overall survival.
Objectives: Evaluate the domiciliary NIV effect in hospital readmissions after an AHRF episode due to COPD.
Methods: Retrospective analysis of all the patients admitted at *Hospital de Braga* in 2014 with the diagnosis of COPD exacerbation and AHRF, who were submitted to NIV and successfully discharged. The patients were followed until July 2016.
Results: 39 patients were included and divided in 3 groups: those who were already on domiciliary NIV, previously to the considered admission (Group A – Previous NIV: n = 19); those who started NIV after the considered admission without having done it before (Group B – *de novo* NIV: n = 11) and those that were discharged without NIV or in those whom NIV was suspended (Group C – Without NIV: n = 9). The global population mean age was 71.41 years ± 12.6. There was a male predominance (66.7%). The mean FEV1% before admission was 36.9% ± 12.4. The evaluation of gasometric parameters (pH, paCo2, lactates) before NIV and 1 hour after NIV, showed no statistical significance between those already on NIV treatment previous to the considered admission (Group A) and the Groups B and C. The mean duration of hospital stay was 13.85 days ± 7.32. There was no statistical significance comparing the hospital stay duration between groups. Patients from Group A (Previous NIV) had more hospital readmissions for COPD exacerbations in 2014 than the patients from Group B (*de novo* NIV) (p = 0.014) and Group C (without NIV) (p = 0.0006). The mean hospital readmission due to COPD exacerbation for 30 days (number of hospital readmissions for 30 days, considering global survival) of the global population was 0.2. There were no differences in the hospital readmissions for 30 days between groups.
Conclusions: Patients on domiciliary NIV treatment previous to the considered admission had similar pCO2 and pH values at admission and a similar duration of hospital stay, in comparison with the patients from the other groups. In this study, those who initiated NIV after an AHRF episode due to COPD exacerbation showed no benefit regarding the number of hospital readmissions for COPD exacerbation.

***Key words**: Non-invasive ventilation. Acute hypercapnic respiratory failure. Chronic obstructive pulmonary disease.*

P-112. CONTINUOUS FLOW IN PORTABLE OXYGEN CONCENTRATOR AND LIQUID OXYGEN IN AMBULATION. ARE THEY EQUAL? THROUGH EVALUATION OF A 6 MINUTE WALK TEST

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Introduction: COPD patients don't always keep the same PaO2 levels throughout the day, showing sometimes accentuated desaturations during activities of their daily living. For this assessment and measurement, the six minute walk test (6 MWT) is the chosen examination. There are several models of oxygen for ambulation on the market, and the most widely used are liquid oxygen (LO) and portable concentrator (POC).
Objectives: The aim is to find out if there are significant differences in the distance walked and minimum oxygen saturation comparing patiens on LO vs POC.
Methods: Retrospective study comprised of 35 patients with COPD diagnosis and indication for use of oxygen therapy for ambulation. Were selected 6 MWT between January 2015 and July 2016, with oxygen debts of 1 and 2 L/min and 1 and 2 settings in the streaming mode. Were excluded patients with other associated diseases. The sample was divided into two groups: liquid oxygen (GLO) consisting of 20 patients, and POC (GPOC) composed of 15 patients. Proceeded to the comparison of walked metres and minimum oxygen saturation measured through transcutaneous portable oximetry in the two groups. The test used was t Student.
Results: The GLO was composed mostly by male individuals with average age around 69.7 years, an average distance walked of 306.1 meters and a minimum of average oxygen desaturation of 87.15%. The GPOC was mostly composed by male individuals and featured a 68.9 average age. The average distance walked was 311.33 meters and they hit a minimum of average oxygen desaturation of 86.06%. On the comparison of groups there was no statistically significant difference observed on regard to meters walked (p = 0.86) and registered desaturation (p = 0.48).
Conclusions: The two models of oxygen deambulation (OL and POC) in these two groups of patients with COPD and with indication for oxygentherapy in deambulation, were equivalents regarding the distance and the minimum oxygen saturation.

Key words: *COPD. Portable concentrator. Six minute walk test. And liquid oxygen.*

P-113. HAZARDOUS VAPORS

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Introduction: Phosphoric acid is a strong acid commonly used as an industrial chemical in the manufacture of fertilizers and detergents and also in water treatment. Concentrations of 10 to 25% phosphoric acid may cause skin and mucosa irritation and higher concentrations are considered corrosive. Contact with skin may cause chemical burn. Inhalation is not expected to be hazard unless the acid is heated and release vapor. If so, can trigger cough, retrosternal burning, hoarseness, dyspnea, wheezing and possibly chemical pneumonitis. Phosphoric acid can be absorbed by ingestion, inhalation or skin contact, spreading systemically as phosphate. Although few cases had been reported and most concerning acid ingestion, increased blood phosphate concentration due to phosphoric acid can cause hypocalcaemia, hypotension and acidosis. Hypocalcemia occurs via inhibition of the 1-hydroxylase, reducing the production of 1.25-dihydroxyvitamin D3. The increase in hydrogen ions results in metabolic acidosis which further exacerbates hypocalcaemia.
Case report: A 46-year-old woman, kitchen worker in a hospital, with a clinical history of childhood asthma, smoker (28 pack-years) and bilateral patellar chondrophaty, was admitted to the ER after accidental exposure to 90 ºC steam of phosphoric acid solution used as detergent (Sonaril LDC®, pH: 1.5, 30% phosphoric acid) in an industrial dishwasher. Patient wasn't wearing safety goggles or face protective mask. She immediately began with slight complaint of dyspnea, severe cough, retrosternal discomfort, facial heat, dizziness and weakness. Physical examination revealed facial erythema, polypnea (32 cpm), intercostal indrawing, peripheral oxygen saturation of 88%, global wheezing and bronchospasm. Blood pressure and heart rate were within the normal values. The arterial blood gas (ABG) with oxygen to 3 L/min revealed pH 7.40, pO2 56, PCO2 39, sat 89% HCO3: 24.3, Lactate: 1.3. Short-acting bronchodilators, inhaled and intravenous corticosteroids and oxygen inspired fraction of 60% conditioned slight clinical improvement and after a few hours, the ABG revealed: pH: 7.45; pCO2: 26; pO2: 69, HCO 3: 18.1, Lactate: 5.5. Chest X-ray on admission showed a slight bilateral reticular accentuation in both middle and lower lung lobes. Laboratory tests showed leukocytosis with normal serum C-reactive protein. During hospitalization in Pulmonology Department, methylprednisolone was prescribed (40 mg twice daily, EV) and after 6 days, changed to prednisolone (20 mg twice daily, PO). The symptoms were progressively attenuating, as well as metabolic acidosis and hypoxemia. CT chest showed bilateral ground-glass opacities with posterior basal densification. The patient was discharged on the 8th day of hospitalization without dyspnea or respiratory distress and with a normal arterial blood gas (ABG). The prednisolone dose was progressively tapered and after that discontinued, maintaining inhaled corticosteroid therapy and follow-up in a consult.
Discussion: The characteristic chest CT findings and physical examination suggested chemical pneumonitis and acute lung injury induced by inhalation of acid phosphoric mist. ABG analysis revealed an absorption in the lung that resulted in metabolic acidosis. Early identification and management of chemical pneumonitis were important to avoid potential mortality. Long-term consequences should be evaluated in follow-up visit. The use of appropriate personal protective equipment in the work environment was reinforced as essential.

Key words: *Phosphoric acid. Inhalation. Chemical pneumonitis. Metabolic acidosis.*

P-114. NON FATAL DROWNING IN SALT WATER: A ROLE FOR *HIGH FLOW NASAL CANNULA* OXYGEN THERAPY?

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Introduction: Water submersion induces hypoxemia by aspiration of water into the lungs or by the laryngospasm caused by water in the lower respiratory airways. Besides the pulmonary effects, it can induce neurological, cardiovascular, renal, electrolyte and coagulation disturbances.
Case report: Female, 44 years old, non smoker, with no history of pulmonary disease. She had epilepsy (with irregular follow-up), depression and anemia (unknown etiology) and was usually medicated bromazepam, olanzapine and valproic acid. The patient was brought to the Emergency Room (ER) of Hospital de Torres Vedras after non-fatal drowning in salt water. She had gone to the beach, entered the sea and floated. She had no memory of the events that followed. After being rescued, she presented with dyspnea and had a seizure that was observed by the rescue team. At the ER, the patient was stable, with no fever or hypothermia and no arrhythmias but with severe respiratory failure (PO2/FiO2 68).

Fluid suggestive of sea water was aspirated through the nasogastric tube. Chest CT revealed bilateral consolidation on dependent lung segments and diffuse infiltrates, more markedly on the right. Head CT was normal. The patient was kept on her regular anticonvulsant therapy and had no more seizures. No electrolyte or acid-base imbalance was found, neither was any coagulation disturbance or rhabdomyolysis. The patient was transferred to the Intensive Care Unit of Hospital Pulido Valente. She was started on *High Flow Nasal Cannula* (HFNC) oxygen therapy, with significant improvement of the respiratory failure. Flexible bronchoscopy was performed and sea water was aspirated. Antibiotic therapy with piperacillin-tazobactam was started with improvement of inflammatory blood markers. Microbiological exams (blood, cultures, *Steptococcus pneumoniae* and *Legionella* urinary antigen testing and bacteriological exam of the broncho-alveolar lavage) were negative. Radiological improvement was confirmed by chest CT after 48 hours, despite persistence of bilateral consolidation. No other complications were registered while the patient was at the ICU and she was transferred to her hospital after 3 days, without the need for supplemental oxygen ABG: pH 7.49, pCO_2 39, pO_2 75, HCO_3 25.3, SO_2 95%, PO_2/FiO_2 357.
Discussion: In the management of drowning cases, it is essential to monitor possible complications and promptly treat hypoxemia. HFNC oxygen therapy reduces the need for mechanical ventilation and mortality in patients with non hypercapnic acute hypoxemic respiratory failure. In this case, it allowed early treatment of hypoxemia. When pneumonia is suspected in a victim of drowning, water-borne pathogens like *Pseudomonas* and *Aeromonas* must be considered when choosing antibiotics.

Key words: *Drowning. High flow nasal cannula oxygen therapy.*

P-115. FUNCTIONAL ASSESSMENT IN THE EXERCISE IN ACUTE RESPIRATORY DISTRESS SYNDROME SURVIVORS: WALKING SIX MINUTES TEST VERSUS CYCLE ERGOMETER

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Introduction: Acute respiratory distress syndrome (ARDS) is a disease that often causes after-effects in the lungs of its survivors. The functional impact in the physical exercise is understudied, particularly on those with normal respiratory functional study at rest, being unknown which is the best method for their evaluation.
Objectives: Determination of exercise capacity and exercise-induced desaturation in ARDS survivors, through the 6-minute walk test (6MWT) and cardiopulmonary exercise test (CPET) on cycle ergometer.
Methods: A prospective study, resultant from a follow-up protocol of ARDS-surviving patients, since December 2010 was made. Only patients with normal functional respiratory evaluation at rest were included, and the patients with previous diagnosis of lung disease, smoking history, inability to walk and/or pedal, or contraindication/refusal to perform the exercise tests were excluded. Patients performed a 6MWT and CPET, with a maximum interval of 3 months. The evaluation of O2 saturation was continuously performed during the 6MWT using a portable finger pulse oximeter, and every 30 seconds, with an ear oximeter, in the CPET. Demographic, clinical (PaO2/FiO2 ratio, SAPS II and APACHE II, treatment, average stay) and functional data were collected. A descriptive analysis was performed.
Results: Of the 47 patients included in the protocol until February 2015, only eight met the inclusion criteria. All were women, with an average age of 53.1 ± 11 years. The most common co-morbidities were obesity (n = 3), dyslipidemia (n = 3) and hypertension (n = 2). All patients had been admitted to the Intensive Care Unit, 3 with light, 3 with moderate and 2 with serious ARDS. The mean APACHE II severity index was 20.5 ± 8 and SAPS II 32.3 ± 11. All were mechanically ventilated due to acute respiratory failure (PaO2/FiO2 average 169.5 ± 62), 7 with invasive mechanical ventilation by a median time of 6 days, and 1 exclusively with non-invasive ventilation. In 3 patients systemic corticosteroids were used, 2 required prone position and 1 extracorporeal membrane oxygenation. Exercise capacity assessed by CPET was decreased in 3 patients, 2 of which also showed a decrease in the estimated exercise capacity in the 6MWT. The identified causes were obesity (n = 2), interstitial lung disease (n = 1) and physical deconditioning (n = 1). Regarding exercise-induced desaturation, it was uniquely identified in 6MWT in 5 patients, solely in CPET and in 1 case, in both tests in 1 patient.
Conclusions: Although the sample size limits the conclusions, we found that these patients have desaturation with exercise, more often detected in the 6MWT, and regardless of the severity of ARDS and normal functional evaluation on rest.

Key words: *ARDS. Respiratory function. Exercise desaturation. Exercise tests.*

P-116. PATIENTS WITH PULMONARY FIBROSIS ADMITTED TO THE RESPIRATORY INTENSIVE CARE UNIT

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Introduction: Admission of patients with pulmonary fibrosis requiring ventilatory support in the ICU is a clinical challenge given irreversibility of respiratory failure associated, poor prognosis and the lack of acceptance criteria in ICU contemplating this pathology.
Objectives: To characterize patients admitted for respiratory failure in the context of pulmonary fibrosis and compare the benefits of Invasive mechanical ventilation (IMV) and noninvasive ventilation (NIV) in particular with regard to mortality and complications.
Methods: Retrospective study performed by reviewing the medical records of patients admitted to a respiratory intensive care unit (RICU), between January/2012 and December/2015, diagnosed with pulmonary fibrosis, undergoing IMV and/or NIV; non ventilated patients were excluded. Parameters evaluated: demographic, etiology, PaO_2/FiO_2 ratio, APACHE II, type of ventilation, causes of decompensation and length of stay in intensive care units, complications and mortality.
Results: Admitted 45 patients (3.9% of total), 53% male, mean age 67.6 ± 12.1 years. Etiologies: idiopathic interstitial pneumonia 57.8%, connective tissue diseases 20%, sarcoidosis 6.7%, hypersensitivity pneumonitis 6.7%, drug toxicities 6.7% and silicosis 2.2%. At admission to ICU, mean PaO_2/FiO_2 ratio was 165.9 ± 104.4 and mean APACHE II score was 24.7 ± 8.8. Twenty-eight patients required NIV and twenty (44.4%) of these patients has been decided to limit the therapeutic intervention. Seventeen patients (37.8%) received IMV, six of them for failure of NIV. PaO_2/FiO_2 ratio was significantly higher in the NIV group (198.9 ± 107.3 vs 111.6 ± 74.1). APACHE II score was significantly higher in the IMV group 28.8 ± 10.7 vs 22.1 ± 6.3 (OR = 0.9 com 95%CI: 0.82-0.99). Precipitating causes of ARF were infection 46.7%, heart failure 17.8%. exacerbation of interstitial disease 28.9%, pneumothorax, thrombosis and cancer in 2.2%. The average length of a hospital stay was 14.9 ± 18.2, higher in the IMV group vs VNI (24.4 ± 25.9 vs 9.14 ± 7.3 days). There were 14 (82.4%) deaths in the IMV group 6 including septic shock and 4 for heart failure and the remaining late thrombotic complications following, neoplastic disease or progression of interstitial disease; 20 died (71.4%) patients undergoing NIV, especially for the progression of pulmonary fibrosis (60%). Patients with VMI had a

higher mortality than patients with NIV (OR = 7.78 with 95%CI: 1.2 to 51.9).
Conclusions: In this population, there was a higher mortality rate (75.6%) were even higher in the IMV group, but it may be related to the severity of the underlying disease. Invasive ventilatory support does not appear to improve prognosis, and the causes of death similar in the 2 groups. Given small sample size and heterogeneity, it was not possible to subdivide the analysis according to the etiology of pulmonary fibrosis. Taking into account the results obtained, the admission of such patients should be limited to the group where it is possible to identify a correctable cause for acute respiratory failure, essential to create acceptance criteria in UCI that reflect this assumption.

Key words: *Pulmonary fibrosis. Mechanical ventilation. Respiratory failure.*

P-117. CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THE INTENSIVE CARE UNIT

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Introduction: In Portugal, about 14,2% of the people over 40 years old have Chronic Obstructive Pulmonary Disease (COPD), with an higher prevalence in men. According to the World Health Organization (WHO) in 2002 COPD was the 5th cause of death. It is expected that in 2030 it will become the 3rd cause of dead. The Covilhã boundaries have many occupational factors that are associated with the development of COPD (it's a countryside region where agriculture plays an important role in the economy and with a recent past of important wool and mining industry). As COPD has an important morbidity and mortality, it also becomes an important disease in the Intensive Care Unit (ICU) and that's why it's important to recognize the main features of the patients with COPD in the ICU.
Results: The authors analyzed the clinical records of the patients admitted in the ICU between May 1st 2014 and May 31st 2016. There were 69 patients with the diagnosis of COPD. The mean age of the patients was 76 years old and most of them (64%) were men. Only in 24 of the 69 patients COPD was related with the admittance diagnosis and most were associated with acute respiratory infection associated with respiratory failure (16 patients), the other were due to pneumothorax (2 patients), septic shock due to respiratory infection (3 patients) and respiratory failure due to bad compliance to medication (3 patients). In the overall, there were 34 patients with respiratory infection: 28 with pneumonia and 6 with traqueobronchitis. Sputum culture was made in 17 patients (with a positive culture in 6 patients) and bronchial secretions in 11 patients (with a positive culture in 6 patients), 2 patients made both cultures and they were both positive. Non invasive ventilation (NIV) was needed in 20 patients, 5 of these already needed NIV in the ambulatory. Twenty five patients needed mechanical ventilation, with the shortest period being inferior to 1 day and the longest of 27 days; only one of these patients made a tracheostomy. The mortality rate was about 19% overall and 7% when COPD was related to the admittance diagnosis. Only 42 of these patients were followed at a Pneumology Consultation previous to the admittance.
Conclusions: With this work the authors wanted to know better the patients with COPD admitted in the ICU and what was the impact of the disease in the admittance diagnosis and evolution. Even though COPD wasn't related with the admittance diagnosis, about half of the patients had a respiratory infection and most had microbiologic studies. The mortality rate was higher in these patients. This work enhances the important role of COPD in the patients admitted in the ICU particularly the higher mortality associated.

Key words: *ICU. COPD.*

P-118. TUBERCULOSIS AT THE INTENSIVE CARE UNIT

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Introduction: In 2014, there was a 5% reduction in the incidence rate of tuberculosis (TB) in our country compared to data from the previous year. However, the Algarve region still persists as an intermediate incidence district. Despite the existence of curative treatment, there is still a significant percentage of cases that require hospitalization, and 1-3% of TB cases are admitted to the Intensive Care Unit (ICU). In that scenario the in-hospital mortality is high.
Objectives: To characterize TB patients admitted to the ICU and to identify factors associated with in-hospital mortality.
Methods: A retrospective cohort study was performed including all patients admitted to an Intensive Care Unit with confirmed diagnosis of pulmonary and/or disseminated TB (on admission or during the hospitalization) between 2010 and 2015. Data related to demographic aspects, comorbidities, initial symptoms, radiologic presentation, severity and evolution were collected.
Results: During the study period, 8 cases with confirmed diagnosis of TB were identified and analyzed. We verified a male predominance (87.5%). The mean age at diagnosis was 45.8 ± 15.6 years. Immunosuppression was present in 75% of cases, and infection with the human immunodeficiency virus was the most frequent comorbidity reported (37.5%). 25% corresponded to disseminated forms of TB. On average, the symptoms evolved for 34 ± 15 days, with a predominance of systemic symptoms (50%), followed by dyspnea (25%) and hemoptysis (25%). Analysing the radiologic pattern we verified that 50% had consolidation, 25% showed cavitation and 25% expressed a miliary pattern. The need for ventilatory support dictated admission in 87.5% of cases with ARDS criteria at 42%. The mean APACHE II score on admission was 19.3 ± 6.9 and the mean SAPS index was 37.4 ± 14.2. The ICU mortality was 50%. When compared to survivors, the deceased cases corresponded to older patients (50 ± 21 vs 41.7 ± 9) and with greater severity on admission (APACHE II 23.3 ± 9.2 vs 16.2 ± 3 3 and SAPS 47 ± 18 vs 30.2 ± 5.4). 66% of the ARDS cases died and so did the patients who presented cavitation on chest X-ray.
Conclusions: The presence of immunosuppression, especially in the context of infection by the human immunodeficiency virus, has been recognized as an important risk factor for the occurrence of severe forms of Tuberculosis. In this series, mortality was associated with the presence of cavitary disease as well as the development of ARDS. The severe forms of tuberculosis tend to have a worse prognosis compared to those of severe nontuberculous respiratory infections and for that reason this entity should be considered in the critically ill patients scenario particularly in the context of immunosuppression.

