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COMMENTED POSTERS

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PC 001. EVALUATION OF THE LEVEL OF ANXIETY, DEPRESSION AND SELF-ESTEEM OF THE ELDERLY WITH RESPIRATORY PATHOLOGY

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Introduction: Anxiety, depression and low self-esteem are quite common in old people who have respiratory disease. The respiratory rehabilitation programs can reduce these psycho-emotional changes.
Objectives: Knowing the levels of anxiety, depression and self-esteem of old people with respiratory disease, followed by the Cova da Beira Hospital Centre as well as their social support networks. It was also analyzed the influence of gender, age, education and place of residence, with scores of anxiety, depression and self-esteem as well as the relationship between them.
Methods: It is an exploratory study, descriptive, correlational and cross-sectional study, of quantitative trait, consisting of a sample of 74 old people selected by convenience. In the collecting of the data a sociodemographic questionnaire was applied, using the Hospital Anxiety and Depression Scale and the Rosenberg Self-Esteem Scale.
Results and conclusions: The prevalence of anxiety was 54.02%, 47.35% of depression and low self-esteem of 6.8%. The informal support was the most frequent (68.9%). Gender statistically influenced anxiety, and education, depression and self-