Key words: *Tuberculosis. ARDS. Immunosuppression. Intensive Care.*

P-119. NONINVASIVE VENTILATION IN WEANING AND REDUCTION OF INVASIVE MECHANICAL VENTILATION DURATION

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Introduction: Non-invasive Mechanical Ventilation (NIV) provides ventilatory support without the need of endotracheal intubation. The NIV seems to be a promising strategy in reducing Invasive Mechanical Ventilation (IMV) time in selected weaning candidates.

Objectives: Assess the impact of NIV in reducing ventilation time and average length of hospitalization, comparing NIV direct extubation vs NIV in preventing extubation failure after classic weaning in patients admitted in a Respiratory Intensive Care Unit (RICU).
Methods: Retrospective study of patients admitted from January 2012 to December 2015, submitted to IMV who required NIV after extubation. Patients with average length of hospitalization less than 24 hours, unplanned extubation and those with NIV as maximum intervation after extubation were excluded. Sample divided in: G1 – Patients extubated to NIV after classical weaning and spontaneous breathing trial (preventation of extubation failure with NIV); G2 – Patients under IMV with NIV direct extubation (NIV to reduce ventilation time). Extubation failure criteria: Reintubation or death within the first 48 hours after a planned extubation. Analysis of demographic variables, comorbidities, APACHE II, average lenght of hospitalization, IMV and NVI time, NIV mode, blood gas parameters, extubation failure and mortality.
Results: N = 81 patients; G1: n = 61 (75.3%); G2: n = 20 (24.7%). Mean age (years): 65 ± 15 (G1) vs 66 ± 16 (G2), p = ns. APACHE II: 23 ± 9 (G1) vs 21 ± 8 (G2), p = ns. Comorbidities: Chronic Obstructive Pulmonary Disease – 13 (21.3%) patients (G1) vs 4 (20%) patients (G2); Cardiac Insufficiency – 31 (50.8%) patients (G1) vs 12 (60%) patients (G2); p = ns. Average length of hospitalization (days): 26 ± 17 (G1) vs 24 ± 14 (G2), p = ns. IMV duration (days): 13 ± 10 (G1) vs 16 ± 14 (G2), p = ns. NIV duration (days): 8 ± 10 (G1) vs 6 ± 5 (G2), p = ns. NIV mode: ST mode - 50 (82%) patients (G1) vs 10 (53%) patients (G2); AVAPS mode - 11 (18%) patients (G1) vs 9 (47%) patients (G2); p = 0.01. Admission PaO2/FiO2: 185 ± 107 (G1) vs 168 ± 67 (G2), p = ns. Pre-extubation PaO2/FiO2: 263 ± 89 (G1) vs 263 ± 79 (G2), p = ns. Postextubation PaO2/FiO2, after beginning of NIV: 272 ± 100 (G1) vs 246 ± 59 (G2), p = ns. Extubation failure in only one case (G2). Mortality: 6 (10%) patients (G1) vs 2 (10%) patients (G2), p = ns.
Conclusions: In our population, there were no differences between the two weaning strategies, although results may have been affected by the small number of patients included. NIV direct extubation was not associated with more cases of extubation failure or mortality than classical weaning procedure, being a strategy to consider for early extubation of selected patients who do not meet the standard criteria for extubation.

Key words: *Invasive mechanical ventilation. Non-invasive mechanical ventilation. Weaning.*

P-120. NOSOCOMIAL PNEUMONIAS IN A INTENSIVE CARE DEPARTMENT: A ONE YEAR PROSPECTIVE STUDY

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Introduction: Nosocomial pneumonia (NP) is the most common infection in Intensive Care Unit (ICU) setting, leading to increase morbidity and mortality rates. The knowledge of the microbiologic flora and clinical characteristics of NP patients in the ICU allows for a better approach regarding prevention, empiric treatment and implementation of stewardship programs.
Objectives: The aim of our study was the evaluation and description of demography, prevalence, risk factors, causative bacterial pathogens and outcomes of all the episodes of NP for period of 1-year (2014).
Methods: This was a prospective and observational study, in a 20-beds multipurpose ICU, at a tertiary university hospital (CHUC, Coimbra, Portugal). We studied 513 patients and 41 were excluded. National guidelines were used for NP definition. Causative bacterial pathogen was considered if the isolation from the respiratory samples was within ± 48h around clinical diagnosis timing of NP. The following risk factors for multi-drug resistant bacteria (MDR) were considered: Prior antibiotic treatment (previous 30 days), structural lung disease, institution house residence, chronic dialysis and immunosuppression.
Results: Sixty patients were diagnosed with NP (11.7%) which included 35 episodes of ventilator associated pneumonia (VAP) acquired in the ICU (58.3%), corresponding to 6.9 cases/1,000 intubation-day ("primary" NP). The remaining 25 cases were present at ICU admission and were the main cause of admission ("extra-ICU" NP). The male gender predominated (n = 41, 81.7%), the median of the length of stay (LOS) was 22 days (12-18) and the P/F ratio was 212 (148-275) mmHg on admission. Trauma was the major cause of admission (41%) and septic shock was present on admission in 26 patients (43.3%). Risk factors for MDR were absent in 17% of the patients, one factor was present in 60%, two in 20% and three in 3% of the patients. Seventy-five percent of the patients were previously treated with antibiotics. Sixty-two microorganisms were isolated in respiratory samples from 45 patients, being *S. aureus, P aeruginosa* and *A. baumannii* the 3 most prevalent agents (27.4, 20.9 and 11.2%, respectively). The presence of shock on ICU admission increased mortality (23 vs 12%), but without reaching statistical significance. The antibiotic empirical strategy was found microbiologically appropriate in 61% of the patients. The global mortality of this cohort was 18.3% (11 patients). On ICU admission, survivors had lower levels of lactate (1.0 versus 1.9 mM/L, $p < 0.05$) and lower Charlson score (3 vs 10, $p < 0.05$). Increased odds ratio mortality was observed in patients where NP was the cause of ICU admission (OR: 5.3 - 95%CI of 1.2-22.9; p = 0.02).
Conclusions: NP and VAP are still a frequent condition in critical care setting and are associated with prolonged LOS in ICU. The most frequent identified risk factor to MDR was the previous treatment with antibiotics. Low levels of lactate and Charlson score at admission seems to be associated with less ICU mortality. NP as primary cause of ICU admission increases odds of mortality by five-fold.

Key words: *Critical Care. Intensive Care Medicine. Pneumonia. Nosocomial pneumonia.*

P-121. SMOKING IN THE HOSPITAL CAMPUS – AN OBSERVATIONAL STUDY

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Introduction: Despite being forbidden to smoke inside the health services premises, the current Portuguese legislation does not regulate smoking outdoors in the hospital campus. Thus, it is essential to characterize smoking behaviour in these areas, as well as to explore hospital clients' opinion regarding this matter.
Objectives: To explore and describe smoking behaviour at the hospital campus of the Hospital Pero da Covilha through direct observation; to evaluate the perceptions and attitudes of hospital clients regarding this behaviour.
Methods: Descriptive, cross-sectional study: 1) a structured interview-questionnaire was administered to outpatient clinic users of the Centro Hospitalar Cova da Beira (CHCB), May - December, 2014; 2) direct observation following a structured protocol and a systematic approach at each of the hospital entrances. A descriptive univariate and bivariate analysis was performed using chi square and McNemar tests for categorical variables.
Results: 1) Participants: 310 users, 68.7% females; mean age 48,1 ± 15,3 yrs. Of the participants, 93.2% reported having observed persons smoking at the hospital entrances. The majority (58.1%) agreed with the smoking ban at the Hospital entrances. However, only 16.8% agreed with a comprehensive ban on hospital campus. Nevertheless, 68.1% would support a comprehensive ban on hospital

campus, in case it should be enforced. 2) Observations were carried out in several hospital entrances, in total 8 days, observing 1,005 acts of smoking. There were no gender differences and 52.8% of smokers corresponded to hospital staff. The most prevalent group was auxiliaries. The entrances with the highest prevalence of smoking were the outpatients' consultation and the main entrance. **Conclusions:** Smoking at the hospital campus is common place and it is perceived as such by the population. Most hospital clients agree with an outdoors smoke-free policy near the hospital entrances and would support a smoke-free hospital campus in case this is implemented. There is a need for a comprehensive smoke-free hospital campus.

Key words: *Smoking. Hospital campus. Smoke-free policy.*

P-122. COMPARING SMOKING CESSATION BEHAVIOUR, ATTITUDES AND KNOWLEDGE BETWEEN HEALTHCARE PROFESSIONALS FROM A CENTRAL HOSPITAL ACCORDING TO YEARS OF PROFESSIONAL EXPERIENCE

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Introduction: Smoking is one of the leading causes of preventable morbidity and mortality worldwide. Healthcare professionals' major role in promoting smoking cessation has driven to enhanced learning programmes at undergraduate and postgraduate education on this subject in recent years.
Objectives: To compare self-reported behaviour, attitudes and knowledge about smoking cessation between healthcare professionals with more and less than 10 years of professional experience.
Methods: Cross-sectional study carried out among nurses and physicians from a central hospital. A voluntary self-report questionnaire was used to collect data on demographic characteristics, behaviour, attitudes and knowledge in relation to smoking cessation. Statistical analyses using SPSS statistics IBM and Microsoft Excel 2013 were conducted to compare the differences between healthcare professionals with more and less than 10 years of professional experience.
Results: 101 participants enrolled the study (44.55% physicians, 55.45% nurses), 74.25% (n = 75) having less than 10 years of professional experience (49.33% physicians, 50.67% nurses) and 25.74% (n = 26) with more than 10 years (30.77% physicians, 69.23% nurses). The majority of the professionals recognized the importance of their patients' smoking status (96% of the individuals with less than 10 years of professional experience and 92.3% of those with more than 10 years considered it *important* or *very important*), frequently inquiring them on their clinical practice (89.33% and 80.77% respectively). Both groups received training in smoking cessation at undergraduate or postgraduate levels (58.67% vs 61.54%). There was no statistically significant difference between the two groups regarding knowledge about smoking cessation (mean score on a 10-item questionnaire 68.93% vs 67.69%). There was little awareness about behavioural approaches to smoking cessation (76% and 65.38% of the individuals weren't familiar with them). Only 10.81% of the professionals with less than 10 years of professional experience and 25% of those with more than 10 years reported experience in prescribing pharmacotherapy for smoking cessation. The majority of the professionals from both groups (92% vs 84.62%) were interested in enrolling training courses in smoking cessation. Physicians with more than 10 years of working experience referred more appropriate patients to the smoking cessation program than those with less than 10 years (75% vs 51.35%). There were no statistically significant differences between the two groups in any of the evaluated parameters, even after comparing physicians and nurses separately.
Conclusions: In the studied sample healthcare professionals' knowledge, behaviour and attitudes towards smoking cessation were not influenced by the years of professional experience. Despite the knowledge gaps identified in both groups, most subjects recognized the importance of smoking cessation and were interested in enrolling learning sessions. Therefore it is crucial to provide them with training in this subject so as to improve patient care. Further studies are needed to confirm the generalizability of the results.

Key words: *Smoking cessation. Knowledge. Attitudes. Healthcare professionals. Central Hospital.*

P-123. SCREENING OF SMOKING HABITS, SPIROMETRIC EVALUATION AND CO QUANTIFICATION IN USF DAS DESCOBERTAS POPULATION – AN OPPORTUNITY TO INTERVENE

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Introduction: Smoking is a major cause of morbidity and mortality, being defined as one of priority issues for the *ACES* the Local Health Plan of *Lisboa Ocidental e Oeiras* (triennium 2014-2016). In this context, was held on November 17, 2015 an awareness action and spirometric screening in the Family Health Unit (USF *das Descobertas*) under the slogan: "Are you a smoker? Evaluate your respiratory health. Breathe for you and others".
Objectives: The aim was to alert and sensitize the local population to the dangers of tobacco.
Methods: Sensitization action was previously publicized at USF (posters and flyers). The team consisted of three pulmonologists (1 specialist and 2 residents), an internal public health and a general family medicine residents. An anonymous questionnaire that included demographic data and smoking habits was applied. Smokers responded to Fargerstrom test and all responded to the questionnaire GOLD "Could be COPD?". Determination of carbon monoxide (CO) in exhaled air and held up spirometry were performed. A short approach to smoking cessation with providing information was done and the cases indicated were referred for intensive support smoking cessation program in hospital.
Results: 25 tracked users, 52% were female with mean age 53.4 years. Smokers were 60% and average age of initiation 17.8 years. Ex-smokers and non-smokers were 20% respectively. Smokers (n = 15), mostly male (53.3%), had mean age 49.1 years. Nicotine dependency was low at 46.7%, medium in 20% and higher by 33.3%. Cough was reported in 33.3%, sputum 20% and dyspnea 40%. CO average quantified was 12,3 ppm. Spirometric criteria for COPD were presented in 57.1%. Ex-smokers (n = 5), mostly male (80.0%) had a mean age of 61.0 years. All showed spirometric criteria for COPD. Non-smokers (n = 5) were all female, mean age 60.0 years. Spirometric criteria of COPD were presented in 40.0%. Both non-smokers and ex-smokers reported: cough 20%, sputum 20%, and dyspnea 60%. CO average was 1.2 ppm.
Conclusions: The number of scans were lower than expected. Little publicity and inappropriate media communication can justify this fact to be corrected in future. Percentage of patients with spirometric criteria for COPD was higher in the group of ex-smokers and smokers highlighting the impact of smoking in the genesis of this disease. In non-smokers, the percentage of users tracked spirometric criteria of COPD was higher than in general population, but also had more respiratory complaints. CO average was significantly higher in the group of smokers (12.3 vs 1.2 ppm) being a good parameter to monitor smoking habits. Spirometry showed reproducibility and acceptability criteria, but were performed by a pulmonology resident and not by a cardiopneumology technician. Actions to address the negative impact of smoking on health are an

opportunity for screening lung disease, awareness and promotion of healthy habits.

Key words: *Smoking cessation. COPD. Spirometry.*

P-124. CORRELATES OF SMOKING AND ANXIETY AND DEPRESSION IN SMOKERS ATTENDING AN INTENSIVE SMOKING CESSATION PROGRAMME IN FARO

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Introduction: According to the 2014 national health inquiry In Portugal, the smoking prevalence was estimated about 20%. In the same year, the DGS's report "Mental Health in Numbers", indicated that anxiety and depression are the most prevalent psychiatrist disorders. The smoking addiction is highly prevalent in both pathologies.
Objectives: This study examined the association of smoking with anxiety and depression in an intensive cessation smoking program consultation (CAICT) of Faro´s health center, from 2013 to 2015.
Methods: A retrospective and observational study included the first time users of the CAICT from 2013 to 2015. The used instruments were the hospital anxiety and depression scale (HADS), the Fagerström test to nicotine dependence and motivation Richmond test for nicotine cessation. The Hospital Anxiety and Depression Scale (HADS), which estimates the likelihood of suffering from anxiety/depression; the Fagerström test to assess nicotine dependence; and the Richmond test, which assesses willingness to quit were applied. Alongside the scores obtained in each of these instruments, age, gender, employment status, schooling, daily coffees, expired carbon monoxide, daily smoked cigars, previously psychiatric disorder and first age smoking were included as variables.
Results: The study sample included 151 participants. The most common previously psychiatric disorder was depression and nicotine dependence is positively correlated with the anxiety dimension of HADS. Nicotine dependence levels and motivation to quit smoking were mostly moderate. There was no found correlation between age of smoking onset and expired carbon monoxide or any the HADS' dimensions. There was a negative correlation between the motivation for quitting and the HADS' scores, i.e. the motivation to quit decreased as depression levels increased.
Conclusions: Nicotine dependence and HADS anxiety scale score increase proportionally. The high prevalence of anxiety seems to be directly related with nicotine dependence.

Key words: *Smoking. Anxiety. Smoking cessation. Depression. Nicotine dependence. Fagerström. HADS. Richmond.*

P-125. SMOKING CESSATION CLINIC: A SIX AND A HALF YEAR FOLLOW-UP

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Introduction: Tobacco addiction is a major concern for healthcare workers not only for the diseases, comorbilities and incapacity that it causes but also because of the high economic burden related to hospital admissions and treatments of tobacco-related diseases. It is one of the main risk factors for cardiovascular diseases and, since they are the leading cause of death and incapacity in Portugal, it's urgent to fight this epidemic. Smoking cessation is the most effective short term measure in reducing the morbimortality related to tobacco.
Objectives: To characterise and analyse data of all smokers attending a specialized smoking cessation clinic in a health care center from 02/02/2010 to 31/07/2016.
Methods: We conducted a cross-sectional observational study whose target-population were all smokers attending the clinic. The following data were analysed: gender, age, number of consultations, past illnesses, body mass index (BMI), degree of dependence (Fagerström test), degree of motivation (visual analogue scale), age ate smoking initiation, tobacco-exposure (units-pack-year), success and drop-out rate, use of pharmacological treatment and adverse effects and outcome. Data were registered and analysed using software Microsoft Excel 2013.
Results: In six and a half years of practice 273 smokers attended the clinic, 77% (n = 211) were male, mean age of 38 years (min. 16, max. 77) in a total of 1750 consultations (mean 6/smoker). The prevalent past illnesses were alcoholism, dyslipidemia and high blood pressure and 19% (n = 52) were healthy. They had a mean BMI of 25, mean degree of dependence of 5 (moderate), mean motivation degree of 8,5, mean age at smoking initiation of 16 years and a mean tobacco exposure of 37 UMA. The success rate (smokers who quit smoking for more than 6 months with no relapses) was 26% (n = 70) and the drop-out rate 39% (n = 107). Currrently, 5% (n = 15) quitted smoking for less than 6 months and 30% (n = 81) still smoke. All smokers have psychological and behavioural therapy and in 48% (n = 131) pharmacotherapy was prescribed: 66% with vareniclin, 34% with nicotine replacement therapy and 6% with bupropion. We report intolerance to vareniclin in 2% of smokers. In the time length analysed 2% (n = 5) of smokers died, in 80% of cases with tobacco-related diseases.
Conclusions: After six and a half years of experience we find that our success rate is within the same range of the rest of the country (about 25%). We were most unsuccessful with the younger smokers probably because arguments like health an financial issues did not affect them directly. We need to rethink our strategy to this particular group of smokers. With this study we also mean to enhance the cooperation of Internal and Family Medicine in helping smokers to quit and achieving our goals with this specialized clinic.

Key words: *Smoking. Clinic. Smoking cessation.*

P-126. ASSESSMENT OF KNOWLEDGE OF HEALTH PROFESSIONALS ABOUT SMOKING CESSATION IN A CENTRAL HOSPITAL

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Tobacco is a major public health problem with repercussions in smokers and non-smokers. It is generally agreed that smokers should be actively encouraged and helped to stop smoking and should be offered treatment modalities considered effective. The aim of study was to evaluate the knowledge of health professionals about smoking cessation in a central hospital. We evaluated 101 healthcare professionals (physicians and nurses) from a central hospital. Results of this study showed that most of the individuals were female (64.4%), mean age 33 (± 8.9) years old and 44.6% were physicians. Most professionals were internal medicine residents or specialists (73.3%). Regarding the smoking history, 70.3% were non-smokers. Only 39.6% had training on smoking cessation during the clinical path but 65.3% considered the smoking habits of patients to be very important. About 70% participants are unaware of behavioral approaches used in smoking cessation programs and only 7.9% have experience in therapeutic prescription. A significant number of health workers are unaware of basic tests in the clinical evaluation of smoking (Fagerström test) or Carbon Monoxide in exhaled breath test, 84.2% and 73.3%, respectively. With regard to the questions about specific knowledge of health professionals in this area have shown the existence of gaps. Most participants (90.1%) would like to participate in specific training on approaches used in smoking cessation. All health professionals have a

responsibility to promote healthy lifestyles and provide preventive care, so it is essential to provide them with training in smoking cessation.

Key words: *Tobacco. Cessation. Knowledge.*

P-127. SMOKING PREVALENCE AMONG HIV-INFECTED INDIVIDUALS COMPARED TO THE PORTUGUESE POPULATION

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Introduction: World Health Organization (WHO) estimates that about 21% of smokers Portugal´s population smoked in 2010, 30.6% of men and 12.3% of women. The highest rate of smokers among men was seen in the age-group 25-39 and among women in the age-group 15-24. The prevalence of smoking in the HIV-infected population is almost 5 times the general population in USA. HIV-infected smokers lose more life-years to smoking than to HIV. Lung cancer in HIV-infected populations, has become the most common non-AIDS defining malignancy in the highly active anti-retroviral therapy (HAART) era. HIV-associated lung cancer is related with young age at diagnosis, cigarette smoking, advanced stage at presentation, and a more aggressive clinical course. WHO adopted a voluntary global target to reduce tobacco use of 30% by 2025 and predict that Portugal will achieve only a 15% reduction that correspond to 18% smoker´s population (26% for men and 10% for women).
Objectives: Determine the prevalence among HIV patients of cigarette smoking and compare to previous studies reported to WHO from 2010 of background population.
Methods: This cross-sectional study was developed based on the population of 2,500 HIV-positive adults followed by the North Lisbon Hospital Centre. Data were collected in 2010-2011 from a convenience sample of 535 HIV infected adults by an interview that included questions on demographic, socio-economic situation cigarette smoking status and daily cigarette consumption. HIV clinical stage information were collected from the individual patient process with by Classification System for HIV-Infected Adults and Adolescents (CDC), CD4 T cell count, viral load and HAART therapeutic.
Results: The sample showed up with ages ranging from 20-80 years, an average age of 44.6 years; 72.5% were male and 27.5% were female. As risk factors for lung cancer sample showed 45.2% had HIV diagnosed more than 11 years, 17.6% with CDC-B and 47.7% with CDC-C; 49.2% had CD4 T cell ≥ 500/μl, 40.9% had CD4 T cell 200-499/μl and 9.9% had CD4 T cell < 200/μl; 34% presented more than 40 copies/mL from HIV viral load and 83.9% were on HAART. In the sample, 46.9% were smokers. Were unemployed, pensioner or receiving or Income for social inclusion smokers and 22.2% employed smokers and 58.7% had no or less than 501 euros income per month. In the smokers-group about 48.6% (34% of men and 12.9% of women) had less than or primary education and 28.3% had lower secondary education. The highest rate of smoking among both sexes was the age-group 40-54 (49.4%) and age-group 25-39 (43%). The mean of consumption of cigarettes a day was 18.8 and 43.8% smoked 20 cigarettes a day. In the daily consumption variable, 16.3% were light smokers, 22.3% were moderate smokers and 61.4% were heavy smokers. The highest rate for daily consumption cigarettes was for heavy smokers, 67.6% for men and 44.9%for women.
Conclusions: The high tobacco consumption rates showed an urgent need for tobacco-specific control interventions HIV infected population, which has a higher prevalence of risk factors for lung cancer. If there is no incisive policy on this issue Portugal will not achieve the reduction target smoking WHO, especially in this risk population.

Key words: *Cigarette. Smoking. Tobacco. Lung cancer. HIV.*

P-128. VALIDATION OF THE OSA50 QUESTIONNAIRE AMONG PATIENTS REFERRED FOR SUSPECTED OBSTRUCTIVE SLEEP APNEA

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Introduction: OSAS is a disease with high prevalence associated with life quality reduction, increase of cardiovascular morbidity, and also with an increase of mortality in work related and driving accidents. Screening questionnaires are used to evaluate the predisposition of having/developing OSAS. The OSA50 questionnaire is based on four items: Obesity: Waist circumference (males > 102 cm or females > 88 cm) – 3 points. Snoring: Has your snoring ever bothered other people – 3 points. Apneas: Has anyone noticed that you stop breathing during your sleep? – 2 points. 50 – Are you aged 50 years or over? – 2 points.
Objectives: To evaluate statistically the subjects' OSA50 questionnaire with the data obtained in CRSS.
Methods: Retrospective study with a sample of 832 subjects with OSAS suggestive complaints and/or disease's indirect signals (i.e. nocturnal HBP) that were evaluated through CRSS between October 2014 and September 2015. All statistical analysis were performed using IBM® SPSS Statistics v.21. The *Pearson* correlation test and ROC curves were used to evaluate the variable correlation, with a significance level of $\alpha < 0.001$.
Results: The sample was composed by 61.4% male subjects and 38.6% female subjects; the medium BMI was 31.22 kg/m^2, the medium abdominal circumference 105.1 cm, and the medium neck circumference 40.9 cm. A positive CRSS (AHI > 5/h) was found in

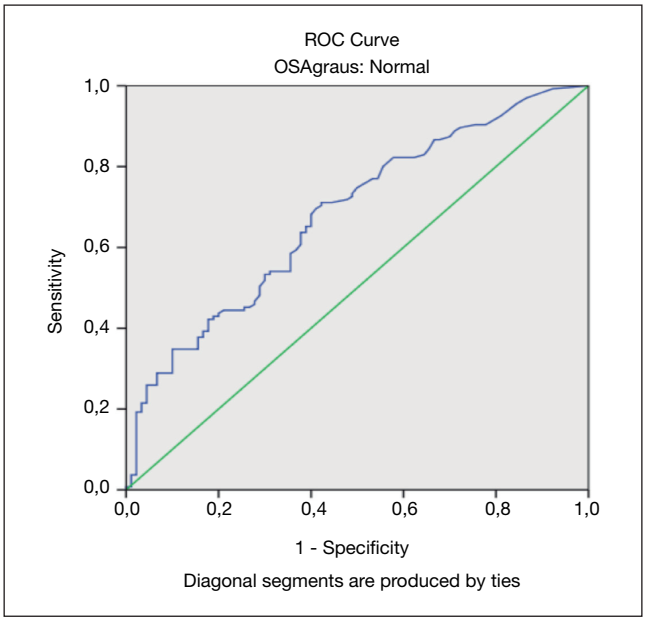
Correlation of AHI with	p value	R coefficient
OSA 50	0.001	0.147
Epworth Sleep Scale	0.001	0.148
STOP-BANG questionnaire	0.001	0.418
Correlation of OSA50 com	**p value**	**R coefficient**
Supine IAH	0.001	0.130
DI	0.001	0.180
T90	0.002	0.109
Normal IAH	0.001	0.216
Mild SAOS	0.216	0.076
Moderate SAOS	0.010	0.211
Severe SAOS	0.861	-0.015

Area Under de Curve[a]

Test Result Variable(s): IAH

Area	Std. Error[b]	Asymptotic Sig.[c]	Asymptotic 95% Confidence interval
0.681	0.036	0.000	0.610-0.751

The test result variable(s): IAH has at least one tie between the positive actual state group and the negative actual state group. Statistic may be biased[a]. [a]OSAgraus: normal. [b]Under the nonparametric assumption. [c]Null hypothesis: true area: 0.5.



66% of the sample – 266 with mild OSAS (AHI 5/h to 15/h), 149 with moderate OSAS (AHI 15/h to 30/h) and 134 with severe OSAS (> 30/h) - with an AHI mean of 15.23/h; the AHI mean measured in supine position was 22.02/h; the medium DI was 14.38/h; the mean percentage of T90 was 9.74%. It was found a weak positive correlation between the OSA50 questionnaire and the AHI, as it happened with STOP-BANG questionnaire and ESS. The OSA50 questionnaire shows a weak positive correlation specially between supine AHI and DI. After the categorization of AHI by severity levels it was observed a stronger correlation between OSA50 values < 5 and the absence of pathology.
Conclusions: The OSA50 questionnaire appears to have limited utility in a referred, sleep laboratory setting. Negative results help to identify some individuals as unlikely to have moderate-to-severe apnea, and may thereby prove useful in identification of patients who would benefit more from laboratory studies than home studies for symptom clarification.

Key words: *OSA50. Obstructive sleep apnea syndrome (OSAS). Cardio-respiratory sleep study (CRSS). Body mass index (BMI). Abdominal circumference. Neck circumference. Epworth Sleep Scale (ESS). STOP-BANG questionnaire. Apnea-hypopnea index (AHI). Dessaturation index (DI). Percentage of total sleep time with oxygen saturation under 90% (T90).*

P-129. IMPACT OF CONTINUOUS POSITIVE AIRWAY PRESSURE TREATMENT ON RED BLOOD CELL AND PLATELET PARAMETERS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNOEA SYNDROME

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Introduction: Obstructive sleep apnoea syndrome (OSAS) is linked to important cardiovascular complications which decrease after continuous positive airway pressure (CPAP) therapy. Mean platelet volume (MPV), platelet distribution width (PDW) and red cell distribution width (RDW) have been associated with cardiovascular risk. Limited data is available on the effect of CPAP therapy on red cell and platelet parameters in OSAS patients.
Methods: Prospective study of male patients diagnosed with OSAS at a sleep laboratory and submitted to CPAP treatment. Compliant mild/moderate and severe OSAS patients (52.1%; n = 25) were selected. Red cell and platelet parameters were analysed at baseline and after 6 months of treatment.
Results: Forty-eight patients were included (mean age 47 ± 10 years). Haemoglobin, red cell count, haematocrit and platelet count, between baseline and after CPAP treatment, showed a significant decrease in mean values in all patients ($p < 0.0001$; $p < 0.001$; $p = 0.001$; $p < 0.0001$, respectively). Red cell count, haematocrit and platelet count mean values significantly decreased after CPAP treatment both in mild/moderate patients ($p = 0.004$, $p = 0.031$; $p = 0.002$, respectively) and in severe patients ($p = 0.005$; $p = 0.008$; $p = 0,018$, respectively). Six month of CPAP therapy resulted in higher RDW mean values in both groups of OSAS patients and lower PDW and MPV mean values in severe OSAS group, although without statistical significance.
Conclusions: Our data suggest that red cell and platelet parameters changed significantly after 6 months of CPAP therapy in OSAS patients, supporting a cardioprotective effect of CPAP. These parameters are easy to obtain and could be useful in the follow up of CPAP therapy.

Key words: *Red cell parameters. Platelet parameters. OSAS. CPAP.*

P-130. TWO NEW INTERFACE MODELS FOR NON-INVASIVE VENTILATION – APPLICABILITY AND ADAPTATION. A PILOT STUDY

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Introduction: The success rate of domiciliary non-invasive ventilation (dNIV) is related to interface tolerance, which includes facial injuries prevention and an effective leakage control. Thus, it is essential to develop new interface models.
Objectives: To test the applicability and efficacy of 2 new interface models for NIV, recently available on the market. To assess the degree of satisfaction and acceptance of these models by a group of patients under dNIV.
Methods: Prospective study which enrolled consecutive patients under dNIV > 8h/day, who presented with any complication or intolerance related to the instituted interface. DreamWear® (nasal mask, with minimum contact through under-the-nose cushion) or Amara View® (facial mask, with minimal contact through under-the-nose design) were randomly used. For each parameter of comfort and adaptation with the new interface model, the degree of satisfaction was rated at four levels: very unsatisfied (VU), unsatisfied (U), satisfied (S), very satisfied (VS). It was also evaluated the air leakage and aesthetic perception of the mask (yes/no).
Results: 14 patients with a median age of 50.5 years (minimum of 13 and maximum of 83), 57.1% (n = 8) male, 71.4% (n = 10) presented with a neuromuscular disease and the others with mucopolysaccharidosis type IV, multiple pterygium syndrome escobar type, severe alpha 1-antitrypsin deficiency and bronchiectasis. The median time in dNIV was 39.5 months (IQR 54.3); 6 patients (42.9%) were under continuous dNIV and the remaining with median daily use of 13 hours (adhesion: 100% of the days). Mean IPAP and EPAP was 22.6 (± 4.7) cmH_2O and 6 (± 1.5) cmH_2O, respectively. Mean nocturnal $SatO_2$ under NIV was 94.8(± 1.7)%, with a mean time with $SatO_2$ < 90% of 2.8 (± 3)%. 11 patients (78.6%) revealed the presence nasal lesions and it was found air leakage in 5 patients (35.7%). 9 patients received DreamWear® mask and 5 Amara View®. All patients were very satisfied with the

comfort and lightness of masks. For the other parameters the perception remains with a high degree of satisfaction – headgear comfort: n = 10 VS, n = 4 S; mask stability: n = 6 VS, n = 8 S; sealing provided: n = 10 VS, n = 4 S; facility of mask-fit: n = 8 VS, n = 6 S; cleaning easiness: n = 7 VS, n = 5 S, n = 2 U; visual field interference: n = 12 VS, n = 2 S. No patient reported significant leakage with the new interface and all considered it aesthetically attractive. There were no reports of nasal lesions or other complications related to the new interface (mean time of 3.1 ± 1.7 months).
Conclusions: Despite the high heterogeneity of diagnoses and broad age spectrum of this patients sample, this new line interfaces proved to have an excellent acceptance by patients under dNIV and an efficient applicability, even in patients totally dependent of NIV. Thus, it may be possible to contribute to a better tolerance, with less risk of complications in this population.

Key words: *Non-invasive ventilation. Interface.*

P-131. PROSPECTIVE STUDY TO EVALUATE AUTO CPAP ACCURACY IN TREATING RESPIRATORY EFFORT: AUTOCPAP VS CPAP

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Introduction: AutoCPAP devices have been marketed as having identical efficacy to fixed-pressure CPAP while delivering lower mean pressure, with the assumption that lower pressure application would be more comfortable, improve adherence and, thus, long-term patient outcomes. However there is a range of clinical studies where AutoCPAP devices have failed either to work reliably or to control sleep apnoea adequately in some patients. In our daily practice we have also noticed that, particularly in the subgroup with a predominance of respiratory effort (RERAs), AutoCPAP fails in detecting/treating events and cannot always control patient symptoms. Most of these patients appear to tolerate better a fixed CPAP pressure. However, in the literature, there is no evidence sustaining this observation. According to the manufactures, the AutoSet S9 algorithm has the ability to detect and treat this respiratory events (RERAs). So we designed a prospective study where the patients would be treated sequentially with this two treatment modalities. We aimed to investigate the accuracy of AutoCPAP, particularly S9, for treating respiratory effort and to evaluate the best treatment modality for these patients.
Methods: We included patients with an RDI > 15 and with RERAS representing > 50% of the events. All patients started Auto CPAP S9 and three months later they performed a polysomnography with the device to evaluate its accuracy in treating respiratory events. In the day after, they performed a titration study to determine the effective CPAP pressure, and switched to this treatment modality. Three months later, all the patients performed another PSG with the fixed CPAP. After each polysomnography, all patients had a clinical evaluation.
Results: 7 subjects completed the protocol. The mean baseline RDI was 32.7 ± 13.2 and mean RERAS was 125.6 ± 41.7. In the polysomnography with AutoCPAP the mean RDI was 3.9 ± 2.8 and the mean RERA was 23.3 ± 13.4. There was a reduction from baseline in all patients, but three maintaining a RDI > 5/h, with > 25 RERAS/night. Clinically, all patients maintained their main symptoms. In the polysomnography with CPAP the mean RDI was 1.1 ± 1.7 and mean RERAS was 0.6 ± 1.5. There was a significant reduction of theses parameters in all patients, from baseline and from the polysomnography with AutoCPAP. All had an RDI under 5, with < 5 RERAS/night. Clinically, most patients (n = 5) had a small improvement of their symptoms (although only one becoming asymptomatic) and preferred this treatment modality.
Conclusions: In our study, both treatment modalities were effective in treating OSA and RERAs. Fixed CPAP was better at correcting these respiratory effort events and in controlling patients' symptoms and most patients preferred this modality. So if the respiratory events and patients' symptoms are not controlled with AutoCPAP, we believe that fixed CPAP should be tried and could be a better option in these cases.

Key words: *RERAS. AutoCPAP.*

P-132. FOLLOWING OF OSAS PATIENTS IN DEDICATED CONSULTATION: CLINICAL AND ANALYTICAL CORRELATION

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Introduction: The Obstructive Sleep Apnea Syndrome (OSAS) is a disease of increasing incidence and is an important cardiovascular risk factor (CRF) with significant cardiorespiratory, cognitive, metabolic and inflammatory impact and effects on patients morbidity and mortality. The severity of the condition can be measured based on the apnea-hypopnea index obtained on polysomnography (PSG).
Objectives: Evaluate patients with diagnosis of OSAS followed in dedicated consultation. Correlating clinical parameters and diagnostic tests (polysomnography, analytical study) with the severity of OSAS.
Methods: retrospective study including 40 patients (n = 40) with OSAS, age 69 ± 10.8 years, body mass index (BMI) 34.8 ± 6.7, 21.9% female. CVRFs: 82.5% with dyslipidemia (DLP), 50% with diabetes mellitus type 2 (DM2) of which 95% under oral antidiabetic agents, 90% with high blood pressure (hypertension), 11.4% active smokers and 60% former smokers. HbA1c 6.1 ± 2.2%. OSAS severity based on the apnea-hypopnea index (AHI): 52.5% severe, 22.5% moderate, 22.5% light. 70% of patients undergoing noninvasive positive pressure ventilation, fixed or self-adjusting (CPAP/APAP); 17.5% ventilated noninvasively with bilevel positive airway pressure (BiPAP). The AHI was associated with increased NT-proBNP value (r = 0.55, p = 0.015), but not with HbA1c (r = 0.375, p = 0.256). There was no statistically significant association between AHI and none of the cardiovascular risk factors investigated individually, but there was an association between absolute number of cardiovascular risk factors and the value of AHI (r = -0.45, p = 0.004). HbA1c is related to SpO2% < 90% time percentage (r = 1, p < 0.001) and desaturation index (r = 1, p < 0.001). No associations were found between AHI value and systolic pulmonary artery pressure (SPAP) - (r 0.032, p = 0.881).
Conclusions: The severity of OSA in accordance with the AHI is associated with an increase in BMI (translating overweight and obesity) absolute number of cardiovascular risk factors and with increased levels of serum NT-proBNP and HbA1c that may translate one of the metabolic consequences of OSA - insulin resistance.

Key words: *Obstructive Sleep Apnea Syndrome. Polisomnography. Apnea Hypopnea Index.*

P-133. OBSTRUCTIVE SLEEP APNEA AND SLEEPINESS. A DIFFICULT CAUSE EFFECT RELATIONSHIP – A PUPILOGRAPHIC SLEEPINESS TEST STUDY

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Introduction: Excessive daytime sleepiness (EDS) is a common symptom in patients with obstructive sleep apneas (OSA). However, there is no clear relationship between the severity of OSA and the degree of sleepiness. In this study we analysed if any polysomnography (PSG) based parameter is related with either

subjective or objective sleepiness measures by sleepness scales and pupillographic sleepiness test (PST).
Methods: We included 50 patients (6 females 44 males) in this study. Following standard polysomnography (PSG) all patients indicated perceived sleepiness by the Stanford Sleepiness (SSS), Epworth sleepiness (ESS) and the visual analogue scale (VAS). The PST was applied as an objective assessment of sleepiness. Beside the total pupillary unrest index (PUI) as normalized sleepiness value we analysed the percentage of time spend with normal (%PUI 0-6.5), marginal (%PUI 6.6-9.7) and sleepy PUI values (%PUI = > 9.8). Patients were divided in sleepy or non sleepy according to an ESS value ≥ 10 or an PUI ≥ 9.8%. Significant results were analysed via the SPSS (version 20). A significance level of alpha 5% was used whenever statistical tests were applied.
Results: We found an increased PUI in 20 patients (40%), 12 of them with a PUI ≥ 9.8 (24%). 17 patients (34%) demonstrated an increased ESS and 3 (6%) an increased SSS. There was no direct correlation between the values of the PST and the subjective sleepiness scales. However, a weak correlation between the %PUI ≥ 9.8 and the VAS results (r 0.35, p: 0.013) could be computed. Sleep and respiratory PSG parameters including sleep time, percent of N3 and R sleep, apnea/hypopnea index (AHI), respiratory disturbance index (RDI) or oxygen desaturation index (ODI) were not significantly different between the sleepy and non sleep patients. As a control we analysed subjective and objective sleepiness in patients with an AHI < 5 and ≥ 30/h (both n = 10). PST values and subjective sleepiness did not differ significantly between the groups. In fact, patients with an AHI ≥ 30/h demonstrated slightly lower values than controls (PUI 4.95 ± 3.94 vs 6.70 ± 3.32 and ESS 5.60 ± 1.55 vs 7.40 ± 4.19, respectively).
Conclusions: Various study demonstrated an increased sleepiness in OSA patients. However, the precise mechanism of the sleepiness is not completely understood and neither is known why some patients with a severe disease do not suffer of daytime consequences. Patients with sleep disturbances find it often difficult to distinguish between fatigue and real sleepiness, which might explain the missing correlation between subjective and objective sleepiness shown in this pilot study. We could show that even a severe OSA does not mandatory lead to excessive daytime sleepiness. However, these results have to be controlled in a larger cohort.

Key words: *Obstructive sleep apnea. Sleepiness. Pupillography.*

P-134. RELATIONSHIP BETWEEN OBSTRUCTIVE LUNG DISEASES AND OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction: Obstructive sleep apnea (OSA) syndrome is very common and several studies have reported its highest prevalence in patients with chronic obstructive pulmonary diseases, namely asthma, chronic obstructive pulmonary disease (COPD) and asthma-COPD overlap syndrome. This study aimed to characterize the relationship between these two diseases in adults.
Methods: Prospective study, that included all patients referred to perform polygraphic study/polysomnography for suspected OSA in Pulmonology Department, Hospital do Divino Espírito Santo, between November 1st, 2015 and 31 January 31st, 2016. All patients filled a questionnaire (evaluation of OSA and asthma/COPD symptoms and comorbidities) and performed pulmonary function test (PFT). These results were then related to polygraphic study/polysomnographic by Chi-square test and Spearman correlation coefficient.
Results: 55 patients participated in this study (60% male sex, mean age 56.62 ± 13.99 years). The main comorbidities were hypertension (60%), smoking (60%), gastro-oesophageal reflux (56%), rhinitis/sinusitis (56%), obesity (55%) and depressive syndrome (33%). Regarding OSA complaints, the most common were snoring (89%), morning tiredness (73%), apnea (67%) and nocturnal asphyxia (62%). The *Epworth* Sleepiness Scale's average score was 10.16 ± 6.09. All patients underwent polygraphic study with an average apnea-hypopnea index (AHI) of 16.80 ± 17.19/h (40% had AHI > 15.0/h and 16% had AHI > 30.0/h). Concerning respiratory complaints, 62% often had cough, 60% chest tightness and 55% wheezing and dyspnea; sixteen patients (29%) had a previous diagnosis of obstructive lung disease (asthma–10; COPD-6). As for the results of PFT, 18 patients (33%) had bronchial obstruction, with 6 of them testing positive for bronchodilator test. We didn't found a significant correlation between AHI and OSA complaints (including *Epworth* Sleepiness scale) and respiratory complaints. Regarding comorbidities, AHI was associated with obesity, rhinitis/sinusitis, hypertension, diabetes, depressive syndrome and ischemic heart disease, with statistically significance for diabetes (p 0.02) and obesity (p 0,0239). PFT's results had a better correlation with dyspnea, although previous diagnosis was the only statistically significant (p 0,0026). We also obtained significant correlations between PFT and smoking (p 0.0138), rhinitis/sinusitis (p 0,0163), diabetes (p 0,0241), ischemic heart disease (p 0.02) and complaints of snoring (p 0,0051) and morning tiredness (p 0,0461). There was no statistically significant correlation between AHI and PFT's result.
Conclusions: In this study we didn't found a good correlation between AHI and OSA complaints, which could mean a subjective evaluation and possible overvaluation of complaints by patients. Although there was no significant association between AHI and LPT's results, there was a high frequency of obstructive respiratory complaints (including patients with known diagnosis of asthma and/or COPD) and there was a significant correlation between LPT and snoring and morning fatigue. It's also important to emphasize comorbidities's role, mainly obesity and diabetes, in these respiratory diseases.

Key words: *Obstructive sleep apnea syndrome. Asthma. Chronic obstructive pulmonary disease.*

P-135. RED BLOOD CELL DISTRIBUTION WIDTH AND SEVERITY OF OBSTRUCTIVE SLEEP APNOEA SYNDROME: IS IT RELATED?

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Introduction: Obstructive sleep apnoea syndrome (OSAS) is a common sleep disorder and is considered a systemic inflammatory disease. Red blood cell distribution width (RDW) has emerged as an inflammatory biomarker related to cardiovascular morbidity and mortality. Limited data is available regarding the association RDW and severity of OSAS.
Objectives: To evaluate red cells and platelet parameters and its association with OSAS severity.
Methods: Prospective evaluation of male patients with a diagnosis of OSAS admitted to a sleep laboratory for polysomnography. Patients known to have anaemia, cancer, periodic limb movement during sleep and central sleep apnoea were excluded. Clinical data, polysomnography and laboratory results were analysed.
Results: Seventy-three patients were included [median age 47 years (min-max 26-60)]. Thirty-six patients (49.3%) had mild OSAS

and 37 (50.7%) had moderate/severe OSAS. The median RDW increased significantly with increased severity of OSAS [mild = 13.2 (IQR 11.9-14.2) vs moderate/severe = 13.7 (IQR 12-14.7)] (p = 0.029). Haematocrit, platelet distribution width (PDW) and mean platelet volume (MPV) values also increased with increased severity of OSAS although without statistical significance. RDW showed a positive correlation with respiratory disturbance index, oxygen desaturation index, desaturation time under 90% and lowest oxygen saturation.
Conclusions: The present study demonstrated an association between RDW values and the severity of OSAS. It may become a simple and inexpensive marker, easily accessible through a full blood count, making it useful in prioritizing OSAS patients awating polysomnography evaluation.

Key words: *OSAS. RDW. Severity. Biomarker.*

P-136. OBSTRUCTIVE SLEEP APNOEA AND INTERSTITIAL LUNG DISEASE: A QUALITY OF LIFE ANALYSIS

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Introduction: Recent studies report an increased incidence of obstructive sleep apnoea (OSA) among patients with interstitial lung disease (ILD). The actual idiopathic pulmonary fibrosis (IPF) guidelines recognise OSA as an important comorbidity that can affect patient's survival.
Objectives: To evaluate the prevalence of OSA in patients with fibrotic ILD and compare the quality of life (QoL) in patients with and without this comorbidity.
Methods: Patients with stable fibrotic ILD, excluding those with body mass index (BMI) ^{3} 30 or significant upper airway pathologies, underwent level III polysomnography, pulmonary function tests, Epworth sleepiness scale (ESS) and multiple QoL tools [Pittsburgh Sleep Quality Index (PSQI); Fatigue Severity Scale (FSS); Short-Form 36 Health Survey (SF-36); Hospital Anxiety and Depression Scale (HADS)].
Results: Eleven patients were enrolled (6 male, 5 female; mean age 68.5 ± 13.2 years; mean BMI 25.9 ± 2.9 Kg/m^2) with diagnosis of ILD associated with collagen vascular disease (n = 7), IPF (n = 3), and ILD associated with vasculitis (n = 1). The mean predictive percentages of FVC, FEV1 and TLC were in the normal range, DLCO was slightly decreased. The mean ESS was 7.2 ± 6.3 (3 patients with ESS > 10). OSA was diagnosed in 7 (63.6%) patients (5 mild OSA and 2 moderate-to-severe OSA). Only two patients (with IAH ≥ 15) initiated continuous positive airway pressure (CPAP) treatment. The assessment of QoL by the PSQI, FSS, SF-36 and HADS showed a trend towards a worse level in patients with fibrotic ILD and OSA compared to patients without this comorbidity.
Conclusions: In the present study 63.6% of patients with fibrotic ILD presented with OSA and ESS was not a good screening tool for these patients. A trend to worse QoL was present in patients with this comorbidity.

Key words: *Interstitial lung disease. Obstructive sleep apnea. Comorbidity. Quality of life.*

P-137. BRONCHIOLITIS AND ITS EFFECT ON LUNG FUNCTION: REGARDING A CLINICAL CASE

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Introduction: Diseases of the bronchioles occur from the bronchial airways to the alveolar ducts and alveoli. In clinical terms, the bronchiolar pathology can be classified into airways or interstitial disease.
Case report: 19 years old male, student, non-smoker, with a history of pneumonia requiring mechanical ventilation in 1997, pneumonia in 2007, recurrent respiratory infections and kyphoscoliosis, treated with formoterol 12 ug 2 id and montelukast 10 mg. Transferred from Pediatric. Dyspnea and occasional wheezing with exercise, nasal itch and sneezing in the spring. CT-chest in 2007 with features suggestive of bronchiolitis, without bronchiectasis and spirometry 2014 with moderately severe obstructive syndrome (FEV 60%). Held CT-chest in 2015 that revealed multiple cylindrical bronchiectasis with central predominance and some bronchiolectasis with bronchial wall thickening, lung density attenuation above the right and left base, "tree-in-bud" in the lingula and in the right lower lobe. Respiratory function tests (RFT) showed severe obstructive syndrome (FEV 48%) and hyperinflation (TLC 126%; RV 254%) with normal DLCO. Positive skin prick test to grass. Analytical study without significant changes. Inhalation therapy changed to budesonide 320 ug/formoterol 9 ug 2id and started intranasal corticosteroids, with clinical improvement. Held videobronchofibroscopy (VBF): no macroscopic changes. BAL with low cellularity, so it wasn't possible to study cell populations. Isolation of *Haemophilus influenzae* and negative mycobacterial culture. Transbronchial biopsies performed which revealed thickening of the alveolar axes forming nodules with inflammatory infiltrate of chronic type, favoring the clinical hypothesis bronchiolitis obliterans. Reevaluated in 2016: no respiratory complaints and RFT with moderately severe obstructive syndrome (FEV 53%) with negative BD, keeping hyperinflation. It was associated glycopyrronium bromide 44 ug.
Discussion: Bronchiolitis obliterans is a rare form of chronic obstructive pulmonary disease. In non-transplant patients, the adenovirus infection is the main cause. The transbronchial lung biopsy is often inadequate to establish the definitive diagnosis. However, in the case described it contributed to confirmation of the clinical diagnosis. The treatment is mainly supportive and prognosis associated with the cause and severity of the initial insult.

Key words: *Bronchiolitis. Obliterans. Syndrome. Obstructive. Bronchiectasis.*

P-138. GRANULOMATOUS LUNG DISEASES: DIAGNOSTIC CHALLENGES

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Introduction: The author presents two cases with common epidemiological history and similar clinical course, imaging and immunology, reflecting the challenge in the differential diagnosis and therapeutic management of pulmonary granulomatous diseases, in this case, Silicosis and Sarcoidosis.
Case reports: The first case refers to a 47 years-old man, non smoker, with occupational exposure to silica dust (bricklayer for 27 years) and a history of hypertension, ischemic heart disease, atrial fibrillation and permanent exposure to pulmonary tuberculosis in the past. He presented with symptoms of left chest pain and dyspnoea (MMRC 1) with 1 year of evolution and progressive worsening. Chest CT showed calcified adenopathy and microreticulo-nodular pattern in the middle lobe and lower lobes. Acid-fast bacilli testing and Mantoux test were negative. The laboratorial study showed an increase of angiotensin-converting enzyme (127 IU/L, to reference values 8-52 IU/L). Bronchofibroscopy revealed bronchial anthracosis. Bronchoalveolar lavage (BAL) was compatible with lymphocytic alveolitis (44%) with high CD4/CD8 ratio of 4.45. The BAL cytological study showed refractile particles consistent with quartz crystals/silica. Bacteriological, direct

mycobacteriological and cultures of bronchoalveolar lavage (BAL) and bronchial aspirates were negative. Histological study showed peribronchial sarcoid granulomas, consistent with sarcoidosis aspects. The second case is related to man of 39 years, smoker (25 units-pack/year), with occupational exposure to silica dust (marble cutting for 13 years), who expressed morning productive cough, dyspnoea (MMRC 1), wheezing and asthenia with 4 years of evolution. The chest CT revealed extensive inflammatory changes of the parenchyma and mediastinal and hilar lymph nodes partially calcified. The angiotensin-converting enzyme was elevated, 123 IU/L to reference values 8-52 IU/L. Bronchofibroscopy showed nonspecific inflammatory changes. It was not possible to perform LBA for cytometry. Bronchial biopsy showed necrotizing granulomatosis consistent with tuberculous etiology. Based on that, the patient completed 9 months of therapeutic with tuberculostatic agents, without clinical or radiological response. It was held thoracoscopy with biopsies that revealed the presence of anthracotic pigment in the lung surface, micronodules and pleural nodules and multiple sarcoid- type granulomas without birefringent material. Total body scintigraphy with Ga-167 and the study of Pulmonary epithelial permeability (PEP) revealed diffuse injury of the alveolar epithelium, consistent with diffuse pulmonary inflammatory disease. It was performed a new chest CT that showed bilateral pulmonary infiltrates associated with micronodular pattern with mediastinal and hilar calcified lymphadenopathy. In both cases it was initiated corticotherapy. In the first case the clinical and radiological response is still under evaluation, after 5 months of corticosteroid therapy. The second patient fulfilled therapy for 2 years with a favorable clinical and radiological course, currently stable without steroid therapy.

Key words: *Silicosis. Sarcoidosis. Lymphocytic alveolitis. Granuloma. Corticotherapy.*

P-139. SILICOTUBERCULOSIS: A CASE REPORT

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Introduction: Silicosis, the most prevalent pneumoconiosis, is a fibrosing lung disease caused by inhalation and deposition of crystalline silica particles and can present itself in two ways: acute or chronic. In addition to its importance as an ocupacional disease, silicosis is associated with an increased risk of developing various morbidities, including tuberculosis.
Case report: The authors present the case of a 63 year-old-male, worker of the marble industry for about 40 years, with irrelevant personal history, referenced by the family doctor to a pulmonology consult for suspected silicosis. The patient had complaints for nearly two months of dry cough and dyspnea to great efforts, and was accompanied by a chest X-ray with multiple rounded opacities with irregular borders, predominantly in the upper lobes and in the peri-hilar areas. A CT scan was performed, which confirmed these changes, also showing an outline of cavitation in the larger right peri-hilar opacity. The patient then performed fiberoptic bronchoscopy with isolation of *Mycobacterium tuberculosis complex* in direct and cultural examination of bronchoalveolar lavage. In this context, the diagnosis of silicotuberculosis was admitted and the patient began therapy with HRZE, which he did for 4 months, until negative results of cultures were obtained. In total, the patient fulfilled 11 months of anti-tuberculosis therapy with a favorable clinical outcome. In a case of chronic silicosis, the development of disease tends to appear more than 10 years after exposure, and is usually oligosymptomatic. Additionally, individuals exposed to silica, with or without silicosis, are at increased risk of developing tuberculosis (ranging from 2.8 to 39 times compared to healthy controls, in accordance with the severity of the underlying disease), and it is very important to exclude the coexistence of this pathology. However, the diagnosis of active tuberculosis superimposed on silicosis can be quite difficult, particularly in the early frames, when the clinical manifestations can be minimal and radiologic changes indistinguishable from those resulting from the preexisting silicosis. So, it´s recommended as the initial complementary evaluation, sputum smear microscopy and culture, and in case of persistent doubt, a bronchoscopy with bronchoalveolar lavage, whenever possible associated with transbronchial biopsies (since they increase significantly the diagnostic yield of the exam). So far, there is no specific treatment for silicosis, so the management should focus on removing the worker from exposure and prevent complications, with recommended treatment for tuberculosis-infection or tuberculosis-disease.

Key words: *Silica dust. Silicosis. Silicotuberculosis. Occupational disease.*

P-140. MILIARY PATTERN IN SARCOIDOSIS: CLINICAL CASE

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Introduction: Sarcoidosis is a noninfectious granulomatous disease of unknown etiology, in which genetic, immunological, environmental and infectious factors seem to participate in the pathogenesis. Granulomas occur in any organ system, but most commonly are found in the lung and lymph nodes. The wide spectrum of affected patients, variability in organ involvement, absence of specific symptoms, and unidentified etiology combine to make sarcoidosis both a diagnostic and a therapeutic challenge.
Case report: Man 37 years old, born in Cape Verde, resident in Portugal for 14 years; builder, non smoking. Followed in pulmonology Diagnostic Center for two months by radiological clinical signs of miliary tuberculosis. During this time it was not isolated any microbiological agent from various studies both in spontaneous expectoration or through bronchial secretions and BAL in bronchoscopy. He went to the emergency room after two months of therapy with anti- bacterial HRZE under direct observed treatment (DOT) for worsening with productive cough with purulent sputum, pleuritic pain left, dyspnea on effort, evening fever and night sweats. Medical examination: polypnea, hypotension, weight loss, with no other changes. Laboratory tests showed elevation of uric acid (9.0 mg/dL) and C-reactive protein (7.30 mg/dL), with no other changes. Gasometry with partial respiratory insufficiency (pO_2 65 mmHg) without changing the acid-base balance. Chest X-ray: multiple micronodules throughout both lungs with a basal-zone predominance. and increased density of the lung parenchyma suggestive right lower consolidation homogeneous condensation. Sputum negative for *Mycobacterium tuberculosis* on direct examination. The patient was preliminarily diagnosed with miliary tuberculosis and bacterial pneumonia, and began administering empirical therapy with 10-day course of levofloxacin. CT thorax: numerous small nodules of less than 1 cm, dispersed throughout the lung parenchyma, mainly in centrilobular topography, without coexisting nodes sub- pleural topography, some confluent, forming peripheral masses, in contact with pleura; bilateral hilar, mediastinal, subcarinal, right paratracheal and paraaortic centimetric lymphadenopathy. Bronchoscopy: diffuse bronchitis signs. From the results highlight: direct microbiological analyzes and cultural negative in bronchial secretions and LBA; negative cytology; LBA immunophenotyping with lymphocyte predominance and CD4/CD8 3.4; ACE in BAL < 2,6 U/L. Other tests performed during hospitalization: serum hypercalcemia (Ca 10.5 mg/dL) and hypercalciuria (407 mg/24 hours) elevated serum ACE (85 U/L), proteinogram with electrophoretic profile compatible with clinical infectious/inflammatory. It was established diagnosis of sarcoidosis

by transbronchial lymph node biopsy guided by ultrasound (EBUS) which showed non-caseating epithelioid granulomas. Started therapy with prednisolone 1 mg/kg, verifying clinical and radiological improvement and lowering of ACE at three months of therapy.
Discussion: The case presented to a young man, not smoking, with miliary pattern and stage II of sarcoidosis emphasizes the importance of the differential diagnosis of miliary pattern on chest teleradiography, weighting in antituberculosis therapy institution, need obtain biological product and good response of directed therapeutic.

Key words: *Miliary pattern. Sarcoidosis.*

P-141. BIOLOGICAL CALIBRATION. IS ITS IMPORTANT IN A LUNG FUNCTION LABORATORY?

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Introduction: Quality Control (QC), which includes the equipment calibration is part of good practice in a Lung Function Laboratory (LFL). Calibration is the process used to validate that the values recorded by an equipment correspond to the biological values presented by the individual or if they are changed by inefficiency of that equipment. QC should be done periodically using a standard measurement (eg a known volume syringe) and, ideally, also using a biological calibrator (healthy subject, and non-smoker). Biological calibration (BC) is recommended as a QC assurance in a LFL.
Objectives: Determine the reproducibility level of the obtained values by BC, in order to ensure the accuracy of the results obtained in the Respiratory Function Tests (RFT) performed in Hospital Vila Franca de Xira (HVFX) LFL.
Methods: Between September 2014 and March 2016, RFT were performed monthly on the same period of the day using the MasterscreenBody® equipment to 3 biological calibrators, two with body mass index (BMI) < 30 kg/m^2 (CB1: female; CB2: male) and one with a BMI > 30 kg/m^2 (CB3: female). All of the tests were performed according the acceptability and reproducibility ATS/ERS 2005 criteria. For analysis were considered: FVC(L); FEV1(L); ITGV(L); RV(L); Raw (kPa*s/L); DLCO (mmol/min/kPa). To obtain the variation coefficient (VC) we calculated the mean value and standard deviation (SD) of the obtained values. It was accepted as significant deviation a VC > 10%, as proposed by the manufacturer. The VC descriptive statistics results are presented by the mean ± standard deviation (SD), obtained using the program SPSS® v20.0.
Results: CB1 (n = 12): VC(%) FVC = 2.46 ± 0.9; VC(%) FEV1 = 2 ± 0.5; CV(%) ITGV = 3.5 ± 1.9; VC(%) RV = 6.9 ± 2.4; VC(%) Raw = 10.5 ± 3.6; VC(%) DLCO = 3.1 ± 1.2; CB2 (n = 18): VC(%) FVC = 2.6 ± 0.2; VC(%)FEV1 = 2.6 ± 1.2; VC(%) ITGV = 6.7 ± 0.9; VC(%) RV = 8.8 ± 1.3; VC(%) Raw = 11.1 ± 1.14; CV(%) DLCO = 4.3 ± 1.3; CB3 (n = 20): VC(%) FVC = 3.0 ± 0.6; VC(%) FEV1 = 2.8 ± 0.5; VC(%) ITGV = 8.5 ± 3.3; VC(%) RV = 7.5 ± 1.4; VC(%) Raw = 10.7 ± 2.9; VC(%) DLCO = 3.2 ± 1.9.
Conclusions: In our results, we found the highest variability in RV and Raw values, in this last parameter we have a VC > 10% in 3 individuals, at least in one measurement. According to the literature this values stabilizes after 20 measurements, but the increased resistance may also be explained by an error of the software, by biological variability or by changes in respiratory maneuvers. It justified thus maintaining the CB and, if the CV of Raw remains high, the analysis of the causes of this variation. These results highlight the lack of validation of calibration only with syringe, which does not assess the reliability of lung volumes and Raw.

Key words: *Biological calibration. Spirometry. Lung function tests.*

P-142. INPATIENT OXYGEN THERAPY – WHICH REALITY?

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Introduction: Oxygen is a drug commonly used in clinical practice and is often a life-saving therapy. In view of the recommendations currently available about this subject, oxygen should be prescribed as any other drug, to avoid errors, especially in patients at risk of developing hypercapnia. However, it is known that the prescription and administration of oxygen are usually incomplete and inadequate and that health professionals don't have enough knowledge about the prescription and administration of this drug. Several studies were conducted to evaluate the results of educational interventions on the quality of prescription and administration of oxygen. Analyze the quality of prescription and hospitalization in oxygen administration is essential, so that you can improve their quality and identify the need to eventually carry out an educational intervention.
Objectives: To evaluate the prescription and administration of oxygen in inpatient settings.
Methods: Cross-sectional study. Adult patients assigned to the specialties of internal medicine and pulmonology in inpatient setting with electronic prescribing oxygen therapy and/or under oxygen therapy were selected. The patients on oxygen therapy with palliative intent, under daytime ventilation and patients under OLD with elective hospitalization were excluded. The characteristics of the electronic prescription, if present, were evaluated, as oxygen administration, and SpO2 at the time of observation, using a questionnaire developed by the authors at two different times.
Results: There was electronic prescription of oxygen in 73.8% (141) of inpatients. After application of the exclusion criteria, we obtained a sample of 125 patients, including 4 under oxygen therapy but without prescription (3.2% of the final sample). The prescription by SpO2 goals corresponded to 70.3% of cases and the prescription with fixed dose to 10.7%. Both prescriptions (fixed dose and targets) were present in 19%. Concerning the prescription by SpO2 goals, only 14.1% had the recommended SpO2 ranges (88-92% or 94-98%). In the remaining cases, in 76.5%, only a minimum or maximum value of SpO2 was set. The goals of SpO2 were achieved in 79.7% of patients. In 6.8% the SpO2 was above the set threshold and 13.5% below, with differences greater than 2% in 60% of cases in both situations. The prescription with fixed dose had all parameters defined in 84.6% of cases but in 76.9% there was no agreement between the prescribed oxygen therapy and the administered oxygen. Most patients with type 2 respiratory failure or risk factors for it had prescription goals (52.9%), and a third defined as desired range of SpO2, 88-92%. The remaining provisions only required a minimum of SpO2 value.
Conclusions: The majority of patients included in the study had electronic prescription of oxygen, mainly by SpO2 goals in accordance with what is recommended. Still, there were significant percentages of incomplete or ambiguous prescriptions, with aspects to improve, especially with an educational intervention or other strategies.

Key words: *Oxygen. Therapy. Inpatient. Reality.*

P-143. CHRONIC OBSTRUCTIVE PULMONARY DISEASE - APPROACH UNDER PRIMARY HEALTH CARE BEST CLINICAL PRACTICES PROJECT "BREATH WELL, LIVE BETTER"

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a chronic underdiagnosed and undertreated illness and one of the primary causes of morbimortality. Spirometry is the "Gold Standard" diagnostic test and should be made easily available under Primary Health Care (PHC) according to the Direção Geral de Saúde (DGS).
Objectives: To create an integration device between PHC and Hospital Care (HC) that permits the proper diagnostic and therapeutic approach for COPD patients. Its implementation will reduce costs, improve the quality of life of its users, utilize existing resources being used in home based respiratory care; establish community partnerships; and, articulate with the family health teams, resulting in broader health benefits.
Methods: Establishment of a working group representative of the PHC and HC; Creation of a flowchart for identification of patients with suspected COPD, 40 years of age and older, exhibiting symptoms and risk factors; Acquisition of a spirometer and hiring of a technician in Cardiopneumology (30 hours) for the administration of the spirometry tests and collection of clinical data; Diagnosis (IT < 70% post BD negative) and staging (A,B,C,D) of the disease according to the GOLD criteria; Training of health professional staff; Engagement of three pilot UCC for the development of communitarian interventions.
Conclusions: 3,850 patients were summoned between February 2nd, 2014 and June 30, 2016, and 3,486 spirometries were administered (90% participation) under the auspices of PHC; COPD was diagnosed in 468 patients as follows: Group A 32.9%; Group B 31.2%; Group C 6.2% and Group D 29.7%; 76.8% were men and 21.4% women, with ages ranging from 38 to 97 years; 70.2% were smokers or former smokers and biomass exposure was present in 74.4% of cases. 7.4 spirometries were requiring on average in order to confirm the disease, a larger number than the 3.36 spirometries found in a 2013 study undertaken by the DGS. The participation of the Units of Family Health (UFH) and of the UPHC has been positive, resulting in an increase in the number of COPD diagnosed cases, which along with the appropriate therapy can improve the quality of life of the patients. These health gains will be larger if there is an effective association with the units of family health, if there is a better use of the existing resources, and if communitarian partnerships are developed. The engagement of the Community and the establishment of partnerships in PHC will permit a better utilization of resources and intervention in the control of smoking and biomass exposure.

Key words: *COPD. Spirometry. Primary health care.*

P-144. LONG TERM OXYGEN THERAPY MONOGRAPHIC CONSULT, PATIENTS WITH CHRONIC HEART FAILURE

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Introduction: Long term oxygen therapy (LTOT) is indicated in patients with chronic obstructive pulmonary disease with proven hypoxemia in arterial gasometry, having a positive effect in survival. However, the same benefits are not proven in patients with heart failure and not having enough studies to guide its use, oxygen therapy appears has a palliative treatment for patients with heart failure who maintain dyspnea and hypoxemia, despite optimal medical treatment.
Methods: The authors conducted a retrospective study of all the patients who attended the LTOT consult of Faro Hospital between the 1st of January 2013 and the 31st of December 2015, identifying those with respiratory failure due to cardiac disease, without any concomitant pulmonary pathology, with the objective of characterizing this population.
Results: There were 11 patients included, 10 females and 1 male, with an age average of 81 years old, ranging from 59 to 91 years. The oldest follow-up dates back to 2002, the rest initiated between 2011 and 2015. In total, they attended to 38 consults during the 2 years of the study, of which 7 were first consults and 31 follow-ups. There were 3 deaths and 2 discharges with no gasometric criteria. With a case of congenital malformation, the majority of heart failures were evaluated with preserved ejection fraction, due to hypertensive cardiopathy. Six patients didn't maintain hospital follow-up from another department other than Pneumology, 3 maintained follow-up from Cardiology and 2 from Internal Medicine.
Conclusions: Has a palliative option in patients with severe cardiac disease, LTOT implies in first instance, a medical therapy optimization, with a mandatory adequate follow-up. In the sample it was found that the majority of patients didn't have any follow-up other than Pneumology, concluding the authors that it would be beneficial a greater coordination between departments.

Key words: *Long Term Oxygen Therapy. LTOT. Chronic heart failure.*

P-145. PULMONARY REHABILITATION AND PRIMARY CARE – THE RESULTS OF AN INQUIRY TO GENERAL PRACTITIONERS

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Introduction: Pulmonary rehabilitation (PR) has gained visibility recently with gradual recognition of its benefits by the medical community. One of the current challenges of PR Programs (PRP) is to extend their practice to the community, trying to find a bigger number of patients that may benefit from this therapeutic approach.
Objectives: To evaluate the current state of PR at Primary Care Practice (PCP), namely indications, benefits, available resources e hindrances to referal of patients.
Methods: Together with PR group of the Portuguese Pneumology Society, we elaborated an anonymous inquiry that was distributed to general practitioners and residents of Family Medicine of Unidade Local de Saúde da Guarda. We inquired data about the physicians' years of practice and the number of chronic respiratory patients they followed. It was also inquired which diseases have indication for referral to PRP, which benefits were expected and which workers should be part of PRP's teams. We also questioned about their knowledge of the existence of PRP at a local and national level, the difficulties found at referral, as well as proposed changes in order to improve the contact between PCP and the PRP.
Results: From a population of 108 of general practitioners and residents, we obtained 52 answers to our inquiry. The majority of the physicians had more than 30 years of clinical practice and followed between 50-100 patients with chronic respiratory disease, with COPD being the most prevalent (84.6%) and the one considered the main candidate for PRP (98.1%). The benefits of PR were recognized, namely the improvement in ability to exercise (100%), in quality of life (100%) and of dyspnea (98.1%). In the opinion of 67.3%, the general practitioners should take part in PRP, against 11.5% that responded negatively. 34.6% didn't know that their local hospital had PRP. Those who knew, sometimes did thought about referring their patients, but only rarely actually did it. When questioned about the motives, they mentioned the lack of information regarding the means of referral and economic and transport hindrances. The majority (78.8%) never had training in PR, was open to have it in the future and supports the development of PRP closer to community.

Conclusions: Despite the recognition of the existence and the benefits of PR in chronic respiratory patients, there are still important hindrances on the access of patients to these programs. So, it is essential to promote the training on PR, remove the referred obstacles and approximate the PRP of Primary Care. Our results are only representative of the local perspective, however, and the authors consider it important to extend the evaluation to a bigger scale, possibly on a national level.

***Key words**: Pulmonary rehabilitation. Chronic respiratory disease. Primary Care Practice.*

P-146. EXERCISE-INDUCED BRONCHOCONSTRICTION – WHEN THINGS ARE NOT WHAT THEY SEEM TO BE

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Introduction: Exercise intolerance can be present in different chronic respiratory diseases. Its association with other symptoms, such as cough, wheezing and thoracic oppression, can point to exercise-induced bronchoconstriction (EIB). Nevertheless, low clinical presentation sensibility and sensitivity compel to confirmation and consideration of alternatives diagnosis. The preferred method is cardiopulmonary exercise evaluation and serial measurements of forced expiratory volume in first second (FEV_1) after exercise. Differential diagnosis is essential in these patients because of different therapeutic approaches.
Objectives: To identify exercise limiting factors in patients suspected of having EIB.
Methods: A retrospective analysis of cardiopulmonary exercise tests performed between May 2012 and June 2016 in patients suspected of having EIB was done. A cycle ergometer was used, and an incremental protocol until maximal exercise tolerated by the patient or ending by medical order was chosen. During exercise, flow-volume curve was analyzed and, after that, serial measurements of FEV_1 were performed for 30 minutes.
Results: 116 tests were included. Patients mean age was 35.1 ± 15.9 years and 64% were female. 29 patients (25%) were current or previous smokers. In 22 patients (19%), a 10% decrease in FEV_1 was identified and in 11 of those another exercise limiting factor was identified (deconditioning, cardiocirculatory disease and hyperventilation syndrome). EIB patients mean age was inferior to non-EIB patients (28.1 vs 36.7, p value < 0.05). There was no difference in terms of gender between the groups. EIB was not found in 94 patients (81%) and in 44.8% of those, an alternative cause for effort intolerance was noticed.
Conclusions: Clinical presentation is not specific for diagnosing EIB as it is similar to other conditions. In fact, EIB was confirmed in only 19% of patients analyzed, a result similar to published data (EIB confirmation in 7-24% of patients). In addition, cardiopulmonary exercise testing is also capable of diagnosing an alternative condition. These conditions require different therapeutic strategies which justifies the need of differentiate between them.

***Key words**: Exercise-induced bronchoconstriction. Cardiopulmonary exercise test.*

P-147. BRONCHOSCOPY AND CT – ETIOLOGIC DIAGNOSIS OF HEMOPTYSIS

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Introduction: Hemoptysis is a common symptom in respiratory medicine, defined by blood originating from the respiratory tract below the vocal cords. Evaluation of patients with hemoptysis is challenging, usually consisting in performing computed tomography (CT) and bronchoscopy (BFC). The aim of the study was to establish the etiology of hemoptysis in patients undergoing CT and BFC and its technical subsidiaries (bronchial lavage - BL, bronchoalveolar lavage - BAL, bronchial biopsy - BB).
Methods: Retrospective analysis was performed involving 49 patients referred to the Pulmonology Interventional Unit of the Santa Maria Hospital as having hemoptysis. Data was obtained from the database of that unit from January to December 2014. Only patients who underwent BFC and CT simultaneously were selected. Hemoptysis were ranged according to their severity in minor hemoptysis, hemoptysis moderate (30 to 50 ml of blood) and massive hemoptysis. Statistical analysis was performed using IBM-SPSS.
Results: Complete data was obtained for the 49 individuals, with 69.4% (n = 34) men, aged between 19 and 93 years, with a median of 61.87 years. The 50 to 75-year-old group was the most representative (42.86%, n = 21). Most patients had moderate hemoptysis (55%, n = 27) followed by minor hemoptysis (42.9%, n = 21). Twenty-nine patients (59%) had tobacco smoke exposure. Eleven patients (22.4%) had a known history of bronchiectasis, 8% (n = 4) were medicated with anticoagulants and 10% (n = 5) with antiplatelet. Pathologic imaging sings were present in 81.6% (n = 40), being bronchiectasis (n = 11) and pulmonary consolidation (n = 11) the most frequent. Presence of active bleeding was seen in 12.2% (n = 6) of the patients and the presence of recent hemorrhage in 16.3% (n = 8). Microbiological evaluation of LB, and LBA BB was positive in 26.5% (n = 13) of patients, with Pseudomonas aeruginosa (n = 5) being the most common agent. Histologic examination was positive in 12% (n = 6) of patients, indicating the presence of non-small cell lung cancer in all. Based on the pathologic imaging sings and the results obtained by BFC etiologic diagnosis of hemoptysis was performed in 51% of patients (n = 25).
Conclusions: The etiological diagnosis of hemoptysis is often difficult, requiring a holistic approach, combining imaging and bronchoscopy findings. Our results show that by combining BFC and CT is possible to determine the cause in approximately half of the patients with hemoptysis, and that the main causes are presence of infection in the respiratory tract or lung cancer.

***Key words**: Hemoptysis. Bronchoscopy. Computed tomography.*

P-148. HEMOPTYSIS: ETIOLOGY, TREATMENT AND OUTCOME IN A REFERRAL HOSPITAL

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Objectives: To evaluate the etiology of hemoptysis, treatment and outcome in a Portuguese cohort of patients admitted to a pulmonology department of a central hospital.
Methods: A retrospective analysis of patients with hemoptysis admitted to the Pulmonology A Department of Coimbra's University Hospital between January 2007 and June 2016. Patients with an already known etiology to hemoptysis, such as bronchiectasis (with previous specialized follow-up), lung neoplasm (with recent diagnosis or under treatment), previously known architectural lung distortion or those submitted to a lung procedure (transthoracic needle biopsy, surgical biopsy or similar with bleeding risk) were excluded from the study.
Results: 195 patients were identified (133 male and 62 female), aged between 17 and 93 years old. Infectious diseases accounted for most causes of hemoptysis (48.2%), in particular infected bronchiectasis, pneumonia and pulmonary tuberculosis, followed by lung neoplasm (17.9%). Other causes were cardiovascular disorders (4.6%),

hemostasis disorders (1.5%), vasculitis (0.5%) and others (1.5%). In 9.2% of the cases more than one cause for hemoptysis was identified and in 16.4% of the cases an etiology was not found despite thorough investigation (cryptogenic). In most cases (78.5%) pharmacological treatment was enough to manage hemoptysis, 17.4% needed local bronchoscopic treatment, 2.6% angiographic embolization of the bleeding vessel and in 1.5% surgery was needed. The average hospital length of stay was 10.9 days with hospital outpatient consultation follow-up after discharge in 76.4% of the cases. 3.1% of the patients died and 10.8% were readmitted with hemoptysis during the first year after the early event.
Conclusions: Although infectious diseases account for most causes of hemoptysis, other causes should be excluded, regarding different therapeutic options and prognosis. In a significant proportion of cases the diagnosis remains unclear. Pharmacological treatment is enough to manage hemoptysis in the majority of patients, with good prognosis.

Key words: *Hemoptysis. Etiology. Treatment.*

P-149. THROMBOEMBOLIC EVENTS AFTER LUNG TRANSPLANTATION

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Introduction: Lung transplantation can be a life-saving procedure for those with end-stage lung disease. Thromboembolic events, which include Deep Venous Thrombosis (DVT) and Pulmonary Embolism (PE), have an increased incidence in lung transplant recipients, with a reported incidence from 8.6 to 29%. In these events, almost two-thirds will develop them in the first year of transplantation, with 20% of these occurring within the first month.
Objectives: To evaluate the incidence of thromboembolic events in lung transplant recipients and describe their association with clinical outcomes.
Methods: We retrospectively analysed patients with pulmonary transplantation followed in Centro Hospitalar de São João since 2005 and reviewed for thromboembolic complications. The lung transplant was performed by two different transplantation groups: Hospital de Santa Marta (Lisbon) and at Hospital Juan Canalejo (A Coruña). After the transplant, the patients maintained follow-up in a specific consultation. DVT was diagnosed by venous duplex ultrasonography. PE was diagnosed by computed tomography angiography or ventilation/perfusion scintigraphy.
Results: Eighty patients underwent lung transplantation, 48 (60.0%) were male and the mean age at transplant was 45.7 ± 12.7 years. The patients have been followed for a mean time of 46.0 months before lung transplantation. The main diseases for which transplants were performed were chronic obstructive pulmonary disease (COPD) and diffuse pulmonary disease (DPD). Thromboembolic complications developed in four patients (5%) after transplantation, 2 were male and 2 female and the mean age was 56.0 ± 6.7 years. The thromboembolic events occurred 3 to 83 months after transplantation (mean time 35.5 ± 38.3 months) and consisted of DVT (one patient) and PE (three patients). Three patients have been discharged from the hospital and were ambulatory at the time of the thromboembolic event, and they survived the complication; the other patient was still hospitalized at the transplantation centre. All patients presented typical thromboembolic symptoms and had signs of respiratory infection by the time of diagnosis. In two patients the thromboembolic event was identified in the first year after transplantation, in the others, the diagnosis was later, and no other risk factors for thromboembolic disease were present. None of the patients in this study died as a result of the tromboembolic events.
Conclusions: Thromboembolic events are common after lung transplantation. The present study found that thromboembolic complications occurred in 4 of 80 of lung transplant recipients (5%) at 3 to 83 months after transplantation. Although most of the episodes occur in the early post-transplant period, three episodes (75%) occur after the postoperative period. Nevertheless, the results of the present study should prompt a higher index of suspicion in clinicians, which would lead to early diagnosis and successful treatment of these potentially fatal complications.

Key words: *Lung transplantation. Thromboembolic events. Deep venous thrombosis. Pulmonary embolism.*

P-150. HEMOPTYSIS AND VENOUS THROMBOSIS: A THERAPEUTIC CHALLENGE

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Introduction: Currently, the acute pulmonary embolism (PE) is a common cause of death in the world, counting about 50,000 to 200,000 annual deaths. PE is recorded as the third cause of mortality between cardiovascular diseases, soon after coronary heart disease and stroke. Its presentation is extremely variable with unspecific symptoms and signs. Massive hemoptysis is a medical emergency and one of the clinical presentations of acute PE with mortality rates level nearing 75%.
Case report: The authors present a clinical case of a 68 years old, female, non-smoking patient. She has history of bilateral deafness (in professional context), arterial hypertension and transient ischemic attack. She was hospitalized due to relapsed hemoptysis of average volume associated with respiratory failure. After 24h of hospitalization and treatment with endovenous aminocaproic acid, the patient presented a new relapse and was decided to submit her to a rigid bronchoscopy (RB) where we could observe abundant hematic secretions in trachea and carena, clots in right upper, middle and lower lobes, which remade bleeding after aspiration, and clots in left main bronchus, which showed no mucosal changes after removal. About imagiologic study, angio-thoracic CT showed evidence of thromboembolic events in branches of left upper lobe and posterior segments of right upper and lower lobes, and no evidence of arterial-venous malformations. Given the observation of intermediate-low risk EP was decided to stop aminocaproic acid perfusion, however heparin was not started by relapsed hemoptysis with severe respiratory failure which led to the transfer to intensive care unit and endotracheal intubation. After that hemoptysis was controlled, the patient started heparin perfusion in day 6 of hospitalization. In additional studies, it was documented bilateral profound venous thrombosis (PVT) and pro-thrombotic study was negative. In day 9 of hospitalization, because of prolonged and relapsed clinical condition of hemoptysis, with visualization through bronchial fibroscopy (BF) of clots with bleeding after removal, it was decided to perform a right bronchial arteriography and embolization, and was placed an inferior vena cava filter. Since this treatment, the clinical condition improved with hemoptysis ceasing and was found an improvement of gas exchange, keeping treatment with heparine. In day 14 of hospitalization oral anticoagulation was introduced, with no events registered.
Discussion: It is evident with this case that hemoptysis are one of the clinical presentations of acute PE, in probable relationship with rupture and bleeding of ingurgitated bronchial arteries. We present this case in order to show the effectiveness of bronchial arteries embolization approach to this type of clinical presentation, allowing direct anticoagulant treatment to the causal factor. Emphasis is also given to the therapeutic space occupied by the inferior vena cava filter when PVT has been documented and there is no possibility of introducing anticoagulant treatment *ad initium*.

Key words: *Pulmonary embolism. Hemoptysis. Bronchial embolization. Vena cava filter.*

P-151. PULMONARY THROMBOEMBOLISM: WHAT IS THE GOLD STANDARD?

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Introduction: Acute pulmonary embolism (PE) is a major cause of morbidity and mortality, particularly pulmonary hypertension cause thromboembolic (HTPT). The diagnosis of PE is mostly done using imaging techniques, and the CT of the pulmonary arteries (CT angiography) is considered the GOLD standard. The basic principle for the diagnosis of PE based on scintigraphy V/P is to recognize segments and subsegments without perfusion of the lung, but with retained ventilation, i.e., *mismatch*. The scintigraphy V/P can be performed in two ways: planar and SPECT (single positron emission photon). In lung SPECT tomographic images are obtained of studies of ventilation (V) and of perfusion (Q) which are then normalized and compared cut to cut, images can be obtained of the ratio V/P. It would facilitate the diagnosis and quantification of the extent of PE. The scintigraphy (SPECT) V/P is a test very useful in the diagnosis and tracking of acute PE and HTPT.
Case reports: Female patient, 76, sent to the emergency department (ED) for asthenia and dyspnoea. Eupneic with O2 1L/min. Pulmonary auscultation (PA): diminished breath sounds in the left base. SpO2: 90% (O2 1L/min). Elevation of PCR, negative D-dimer. Admitted by Tracheobronchitis Acute and hypoxic respiratory failure. He started antibiotic therapy. For lack of improvement held SPECT V/P: "bilateral PE large extent, compromise the overall pulmonary infusion by approximately 50%." Started anticoagulation. Favorable evolution. High and guidance for consultation. Male patient, 86, followed in Pulmonology: bilateral paquipleurite (Pulmonary Tuberculosis in 2009), HTP, VNI and OLD 1 L/min 16 hours/day, ex-smoker 55 UMA. Echocardiogram: "HTP severe (78 mmHg). Good global systolic function". He did CT angiography to evaluate PE signs: engorgement of the pulmonary artery and its branches, with increased diameter. Image of peripheral subtraction, the arterial branch of the posterior segment of the LEL, aspects consistent with chronic thromboembolism. Order SPECT V/P to better clarify "TEP moderate bilateral extension (commitment to about 22% of the overall pulmonary perfusion) in connection with possible sequelae episode (s) prior (s) to integrate clinically".
Discussion: In two different clinical cases, scintigraphy (SPECT) V/P was an diagnostic supplementary exam of unquestionable value (associated with low radiation dose). In the first clinical case diagnosed acute PE with great extent, although negative D-dimer. In this case, it wasn't requested CT angiography. In the second case, the CT angiography would envisage chronic PE as an etiology of HTP, but not accurate as to the extent and only mentions abnormality left, while scintigraphy (SPECT) V/P, not only evaluated the extension, as well as detected bilateral PE. Chest CT angiography would only use if it were the only diagnostic supplementary exam available.

Key words: *Pulmonary embolism.*

P-152. MICRORNA-146A ROLE IN PULMONARY ARTERIAL HYPERTENSION

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Introduction: Pulmonary arterial hypertension (PAH), is the most serious chronic disorder of the pulmonary circulation, characterized by excessive pulmonary vascular remodelling, resulting in elevated pulmonary vascular resistances and right ventricle (RV) overload. Increasingly RV overload results in RV failure and death. PAH remains incurable, and new therapeutic approaches are required. MiR-146a promotes vascular smooth muscle cell proliferation and vascular neointimal hyperplasia, both important hallmarks of PAH. Additionally, inhibition of miR-146a eliminates the hypertrophic response and HF induced by left ventricular pressure overload. Recent studies have shown that miRNA-146a represses several signalling pathways, which play a major role in PAH and RV failure. This work aimed to evaluate the expression of miR-146a in the development of PAH, and to determine the role of miR-146a inhibition in the development of PAH and RV failure.
Methods: RV samples were obtained from autopsies, heart transplantation or cardiac surgery, and were categorized as normal RV (NRV), compensated RV hypertrophy (CRVH) and decompensated RV failure (DRV), based on clinical history and the tricuspid annular plane systolic excursion (TAPSE). Lung tissue samples were collected from explanted lungs or during lung resection from healthy segments. Blood was collected from control and PAH patients. RV and lung samples from control and MCT-induced PAH animals were also collected. Pulmonary artery smooth muscle cells (PASMC) were isolated from patients with and without PAH and were treated with miR-146a inhibitor or negative control, and used for proliferation and apoptosis analysis. MiR-146a knock-out (KO) and wild-type (WT) animals where submitted to 3 weeks of chronic hypoxia (CH) or pulmonary artery banding (PAB). Functional and morphometric evaluation was performed at the end of the 3 weeks.
Results: MiR-146a expression was increased in the RV of patients with DRVH, when compared to NRV. This increase in expression was inversely correlated with decreased RV function. Lung tissue from PAH patients showed a significant increase in miR-146a levels when compared to control patients. No differences were observed in the buffy coat of patients with PAH compared to control patients. In MCT-induced PAH, miR-146a expression was also increased in both RV and lung. Isolated PASMC from PAH patients showed increased expression of miR-146a when compared to controls, and showed decreased proliferation and increased apoptosis when treated with miR146a inhibitor. MiR-146a KO animals showed decreased RV remodelling and dysfunction when compared to WT animals, in both CH and PAB.
Conclusions: Our findings show that miR-146a expression is increased in both the human and experimental PAH, and that inhibition of this miRNA results in attenuation of key PAH abnormalities, such as PASMC excessive proliferation and RV remodelling and failure. This data suggests that miR-146a might play an important role in the pathophysiology and progression of PAH, and modulation of this miRNA might prove to be beneficial in the treatment of this condition.

Key words: *Pulmonary arterial hypertension. MiR-146a.*

P-153. UROCORTIN-2 IMPROVES RIGHT VENTRICULAR FUNCTION AND PULMONARY ARTERIAL HYPERTENSION

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Introduction: Urocortin (UCN)-2 is highly expressed in the cardiovascular system and has shown promising therapeutic effects

in several studies in humans and experimental heart failure. This study analysed the expression of UCN-2 in human and experimental PAH, and the effects of UCN-2 treatment in an animal model of RV failure, secondary to pulmonary arterial hypertension (PAH).
Methods: RV, lung and blood samples from patients with PAH and controls without PAH were collected. Wistar rats were submitted to monocrotaline (MCT) administration, or pulmonary artery banding (PAB). After 14 days, animals were randomly assigned to receive either UCN-2 (5 μg/Kg/day) or vehicle. Exercise tolerance, echocardiography and RV hemodynamic measurements were performed 23-25 days after MCT or PAB, and after euthanasia tissue was collected for morphometric, histological and molecular analysis. Pulmonary arterial rings were isolated from the different experimental groups and mounted on a myograph system in order to evaluate endothelial function, and to determine the acute effects of UCN-2 treatment.
Results: Plasmatic levels of UCN-2 were increased in MCT animals, compared to control animals, and this increase inversely correlated with RV function. Expression of UCN-2 was increased in the blood of PAH patients, while no differences were observed with UCN-2 plasmatic levels. RV expression of UCN-2 was also increased in MCT animals and patients with PAH, and inversely correlated with RV function. UCN-2 receptor (CRHR2) expression was also increased in the RV of both MCT and patients with PAH. UCN-2 treatment of MCT-animals reduced PAH, resulting in decreased mortality and improved exercise capacity. RV dilation, and systolic and diastolic dysfunction were attenuated. RV remodelling was decreased (reduced cardiac hypertrophy and fibrosis), as well as intrinsic cardiomyocyte stiffness. Underlying these changes we found a decrease in apoptosis, cardiac damage markers, collagen synthesis, and attenuation of the myosin heavy chain β/α ratio, in MCT animals treated with UCN-2. STAT3, MAPK42/44 and p38 activation were decreased in MCT animals and restored by UCN-2 treatment. Calcium homeostasis was also improved by UCN-2 treatment. PAB animals treated with UCN-2, showed RV-specific decrease in cardiomyocyte hypertrophy and fibrosis. Finally, treatment with UCN-2 improved endothelial function, and acute administration of UCN-2 resulted in vasodilation and vasoconstriction inhibition.
Conclusions: UCN-2 levels are altered in human and experimental PAH. UCN-2 treatment attenuates PAH and RV dysfunction and increases survival in MCT-induced PAH, has direct anti-remodelling effects on the pressure-overloaded RV, and improves pulmonary vascular function. UCN-2 has a relevant role in the pathophysiology of PAH, and might be a new treatment option in this condition.

Key words: *Pulmonary arterial hypertension. Urocortin-2. Right ventricle function.*

P-154. MORE THAN A PNEUMOTHORAX IN A YOUNG AGE

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Introduction: The primary spontaneous pneumothorax occurs frequently in patients aged between 20 and 30 years old. The secondary spontaneous pneumothorax is more common in patients between 60 and 65 years old. Spontaneous pneumothorax is referred to as secondary when associated with an underlying pulmonary disease.
Case report: Female patient, 24 years old, non-smoking, with a history of migraine and emergency right nephrectomy following total hematuria with hypovolemic shock in December 2010 (renal angiomyolipoma). She resorted to the emergency room due to a sudden onset chest pain radiating to the right upper limb and aggravating with the supine position that had lasted for two days. The X-ray showed a large right pneumothorax. Chest drain was placed, with good clinical and radiological evolution. She underwent chest CT, which revealed multiple cystic lesions scattered throughout the parenchyma compatible with pulmonary lymphangioleiomyomatosis (LAM). A brain CT was conducted, that showed no encephalic densitometric changes. Already in clinic she performed a brain and abdominal-pelvic MRI, which didn't reveal any lesions suggestive of tuberous nodes or angiomyolipomas. VEGF-D (vascular endothelial growth factor-D) assay was normal. Lung function test showed an increased residual volume and CO diffusion capacity slightly decreased, but standard when corrected for alveolar volume. She was examined in Ophthalmology, which excluded retinal nodular hamartomas or achromic patches.
Discussion: The secondary spontaneous pneumothorax is a major complication of LAM. This rare condition may occur sporadically or in association with tuberous sclerosis. In the presence of LAM and renal angiomyolipoma, the diagnosis of tuberous sclerosis should only be regarded as definitive in the presence of another criterion. This case intends to revisit this entity with regard to a patient admitted for pneumothorax.

Key words: *Pneumothorax. Lymphangioleiomyomatosis. Tuberous sclerosis.*

P-155. NON TRAUMATIC CHYLOTHORAX: CLINICAL CASE

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Introduction: Chylothorax is a rare, but important, form of pleural effusion. It is characterized by accumulation of lymphatic fluid in the pleural space, secondary to thoracic duct injury. The diagnosis is based on measuring cholesterol, triglycerides and chylomicrons in the pleural fluid. Chylothorax can be traumatic or non-traumatic. The non-traumatic chylothorax is mainly caused by malignant diseases, especially lymphomas.
Case report: We report the case of a 69 years old woman, non-smoking, with a prior diagnosis of dyslipidemia, which appealed to the emergency service with a clinical condition characterized by dry cough, anorexia, asthenia and night sweats with a month of evolution, and recently aggravated by dyspnea and right pleuritic chest pain. There was no history of trauma or recent surgery. The physical examination showed decreased breath sounds in the lower third of the right lung field. No other changes were found such palpable peripheral lymphadenopathy. Analytically had relative lymphocytosis and increased C-reactive Protein. The chest radiograph showed hypotransparency in the lower 1/3 of the right lung field suggestive of pleural effusion. A thoracentesis was performed with an output of 1,900 mL of milky fluid whose biochemical features confirmed the diagnosis of chylothorax. No neoplastic tissue was found at the pleural biopsies. By recurrence of pleural effusion a chest drain was placed and the patient began fat diet rich in medium chain triglycerides. A thoraco-abdominopelvic computed tomography (CT) showed a massive abdominal mass involving the retroperitoneum, mesenteric fat, small bowel loops, large abdominal vessels, no obvious defects in the permeability of the celiac trunk and superior mesenteric artery were found. There were also found lumbar aortic, visceral, para-phrenic, descendent paraaortic, left supra-clavicular and right internal mammary adenomegalies. Based on the clinical context and morphology of the lesion the hypothesized of lymphoproliferative disease was placed. CT-guided biopsy was performed on two abdominal lymph nodes whose pathology results revealed diffuse large B-cell lymphoma. CA-125 and enolase neuro-specific were increased. A myelogram and osteomedular biopsy was also made for disease staging. The bone marrow was normocellular with no deviation of the myeloid/erythroid ratio. There were also no morphological changes, presence of 9% of plasmocites and no

infiltration of atypical elements. The patient began methylprednisolone 1 gram per day for 3 days. After confirmation of diagnosis the patient started R-CHOP.
Discussion: The presence of non-traumatic chylothorax is closely associated to lymphoproliferative diseases that often present with advanced extra-nodal disease and that can be rapidly fatal if not treated early. Our case demonstrates the importance of pulmonary manifestations of diseases from other systems. It is also noted the importance of performing early additional tests to obtain a definitive diagnosis and specific therapeutic approach.

Key words: *Pleural effusion. Chylothorax. Lymphoproliferative diseases.*

P-156. THORACIC EMPYEMA: EXPERIENCE WITH INTRA-PLEURAL FIBRINOLYSIS

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Introduction: Thoracic empyema is defined by an infectious process in the pleural space, having as substrate previous pleural effusion. It shows growing incidence, especially in advanced age and in context of immunosuppression. It leads to a significant morbidity and/or mortality, may prolong hospitalization and, thus, it becomes important to study new therapeutic approaches. Intra-pleural fibrinolysis has an adjuvant role; recent meta-analysis suggest a potential acceleration of recovery and reduction of internment.
Objectives: Evaluation of intra-pleural fibrinolysis in the approach of thoracic empyema, in patients admitted in a Pulmonology department of a tertiary hospital. Comparison of clinical features, therapeutic approaches and outcomes between patients submitted to intra-pleural fibrinolysis and those submitted to a conventional treatment.
Methods: Retrospective analysis of clinical information of patients admitted with the diagnosis of empyema in a Pulmonology department between January 2011 and May 2016.
Results: During the analyzed period, 34 patients were admitted with the diagnosis of empyema – with a mean age of 65.2 years (± 13.3 years); 27 (81.8%) were men. Eleven presented diagnosis of lung cancer and/or other immunosuppression conditions; ten exhibited heavy alcoholism. The diagnosis was established by biochemical criteria in 22 patients, and macroscopic features were observed in 19 patients. Thoracic drainage was applied in 97% of patients (n = 33), and intra-pleural fibrinolysis with alteplase being conducted in 27.3% (n = 9). Patients submitted to intra-pleural fibrinolysis had, in average, less five days of hospitalization (mean of 27.3 ± 10.7 days in those submitted to fibrinolysis versus 32.4 ± 16.7 days in remaining, with a statistic value test of -0.989, for a 95% confidence interval between -15.58 and 5.53, and a p-value of 0.334). Two patients died during hospitalization, none of them had done intra-pleural fibrinolysis. There were no reports of complications of the procedure, although three patients had not concluded protocol due to partial externalization of thoracic drain. None was referenced to surgery.
Conclusions: Thoracic empyema has shown a significant frequency in this department. It was found a lower hospitalization staying in the group submitted to intra-pleural fibrinolysis, although the difference between two groups was not statistically significant, probably due to the still low number of patients submitted to this procedure. This revealed to be safe. It was noted a substantial prevalence of alcoholism and states of immunosuppression among the sample, which are known risk factors for this pathology.

Key words: *Empyema. Intra-pleural fibrinolysis. Hospitalization.*

P-157. PLEURAL EFFUSION AND CASTLEMAN DISEASE

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Case report: Castleman's disease is a rare disease of the lymphoid tissue. The authors present a case of a male patient, 50 years old, ex-smoker, followed by lichen planus with esophageal involvement. It was referred to the Pneumology Department after performing an X-ray that showed a pleural effusion. The evaluation by CT scan showed a large solid mass lesion, located in the mediastinum, with multiple dispersed calcifications, with compression of vascular structures associated with left pleural effusion and passive atelectasis. He was submitted to thoracentesis and pleural biopsy. Pleural fluid was compatible with an exudate with some lymphocytes; Histology revealed pleural tissue with lymphocytic infiltrate. PET scan showed slight to moderate uptake and heterogeneous mass in the anterior mediastinum, with no other abnormal uptake foci. Referred to Thoracic Surgery and undergone mediastinal tumor excision. The pathological results showed aspects compatible with Castleman disease.
Discussion: This case intends to revisit this entity, described as benign lymphoid hyperplasia, of unknown origin, often found as mediastinal mass and that can be associated with pleural effusion The association with skin lesions, mostly described as paraneoplastic lesions has been described.

Key words: *Pleural effusion. Mediastinic tumour.*

P-158. SPONTANEOUS HEMOPNEUMOTHORAX. CLINICAL CASE

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Introduction: Spontaneous hemopneumothorax consists in the most common cause of non-traumatic hemothorax, being a spontaneous pneumothorax complication in about 3 to 7% of the cases (2 to 3% if primary spontaneous pneumothorax). Probably it occurs because of the ruptures of the vascular adhesions between visceral and parietal pleura, associated to lung collapse. It affects mostly young patients, aged between 22 and 34 years old, and male gender.
Case report: The authors present a clinical case of a patient, male gender, 42 years old, Caucasian, interior ceiling assembler, smoker (20 pack-years), who went to the Emergency Room (E.R.) because of 5 kg weight loss, intermittent and lasting pain, in the base of left hemithorax, with 3 months of evolution. He referred also productive cough with mucopurulent sputum since 2 weeks ago. In the night before he came to the E.R., he started intense pleuritic pain in the left hemithorax base, associated with progressive worsening dyspnea, with sudden start when he was resting, without relief factors. He denied any trauma. Objectively in the E.R. it could be noticed pallor, sweating, tachycardia, SatO2 98% (FiO2 21%) and almost abolition of vesicular murmur in the left hemithorax at pulmonary auscultation, with pneumothorax semiology in the left side. Analytically to point out the increase of inflammatory parameters and normocytic normochromic anemia. Chest radiography whith left side large hydropneumothorax evidence, conditioning slight mediastinal shifted to the right, reason why it was inserted a chest drain, draining air and bloody fluid, with total drainage of 3,480 mL. From the tests performed during hospitalization, to mention: pleural effusion with exudative characteristics, pleural fluid hematocrit 95% of the blood hematocrit level; cytology, bacterial and mycobacterial exam of pleural fluid were negative;

pleural biopsy with mild inflammatory infiltrate and negative mycobacterial culture and direct exam; normal bronchoscopy; negative culture and direct mycobacterial exam of sputum and bronchial secretions; negative viral serology; abdominal and pelvic CT scan showing thin pneumothorax areas, with pleural fluid not collected and impure with some hematic nature-like areas and atelectasis of almost all the left inferior lobe pulmonary parenchyma, except the apical segment. He was also medicated with amoxicillin + clavulanate with clinical and radiological progressive improvement. After 1 month, in the revaluation appointment, the patient was clinically well and we could observe a thin pleural fluid layer in the left side, with rised diaphragmatic cupula in the chest radiography.
Discussion: Summarizing, spontaneous hemopneumothorax is a rare clinical entity that can lead to fatal complications, because of that, it is important to make an early diagnosis and management with conservative, thoracoscopic or surgical approach, considering case-by-case, with no need of more invasive approach if the patient gets clinically better and if the hemopneumothorax solves with thoracic drainage.

Key words: *Hemopneumothorax. Hemothorax. Pneumothorax.*

P-159. AN UNCOMMON CAUSE OF PLEURAL EFFUSION

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Introduction: A pleural effusion is an abnormal collection of fluid in the pleural space. Its diagnosis may be challenging, especially if we are in the presence of an exudate, which has an extensive differential diagnosis and often requires a more extensive evaluation. In approximately 25% of patients, the cause of the pleural effusion is not evident on the first evaluation.
Case report: We present the case of a 61 year-old African male with a personal history of chronic kidney disease of unknown etiology, submitted to a kidney transplant 7 years ago and medicated with irbesartan, mophetil mycophenolate, sirolimus, prednisolone and pantoprazol. He was admitted to our pulmonology department with complaints of dyspnea, fever and anorexia for 2 months. The chest X-ray revealed an extensive, loculated, right pleural effusion and a diagnostic thoracocentesis was performed which showed an infected chylothorax by group b salmonella. The pleural effusion was drained and the patient started antibiotic therapy with piperacilin + tazobactam with regression of symptoms and pleural effusion. The thoracic, abdominal and pelvic CT as well as the echocardiogram and lymphangioscintigraphy performed showed no alterations. Two months later he was readmitted to our department, this time due to a bilateral pleural effusion with exudate characteristics but with a normal triglycerides value. The microbiologic study performed on the pleural fluid was sterile and didn't show malignant cells. Pleural biopsy revealed a chronic pleuritis, without malignant cells. Even though he didn't have any other organ or system complaint, an immunologic study was performed to rule out an auto-immune disease, which came back negative. He was discharged clinically better. Two weeks later, due to aggravated symptoms, he was readmitted. Imagiologically, he maintained the bilateral pleural effusion. Without any other obvious etiology for the chronic pleural effusions, and as there were some cases of pleural effusions associated with sirolimus in the literature, we considered this to be a likely cause. After discussion with the patient's nephrologist, the immunosuppressive therapy was changed to tacrolimus and there was a clinical and imagiologic improvement without evidence of new pleural effusions. Some of the more frequent adverse effects of sirolimus include: dyslipidemia, proteinuria, anemia and thrombocytopenia. However, there has been a growing number of rarer complications: interstitial pneumonitis, pulmonary alveolar proteinosis, lymphedema and pleural and pericardial effusions. The exact mechanism leading to the development of these effusions has yet to be clarified, however, some authors suggest that it is related to the antihemangiogenic effect of this drug which inhibits the VEGF receptors responsible for lymphangiogenesis.
Discussion: Drug related pleural effusions are an exclusion diagnosis. When the etiologic study is inconclusive we have to consider this as a probable cause, even if it is not a common adverse effect of the drug, as presented in this clinical case.

Key words: *Pleural effusion. Sirolimus.*

P-160. RIGHT PLEURAL EFFUSION WITH HIGH AMYLASE LEVEL, A HARD PATHWAY

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Case report: 55 years old white man, civil service worker, smoker (30 year-pack units), 40g of daily alcohol intake, without occupational expositions or relevant precedents. The patient complained from right chest pain, without breathless, cough or fever, which started one week ago. At observation, he was apyretic, without respiratory distress, with breath sounds abolition on the right lower hemithorax. The chest radiograph showed pleural effusion on the right lower half hemithorax and laboratory studies hypoxemia (64 mmHg), high amylasemia (183 U/L, reference 25-115 U/L) and normal serum atrial natriuretic peptide levels. He was admitted for etiological investigation. The liquid obtained by thoracentesis was an exudate (total proteins 3.6 g/dL, LDH 210 U/L, serum levels 5.78 g/dL and 143 U/L, respectively), with high amylase levels (higher than 13,000 U/L) with normal glucose and adenosine deaminase levels. Direct and cultural Mycobacterial exams were negative; there were no malignant cells on cytology. Thoracic tomography scan confirmed right pleural effusion and middle lobe segmental atelectasis, a small left pleural effusion and centrilobular emphysema areas. Bronchoscopy was normal and the bronchial aspirate cytology was negative for neoplastic cells. The effusion relapsed and more thoracentesis were necessary, obtaining similar pleural fluid. A medical thoracoscopy was performed, showing small parietal pleura nodules with suspicious lymphangitis areas, diaphragmatic pleura nodules and one visceral pleura nodule; the biopsies revealed only reactive alterations, without neoplasia. Concomitantly, the patient had relapsing epigastric pain episodes with high amylasemia levels (between 270 and 571 U/L). Suspecting pancreatic etiology, abdominal tomographic scan was performed, showing a pancreatic isthmus cyst. The abdominal magnetic resonance revealed retrocrural cystic images connected to the right pleural lower limit, and cysts on the pancreatic isthmus upper contour (the biggest one, sized 18 mm, probably communicating with Wirsung duct). It was impossible to cannulate the Wirsung duct on endoscopic retrograde cholangiopancreatography. The magnetic resonance cholangiography was normal. At the moment, the patient is under follow-up and clinically stable, without effusion relapse.
Discussion: We consider that the relapsing right pleural effusion was due to acute non-lithiasic pancreatitis associated with pancreaticopleural fistula that closed spontaneously, originating retrocrural and pancreatic cysts. Pancreaticopleural fistula is a rare pleural effusion cause (less than 1%), producing generally left effusions, which stresses this report rarity. A high level of suspicion is necessary for the correct diagnosis.

Key words: *Pleural effusion. Right pleural effusion. Amylasemia. Pancreaticopleural fistula.*

P-161. PRIMARY SPONTANEOUS PNEUMOTHORAX, THE EXPERIENCE OF A HOSPITAL CENTER

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Introduction: The primary spontaneous pneumothorax is defined by the presence of air in the pleural space, in patients without pulmonary disease. The incidence varies from 1.2 to 6 cases per 100,000 in women, and 7.4 to 18 cases per 100,000 in men.
Methods: Were included all patients with the diagnosis of primary spontaneous pneumothorax, admitted in our hospital from 1 January 2000 to 31 August 2015. Several variables were analyzed such as: sex, age, smoking history, laterality, symptoms, treatment and seasonality.
Results: 73 cases of primary spontaneous pneumothorax were diagnosed in the period and 16 were recurrences. 62 were male, 55 were smokers and 67 had chest pain, 5 cases precordial pain and only 6 cases complaint of dyspnoea. Regarding to the age, it ranged between 16 and 82 years, with a mean age of 34.8 years. Concerning to laterality in 55 cases pneumothorax was on the left side. Regarding seasonality, the year was divided into two semesters, the hottest six months from May to October and the coldest six months, from November to April, 46 cases appeared from May to October and the remaining from November to April. The average days of hospitalization was 7.09 days, treatment was conservative in 7 patients, a chest tube was placed in 56 patients and in 12 of those patients the chest tube didn't resolve the situation and were subsequently submitted to surgery, in 10 patients the first-line treatment was surgery.
Conclusions: Like described in the literature, there was an increased incidence of primary spontaneous pneumothorax in men (85%) and in smokers (66%). The most common presentation was chest pain in the ipsilateral side (93%) and the number of patients who reported dyspnea was very few. Although some cases of extreme ages, the average age was 34.8 years, in literature the primary spontaneous pneumothorax usually appears in people under 40 years. A curious and noteworthy finding was the fact that most cases of pneumothorax have appeared during the warmer months of the year. Concerning to the treatment the most used was pleural drainage, however it was necessary to perform surgery in some cases. The patients who were submitted to surgery, were patients whose pneumothorax has not been solved with chest drainage or in cases that surgery was the first-line treatment, all of those patients were recurrences. The experience of our hospital in the diagnosis and treatment of spontaneous primary pneumothorax is similar to other centers. However the authors decided to conduct this study, because the region is located in the highest point of Portugal main land, and some studies implicate the atmospheric pressure in the appearance of pneumothorax.

Key words: *Primary spontaneous pneumothorax. Chest tube. Seasonality. Altitude. Atmospheric pressure.*

P-162. PRIMARY SPONTANEOUS PNEUMOTHORAX: A RETROSPECTIVE STUDY

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Introduction: Pneumothorax is defined as the presence of gas in the pleural space. Spontaneous pneumothorax occurs without trauma, and differs from secondary spontaneous pneumothorax (most commonly associated with an underlying lung disease), and primary spontaneous pneumothorax, that occurs in patients without pulmonary disease. In the pathogenesis of the latter are apical pleural changes denominated blebs. The approach to the patient with primary spontaneous pneumothorax has been discussed, and several strategies have been proposed, including aspiration and drainage. A significant proportion of patients require surgery, even if it is the first episode. Currently, however, there is no simple way to predict which patients will need this non-conservative treatment.
Objectives: To characterize the population of patients admitted in a pulmonology department with the diagnosis of primary spontaneous pneumothorax.
Methods: We included all patients admitted between 2009 and 2015 with this diagnosis in the pulmonology department. Then collected demographic, analytical and clinical data. Measurements were carried out on the initial chest radiography taken in the ER (pneumothorax size, width of the tracheal air column, width of the chest and height of the vertebral bodies of the first three thoracic vertebrae. A comparative study was made between patients receiving surgery and those who didn't.
Results: We included 44 patients with an average age of 24.7 years. Most were male (86.4%) and smokers (59.1%). The pneumothorax size was generally small (< 2 cm). They were more frequent on the left side, a difference that was increased when considered only the small pneumothorax. In recurrences, all the pneumothorax were small. The duration of symptoms was 2.2 days on average, significantly higher in women than in men (4.2 vs 1.8 days, $p < 0.05$, t Student test). There was no time difference in symptom duration between the two sides or in recurrences. There were 0.06 relapses/year per patient on average, a number that was not influenced by age and does not correlate with the radiographic measurements made. Nine patients (20.1%) underwent immediate surgery, an outcome that does not correlate with sex, age or pneumothorax size. Radiographic measurements were not predictors of surgical need.
Conclusions: The primary spontaneous pneumothorax is more common in men and in smokers. The symptoms duration is significantly higher in women. More often, when on the left side, its size is smaller. There are two possible interpretations for this: 1) by confusion with cardiac pain, the patient recurs earlier to the ER; 2) it is a bias related to the fact that the disease is more common on the left associated with the inclusion of recurrences of the same patient (which are always small in size). The study is limited by the sample size, and by the fact that it does not include patients admitted directly from the ER to the Cardio-thoracic Surgery Center (usually recurrent pneumothorax).

Key words: *Primary pneumothorax. Radiography. Cigarette smoke.*

P-163. DESQUAMATIVE INTERSTITIAL PNEUMONIA: CASE REPORT

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Introduction: Desquamative interstitial pneumonia (DIP) is a rare interstitial lung disease characterized by diffuse and uniform accumulation of alveolar macrophages. The diagnosis is histological and usually occurs in male smokers between 40 and 60 years. However, about 10 to 42% of patients are non-smokers, and might be idiopathic or secondary to connective tissue disease, occupational exposure to inorganic particles, infectious diseases or drug iatrogenesis. Treatment depends on the underlying etiology and prognosis is generally good.
Case report: Female patient, 45 years old, Caucasian, worker at a counters factory (contact with ethyl alcohol and welding material) since 5 years ago, ex-smoker (3 pack-year) since 2 months ago, with

a history of rhinosinusitis and depressive syndrome treated with fluoxetine 20 mg. The patient resorted to the Emergency Department with a clinical condition characterized by dyspnea on minimal exertion, nonproductive intense cough, dysphonia and weight loss, with 1 month of evolution. The patient was previously observed by her attending doctor and was treated with amoxicillin/clavulanic acid and clarithromycin without improvement of symptoms. At the physical examination, the patient had polypnea, 94% oxygen saturation in room air and lung auscultation with rude breath sounds bilaterally, without adventitious sounds. Laboratory tests showed mild leukocytosis and neutrophilia, thrombocytosis, elevated c-reactive protein (6.5 mg/dL) and arterial blood gas analysis on room air showed partial respiratory failure. A radiograph of the chest showed bilateral diffuse interstitial infiltrate, especially in the lower lung fields and computed tomography of the chest revealed several ground glass opacities, involving all lung lobes, associated with a reticular pattern by septal intralobular thickening predominant in the lower lobes. Bronchoscopy showed base of the tongue lesion, swelling of the vocal cords and bronchial tree with slightly reddened mucosa. The bronchoalveolar lavage showed neutrophilic (30%) and lymphocytic (17%) alveolitis. It was performed lung biopsy, which revealed hyperplasia of pneumocytes, septal fibrosis, paving stone metaplasia of the bronchus and chronic inflammatory infiltrate. The base of the tongue biopsy revealed dense chronic inflammatory infiltrate with neutrophils and lymphocytes, ulceration and marked follicular lymphoid hyperplasia. The respiratory function tests showed moderate reduction in diffusing capacity of the lungs for carbon monoxide, with no further changes. To clarify the clinical and radiological findings, the patient was submitted to lung biopsy with a wedge resection of the upper and medium right lobes through video-thoracoscopy, which histological results showed morphological aspects compatible with desquamative interstitial pneumonia (DIP). The patient started therapy with prednisolone and further studies to exclude secondary causes.

Discussion: Although DIP is strongly associated with smoking, the authors highlight the importance of detailed investigation of other secondary causes, including occupational exposure to inorganic particles, imperative for a proper therapeutic approach. Surgical lung biopsy is essential for diagnosis of this disease.

Key words: *Desquamative interstitial pneumonia. Interstitial lung disease. Occupational exposure. Tobacco.*

P-164. SARCOIDOSIS: SYSTEMIC MANIFESTATION IN RENAL ANGIOMYOLIPOMA?

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Introduction: Sarcoidosis is a multisystem granulomatous disease of unknown etiology. The lungs and thoracic lymph nodes are affected in more than 90% of the patients. It affects all racial and ethnic groups, but its prevalence is higher in northern Europe countries. Portugal has a relatively low prevalence of this disease. The frequency of the clinical manifestations related to the organic involvement is highly inconsistent, depending on the diagnostic evaluation to detect and evaluate the extension of organ commitment. Sarcoidosis associated to a non-epithelial renal neoplasm is exceedingly rare. We describe the second reported case of association of sarcoid granulomas and renal angiomyolipoma, as the first manifestation of extra-pulmonary sarcoidosis.

Case report: A 45 year old woman, hospital assistant, active smoker (35 pack year), was sent to a pulmonology consult by her general practitioner as she presented in an abdominal computerized tomography (CT), preformed in the context of a working accident, a nodular lesion of irregular contours in the posterior-basal segment of the left lower lobe (LLL). The same CT showed a nodular lesion of the left kidney, compatible with an angionyolipoma. She had no respiratory symptoms, only referring anorexia. Physical examination was normal. She was submitted to a thoracic CT that documented in LLL a nodule with 2.2 cm of diameter, adherent to the pleural surface and four other grossly nodular areas in the posterior segment of the upper right lobe (URL). It also showed large mediastinic and hilar lymph nodes. Differential diagnosis between sarcoidosis and lung cancer was considered. Bronchofibroscopy with bronchoalveolar lavage and transthoracic biopsy of the LLL nodule were compatible with the diagnosis of sarcoidosis. As there was no repercussion in respiratory function tests, no treatment was initiated and we opted for vigilance. After a urology consult she was submitted to enucleation of the renal tumor. The anatomopathological examination confirmed the diagnosis of angiomyolipoma and detected numerous histiocitary, non-necrotizing granulomas of sarcoid type. Having confirmed the extra-pulmonary/multisystemic disease, she was started on systemic corticoid.

Discussion: Although we cannot exclude with absolute certain the possibility of a sarcoid reaction in the angiomyolipoma, those are exceedingly rare in mesenquimatous tumors. Having this fact in mind, and given the presence of pulmonary lesions, it probably corresponds to sarcoidisis in an angiomyolipoma. If considered so, the revision of the scientific literature indicates this is the second reported case, worldwide.

Key words: *Sarcoidosis. Angiomyolipoma.*

P-165. UNCERTAINTY IN SARCOIDOSIS: CASE REPORT

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Introduction: Sarcoidosis is a non-caseous granulomatous disease, multisystemic, of unknown cause, which reaches more often young adults. The presentation and clinical course vary widely, from no symptoms to acute or chronic manifestations related to the different affected organs.

Case report: Female patient, 47 years old, non-smoker, telecommunications engineer, followed in pulmonology outpatient since 2010, by exertional dyspnea and asthenia ongoing for one year. On physical examination, the patient presented bilateral wheezing. Blood tests showed normal blood cell counts, autoimmunity, immunoglobulins and serum angiotensin-converting enzyme. Chest radiograph demonstrated peripheral pulmonary infiltrates and bilateral hilar adenopathies. Chest CT scan showed pulmonary micronodules with perilymphatic and upper lobe distribution and bilateral hilar and mediastinic adenopathies. The ventilatory function tests showed preservation of lung volumes with 61% of carbon monoxide diffusing capacity. The bronchoscopy didn't show any macroscopic changes, microbiology of bronchial aspirate was negative and bronchoalveolar lavage showed lymphocytosis of 21% and high CD4/CD8 ratio. A mediastinoscopy was performed, whose histology revealed a sarcoidosis, having performed corticosteroid therapy with 40 mg of prednisolone for 8 months. Then, a gallium-67 scintigraphy was performed and showed inflammatory activity of the disease, which lead to the introduction of 20 mg of methotrexate during 2 months, with clinical and functional improvement and without involvement of other target organs. However, after two years in a control chest CT scan, there was radiologic worsening and visible areas of bilateral pulmonary fibrosis with inflammatory activity documented in gallium-67 scintigraphy. Despite this evolution, it was decided not to perform

systemic treatment, leaving only the patient surveillance in a follow-up pulmonary pre-transplant outpatient. Since then she has remained asymptomatic without evidence of clinical, radiological and functional deterioration.
Discussion: The treatment of pulmonary sarcoidosis patients in stage IV remains controversial, since at this stage the disease is already established so there is no remarkable benefit in performing systemic therapy. Typically, these patients are referred for lung transplantation. However, in the case report presented, despite the patient being at stage IV, there has been clinical, radiological and functional stability without any treatment in the last years, lying just surveillance in a follow-up pulmonary pre-transplant outpatient. In short, each case must be assessed individually given the heterogeneity that has been observed in this pathology.

Key words: *Sarcoidosis. Treatment. Evolution.*

P-166. PULMONARY TOXICITY OF RITUXIMAB. CASE REPORT

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Introduction: The anti-CD20 monoclonal antibody (rituximab), is used in different pathologies, from hemato-oncological diseases to immune-mediated disorders, with considerable effectiveness. When used, side effects occur mainly during administration. Pulmonary toxicity is rare and usually is associated with non-specific signs and symptoms such as dyspnoea, cough, fever, fatigue, pleuritic pain, but it can be asymptomatic. The toxicity is not related to dose or number of administrations.
Case report: 19 years old female patient, with systemic lupus erythematosus (SLE) with nephropathy class IV, diagnosed in 2006. She performed induction treatment with cyclophosphamide and maintenance with mycophenolate mofetil (MMF) with favorable response and clinical stability. In December 2012 she presented renal function impairment, without response to therapy optimization; it was decided to perform methylprednisolone pulses and cycle with rituximab (1 g, two doses at 15 days), without complications and with good clinical response. In December 2013, the patient presented once again renal deterioration, and a new cycle of rituximab was performed, without complications. She maintained MMF 2 g/day, with clinical stability. In April 2015, the patient referred onset of pleuritic pain, dyspnea and hemoptoic sputum. Analytical changes were suggestive of lupus activity and the chest CT showed ground glass opacities, condensation on the middle lobe, pericardial and pleural effusions. We assumed it was a lupus flare with respiratory infection. She was medicated with intravenous corticosteroids, antibiotics, new cycle of rituximab, keeping MMF in the usual dose, with clinical improvement. Two weeks after 2nd dose of rituximab, the patient developed dyspnoea, dry cough and fatigue. The diagnostic tests showed hypoxemia, elevation of inflammatory parameters without analytical evidence of SLE activity. The chest angio-CT showed bilateral diffuse ground glass opacities, without signs of pulmonary thromboembolism. Bronchoscopy with bronchoalveolar lavage showed intense lymphocytosis, without alveolar hemorrhage, and the microbiological study was negative. She was medicated with intravenous corticosteroids, with clinical improvement. It was interpreted as a case of pulmonary toxicity to rituximab.
Discussion: Pulmonary toxicity to rituximab is rare but potentially fatal. The symptoms are nonspecific and may mimic manifestations in the context of the underlying disease, such as the case described. It requires a high index of clinical suspicion for the correct diagnosis of this entity, in order to establish the appropriate therapy.

Key words: *Toxicity. Rituximab. Systemic erythematosus lupus.*

P-167. HYPERSENSITIVITY PNEUMONITIS: A DIAGNOSTIC CHALLENGE

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Introduction: Hypersensitivity pneumonitis (HP) includes a group of lung diseases caused by repeated exposure to an inhaled antigen in a patient previously aware and susceptible. HP is characterized by nonspecific symptoms and physical findings and it is often misdiagnosed. Atypical forms are a diagnostic challenge and the histological findings may provide a major contribution to the diagnosis of HP.
Case report: Male patient, 67 years old, non-smoker, former construction worker, observed at the Emergency Department on February 2016, with nonproductive cough, dyspnea and pleuritic right chest pain ongoing for five days that was discharged with a diagnosis of pneumonia of the right upper lobe and treated with amoxicillin plus clavulanic acid and azithromycin. After two months of maintenance the symptoms, the patient come back again to the Emergency Department. On physical examination, the patient presents afebrile, eupneic with crepitation in the right lung base. Blood tests showed slight elevation of C-reactive protein and leukocytosis, without relevant respiratory failure and radiologically with densification in the right lung base. He was admitted with a diagnosis of pneumonia of the right lower lobe. No personal history of pathological relevance. It is emphasized contact with chickens, pigs and sheep. HIV, autoimmunity, urinary antigens and serum Microbiological cultures are negative, such as search of acid-alcohol resistant bacilli. Immunoglobulins were normal, except for IgE with 227 IU/ml (N < 100) and parasitological examination of stools were negative. A chest CT scan showed extensive area of parenchymal densification with air bronchogram in the right lower lobe, while areas of vaguely nodular parenchymal densification scattered in almost all lung lobes. Additionally, it was visible, in some areas, ground glass opacities predominantly in the upper lobes, with changes suggestive of COP. The ventilatory function tests showed a restrictive syndrome with normal carbon monoxide diffusing capacity. The optic bronchoscopy with bronchoalveolar lavage showed lymphocytosis of 51% and a low CD4/CD8 ratio. Transbronchial biopsies were performed in the right lower lobe, whose histology revealed a hypersensitivity pneumonitis, having performed corticosteroid therapy with clinical and radiological improvement having been discharged for follow-up in pulmonology outpatient.
Discussion: We conclude that the PH diagnosis requires a high index of suspicion and an extensive research to confirm this diagnosis and rule out other possible differential diagnoses.

Key words: *Interstitial lung disease. Hypersensitivity pneumonitis.*

P-168. LATE-STAGE SARCOIDOSIS – CASE STUDY

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Case report: Male, 51 years-old, black, ex-smoker, mason, previously healthy. He was referenced to a Pulmonology consultation because of a progressive worsening of exertional dyspnea and productive cough with several months of evolution, with anorexia and recent weight loss. A chest radiography showed a heterogeneous hypotransparency in both upper lung fields. In computed tomography, marked fibrotic changes of the upper lobes and apical segments of the lower lobes were observed, which are associated

to cylindrical and varicose bronchiectasis with the same location, micronodular sub-cisural densification, tracheobronchomegaly, minimum bilateral pneumothorax and hilar bilateral non-calcified lymphadenopathy. Analytically, there was increased angiotensin converting enzyme and hypergammaglobulinemia. Related to the gasometric profile, there was hypoxemia at rest and in ambient air (oxygen partial pressure of 65 mmHg and 93% saturation). The respiratory functional study was suggestive of severe restrictive ventilatory changes (total lung capacity 30%), but it was impossible to perform spirometry by difficulty to collaboration. In the six-minute walk test, he traveled 54% of the planned distance and required supplemental oxygen supply (increase up to 6 L/min) due to severe desaturation. Unless the architectural distortion of the tracheobronchial tree, there were no other endoscopic changes. Bacteriological and mycobacteriological examination of bronchoalveolar lavage was negative; flow cytometry with a predominance of monocytes/macrophages (53%) without lymphocytosis (10%) and $CD4^+/CD8^+$ low (1.12). The ganglionic aspiration cytology of the 4R group didn't show granulomas, neoplastic cells or cells with mature lymphoid neoplasia (phenotype B or T). Bronchial biopsies were innocent. In transbronchial lung biopsies, there was identified a "sketch" of granuloma. Due to the rapid clinical and functional impairment, with severe restrictions and significant desaturation in the effort, it was decided to postpone the surgical lung biopsy or mediastinoscopy. It was admitted the presumptive diagnosis of sarcoidosis stage IV and it was started oral corticosteroid therapy (prednisolone) with clinical, imagological and functional improvement, after three months of treatment.

Discussion: Sarcoidosis is a multisystem disease of unknown etiology characterized by the presence of non-caseating granulomas in the involved organs. The diagnosis is based on clinical and radiological findings with histological evidence of non-caseating granulomas, after exclusion of other granulomatous diseases. In some particular cases, it is possible to assume a presumptive diagnosis based on clinical and radiological findings, such as sarcoidosis stage IV, which is particularly common the presence of widely fibrotic tissue on pulmonary biopsies. Radiographically, the volume loss and architectural distortions are often observed, and in CT-scans there are characteristic of this stage, besides the fibrotic changes, the traction bronchiectasis, the honeycomb pattern and bronchial angulation predominantly in the upper and medium lobes. The mortality rate in patients with sarcoidosis in stage IV is estimated at 16% at 10 years. Many questions still exist concerning the treatment. At this stage in particular, although pulmonary fibrosis is an irreversible event, the corticotherapy has an important effect on underlying inflammation usually present, potentially with clinical and functional improvement, becoming a valid alternative to lung transplantation.

Key words: *Sarcoidosis. Corticotherapy. Fibrosis. Late-stage.*

P-169. ONE NEVER KNOWS

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Introduction: Acute pulmonary toxicity is the most severe side effect of amiodarone exposure, occurring approximately in 5% of the patients and is dose dependent. Of all possible presentations of pulmonary disease, interstitial pneumonitis is the most frequent. Hypersensitivity pneumonitis is a complex syndrome that can result from repeated inhalation and sensitization to a variety of aerosolized antigens. Classically, it has been categorized as acute, subacute, or chronic depending on the frequency, length and intensity of exposure and duration of the subsequent illness.

Case report: We report a case of an 81-year-old man, with hypertension and dyslipidemia. He was evaluated by Cardiology because of an episode of acute lipothymia due to atrial fibrillation (AF). At this moment he strated rivaroxaban and amiodarone. Three months later, the patient had new cardiology evaluation due to a new onset of fatigue and dyspnea for small efforts. The X-ray revealed an enlargement of the cardiac silhouette, bilateral interstitial reticular pattern, signs of basal interstitial edema and thickening of the right minor fissure. These signs were assumed as a decompensated heart failure (DHF) so furosemide was added to the treatment. Four months later, the patient resorted to primary health care due worsening of the dyspnea of small efforts, with weeks of evolution, associated with orthopnea. Additionally he referred weight loss in recent months, denying fever and any respiratory, gastrointestinal or urinary symptoms. Physical examination revealed arrhythmic and tachycardic cardiac auscultation, with worsening of known systolic murmur (II/VI degree became III/VI degree), bilateral pulmonary crackles and symmetrical lower limbs edema. It was assumed a DHF by AF with a rapid ventricular response (RVR) and the patient was referred to the emergency department (ED). In the ED, it was confirmed AF with RVR and it was detected an acute hypoxemic respiratory failure and the chest X-ray reveled changes of pulmonary pathology. Blood analysis highlighted na elevation of C-reactive protein and B-type natriuretic peptide, with a normal procalcitonin. So, to exclude an occult pulmonary pathology it was made a chest CT scan that showed extensive areas of consolidation with air bronchograms, especially at the upper lobes, alternating with areas of ground glass opacities associated with thickening of the interlobular fissures. Nevertheless, overinfection after amiodarone toxicity couldn't be excluded. It was asked for an by the Pneumology Department, that after more comprehensive anamnesis found a history of daily bird exposure.

Discussion: With this, arose the hypothesis of a pulmonary pathology exacerbating the clinical course, like interstitial pneumonitis due to amiodarone toxicity and/or subacute hypersensitivity pneumonitis after exposure to birds. In the elderly, with multiple pathologies, a trigger, often unknown, can cause the exacerbation of baseline conditions. The pharmacological therapy optimization, taking into account the most indicated drugs, monitoring for its effectiveness and toxicity, as well as education of the patient about expected side effects, is essential. In addition, environmental exposure history is an important information, since it can have a clinical symptoms correlation and impose specific interventions.

Key words: *Amiodarone. Interstitial pneumonitis. Hypersensitivity pneumonitis.*

P-170. AMIODARONE PULMONARY TOXICITY. CASE REPORT

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Introduction: In the evaluation of interstitial lung disease with fibrosing pattern it is important to get a detailed medication history of the patient. Amiodarone is associated with various forms of pulmonary toxicity, particularly interstitial pneumonitis (most common), organizing pneumonia and diffuse alveolar hemorrhage. Interstitial pneumonitis occurs in 1-5% of patients treated with amiodarone, typically 6 to 12 months after initiating therapy. The prognosis is usually good after discontinuation of the drug and after initiating corticosteroid therapy.

Case report: Male patient, 80 years, Caucasian, priest, non smoker, with a history of dyslipidemia, hyperuricemia, atrial fibrillation and valvular heart disease, underwent aortic valvuloplasty, usually

treated with acetylsalicylic acid 100 mg, spironolactone 25 mg, torasemide 5 mg, allopurinol 100 mg and simvastatin 20 mg. Following medical instructions, the patient suspended amiodarone 1 month before, due to thiroid function alteration, which he had been taken for 2 years. The patient resorted to the Emergency Department with a progressive clinical condition with recent worsening characterized by dyspnea on minimal exertion and productive cough with mucous sputum. The patient was previously observed by his attending doctor and was treated with amoxicillin/clavulanic acid without improvement of symptoms. At the physical examination, the patient had polypnea, 83% oxygen saturation in room air and lung auscultation with kept breath sounds and bibasilar subcrepitant crackles. Laboratory tests showed mild leukocytosis and neutrophilia, elevated c-reactive protein (7,0 mg/dL) and arterial blood gas analysis on room air showed partial respiratory failure. A radiograph of the chest showed bilateral heterogeneous interstitial infiltrate, especially in the lower lung fields. A CT scan revealed extensive pulmonary changes with reticulated densification and subpleural parenchymal comb pattern, bilateral and diffuse predominating on the lower fields which is in favor of pulmonary fibrosis. He started empiric antibiotherapy with levofloxacin with no improvement, so it was escalated to piperacillin/tazobactam. It was performed bronchofibroscopy and bronchoalveolar lavage with neutrophilic (10%) and eosinophilic (7%) alveolitis. Posteriorly, due to clinical worsening, the patient was transferred to the intensive care unit and after excluding infectious cause, autoimmune disease and acute decompensated heart failure (NT-proBNP 261 pg/mL), initiated corticosteroid therapy with clinical and imaging improvement. Overall, drug history, the progressive evolution of symptoms, imaging changes and response to corticosteroids are compatible with amiodarone pulmonary toxicity.
Discussion: In severe forms of interstitial pneumonitis associated with amiodarone, suspension of the drug may not be sufficient, being described a good response to the introduction of corticotherapy in those cases. Although there were not surgical conditions to perform biopsy, the histological characterization had been important to the diagnosis.

Key words: *Pulmonary toxicity. Amiodarone. Interstitial pneumonitis. Pulmonary fibrosis.*

P-171. PROLONGED RESPIRATORY INFECTION: A TYPICAL CASE OF CRYPTOGENIC ORGANIZING PNEUMONIA

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Introduction: We report on a typical case of cryptogenic organizing pneumonia.
Case report: A 44-year-old white female, teacher, non-smoker, with no significant past medical history, presented with dry cough, adynamia and fever with one month of duration, refractory to 8 days of clarithromycin therapy. High-resolution computed tomography of the chest revealed bilateral consolidations, with ground-glass opacities and reversed halo sign. The most likely diagnosis was cryptogenic organizing pneumonia but a differential diagnosis had to be made with bronchoalveolar carcinoma and atypical pneumonia. She was admitted for further investigation. Laboratory testing found no leukocytosis, a C-reactive protein of 4.56 mg/dL, a sedimentation rate was 43 mm/h, and there were no changes in arterial blood gases. A bronchoscopy was performed and the bronchoalveolar lavage revealed lymphocytosis with a low CD4/CD8 ratio (0.33) and no other findings: cytological and microbiological analysis of the lavage (both aerobes, anaerobes and mycobacteria) were normal and transbronchial biopsies were inconclusive due to crush artifacts. Total body plethysmography was normal and DLCO study was slightly low (72%). Avian precipitins were normal, as well as the autoimmune study and microbiological serology: anti-mitochondrial antibodies, anti-citrulline antibodies, anti-SSA and anti-SSB antibodies, anti-Sm antibodies, anti-dsDNA antibodies, anti-Scl-70 antibodies, anti-centromere B antibodies, anti-PM-Scl antibodies, anti-Jo-1 antibodies, c-ANCA and p-ANCA, anti-*Mycoplasma pneumoniae* IgG and IgM antibodies, anti-*Rickettsia* IgG and IgM antibodies, anti-*Coxiella burnetti* IgG and IgM antibodies, anti-*Chlamydia pneumoniae* antibodies, *Legionella pneumophila* antigen, anti-adenovirus IgM antibodies, anti-influenza A virus IgM antibodies, anti-parainfluenza virus IgM antibodies and anti-HIV 1 and 2 antibodies. Finally, a thoracoscopic lung biopsy was performed that revealed no inflammatory process, granulomas, vasculitis or malign neoplasia of the lung parenchyma; these findings suggest cryptogenic organizing pneumonia. She was started on prednisolone 1 mg/kg/day for 4 months followed by a taper-and-stop schedule for 3 months. The radiologic findings completely disappeared and she was ultimately asymptomatic, despite having a mildly decreased DLCO in subsequent analyses.
Discussion: This clinical case represents a cryptogenic organizing pneumonia patient in its most frequent presentation – multifocal form. Corticosteroid therapy response was good and the patient is still asymptomatic. Prognostic is very good, despite the likelihood of recurrence.

Key words: *Cryptogenic organizing pneumonia. Case report. Multifocal opacities. Interstitial lung disease.*

P-172. INTERSTITIAL LUNG DISEASE AS PRIMARY MANIFESTATION OF ANTISYNTHETASE SYNDROME

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Introduction: Idiopathic inflammatory myopathies represent a heterogeneous group of acquired muscle diseases, characterized by different types and variable degrees of muscle inflammation, which include the antisynthetase syndrome (AS). Myositis, interstitial lung disease and production of anti-synthetase antibodies tRNA (particularly anti-Jo1) are among the main features of this rare entity. The onset may be acute, with the evolution of lung disease the major determinant of prognosis.
Case report: Male, aged 77, ex-smoker (15 pack-year), history of dyslipidemia, medicated with Zolpidem, Simvastatin and Mexazolam. On January 23 2016, he went to the emergency department (ED) of the Hospital Pedro Hispano for subacute onset of dyspnea, dysphonia and chest pain associated with bilateral basilar infiltrates on chest X-ray (CXR), mild elevation of CRP (25 mg/L) and hypoxemic respiratory failure (PaO_2 69 mmHg). This is interpreted as community acquired pneumonia and the patient starts empirical antibiotic therapy (amoxicillin/clavulanic acid and azithromycin). Because of progressive worsening of dyspnoea, fever development (38 ºC), precordial chest pain, myalgia and changes in sensitivity and muscle strength in terms of members (predominantly proximal) returns to the ED on February 12. Analytically, he presented elevated CRP (203 mg/L) without leukocytosis, severe hypoxemia (PaO_2 41 mmHg) and worsening in CXR image. CT scan revealed bilateral ground glass and signs of fibrosis in the bases. The patient was admitted and started wide spectrum antibiotics (piperacillin-tazobactam). In the first 48 hours, there was an unfavorable evolution, with respiratory deterioration and need for admission in intensive care unit. In this unit, he keeps analytical worsening (with persistent increase in inflammatory parameters, in particular, PCR) and gas exchange impairment, and invasive ventilatory support is needed. At this stage and considering the lack of evidence suggestive of other etiologies (drug toxicity, epidemiological/occupational context, negative septic screening and broad-spectrum antibiotic therapy) disease interstitial lung

disease of acute onset is hypothesized. Bronchoscopy was performed as well as immunological study [bronchoalveolar lavage (BAL) and serology] and methylprednisolone was started right after. After introduction of immunosuppressants, a good response was observed, with extubation on the 4th day. BAL showed predominance of neutrophils (65%) and lymphocytes (28.6%) with 82.9% of CD8 + cells and the immunological study had antinuclear antibodies with anti-Jo1 increased (830 mg/L). The creatine kinase values increased slightly and just after several days of hospitalization in the intensive care unit. Given the clinical, imaging and immune framework, AS was diagnosed. The transthoracic biopsy, performed during hospital stay, revealed NSIP pattern and focal organizing pneumonia. The respiratory function tests showed a moderate decrease of CO diffusion capacity. The patient was discharged after a month of hospitalization, keeping immunosuppressive therapy (prednisolone and azathioprine). He has improved significantly and remains asymptomatic.
Discussion: AS is found in 30% of patients with a diagnosis of polymyositis/dermatomyositis. Interstitial lung disease as primary manifestation of SA is unusual. The delay in diagnosis can be fatal in this type of acute interstitial presentation. The combination of a corticoid with an immunosuppressive agent is the mainstay of treatment.

Key words: *Antisynthetase syndrome. NSIP. Anti-Jo1.*

P-173. CHRONIC EOSINOPHILIC PNEUMONIA: A(N) (A)TYPICAL PRESENTATION?

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Introduction: Chronic eosinophilic pneumonia (CEP) is a rare idiopathic disease defined by an eosinophils' acumulation in the lung tissue and alveolar spaces. It preferentially affects women between 30s and 40s, and it's characterized by an indolent course of productive cough, fever, weight loss, excessive sweating and nocturnal dyspnea, which main treatment it's oral steroids.
Case report: The authors introduce a 52 years old non-smoker woman with a history of rhinitis and asthma. The patient was referenced to the Pulmonology Diagnostic Center (CDP) because of asthenia, excessive nocturnal sweating, evening fever, nonproductive cough and weight loss greater than 10%, with five months of evolution, and heterogeneous hypotransparencies in both upper lobes on chest radiograph. On admission, the patient was emaciated, pale, with tachypnea and feverish, with crackles in both pulmonary apexes, with no other changes to the remaining physical examination. Analytically it was identified normochromic normocytic anemia, thrombocytosis, C-reactive protein elevation, leukocytosis with eosinophilia and liver cytolysis, and on the chest-radiograph a worsening of diffuse infiltrate in the 2/3 upper of both hemithoraces. After TP exclusion, the patient empirically started piperacillin tazobactam and amikacin, with no evidence of response. The patient performed chest CT scans, transthoracic aspiration biopsy and bronchoscopy and in the bronchoalveolar lavage (BAL) it was observed an intense eosinophilic alveolitis (48.8% N), starting later prednisolone 40 mg/day with substantial clinical, analytical and imaging improvement. Patient was discharged keeping corticosteroid therapy and was oriented to the specific consult of interstitial disorders.
Discussion: As the CEP is a disease of unknown and rare cause, a high clinical suspicion is essential for a correct diagnosis and exclusion of other entities with similar presentations is mandatory. Although not a prerequisite, a history of atopy is often associated and in the light of current knowledge, it's main treatment is the oral steroid therapy.

Key words: *Chronic eosinofilic pneumonia.*

P-174. HOW TO DEAL WITH A DIFFICULT CASE OF POLYMYOSITIS?

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Introduction: Polymyositis is a muscle disease characterized by chronic muscle inflammation with muscle weakness. It is described as a heterogeneous disease complex, potentially fatal, mediated by cellular immunity with degenerating muscle and unpredictable prognosis.
Case report: We report a difficult case of a previously healthy 36 year old male with no family history, referred to our centre for cardiorespiratory rehabilitation and reconditioning, 18 months after an asymmetrical insidious onset of focal myositis in the left adductor longus, with initial elevated CK enzyme (> 5,000 IU); IgG and IgA positive; unremarkable laboratory evaluation for renal function, auto-immunity and connective tissue disease; normal nerve conduction studies, EMG, EKG; normal chest X-ray and a MRI with a thigh thickening and diffuse swelling of the muscle planes of left thigh in particular the adductor longus. Treatment with prednisone failed and repeated flares of polymyositis (diaphragm pillars, temporal muscles and masseters) followed with dyspnoea, fatigue, and painful tender muscles. RFT; chest X-ray; and thorax CT scan, showed a restrictive pattern with reduction of FVC, TLC and normal DLCO, with a reticular pattern dominantly at the bases of the lungs consistent with a basal interstitial lung disease with bilateral pleural effusion. A second EMG showed a diffuse myopathy with diaphragm denervation. Muscle biopsy identified perimysium mononuclear cell infiltrates with necrosis of muscle fibres. Patient was then medicated with azathioprine, methotrexate, and a regimen of weekly intravenous immunoglobulin. Serial blood tests showed progressive reduction of CK enzyme. Upon admission, he was still on sick leave, gained weight, partially dependent on ADL and severe restriction to participation on professional and family activities mainly due to fatigue, general weakness, anxiety, sleep complains and reduced visual accuracy. The initial workout included a RFT with MIP and MEP, a 6MWT, a nocturnal oximetry and a CPET that allowed setting an individualized rehabilitation program aiming to improve cardiorespiratory, peripheral muscle fitness, and autonomy, with moderate exercise intensity in the training zone. In addition, he started nocturnal NIV, nutritional, psychological support and engaged in regular physical activity strictly according to his aerobic capacity monitored by a smart watch (Sunto). Six months later, resumed professional activities, his aerobic capacity improved from 18 to 28 mlO_2/Kg/min, anaerobic threshold from 40 to 70% of $VO2_{pk}$, along with similar improvements in FVC and TLC, BMI lowered from 27 to 24. No sleep complains but still on NIV nocturnal support, in accordance with the persistent phrenic nerve and nocturnal pulse oximetry abnormalities. During this period and up today, we observed a complete control of muscle tenderness, no increase on CK enzyme, or any other infectious exacerbation, despite a progressive reduction of medication.
Discussion: We reported a case with delayed diagnosis, due to the atypical onset and difficult differential diagnosis of a severe asymmetric polymyositis with bilateral pleural effusion, interstitial lung disease and significant disability. Despite medical treatment to improve recovery, symptoms were also mitigated with physical therapy, exercise, and assistive devices through a careful designed individual intervention mainly based on CPET, 6MWT and particular attention to healthy lifestyle as well as to the adverse effects of prolonged glucocorticoids.

Key words: *Polymyositis. Physiotherapy. Exercise training. Rehabilitation.*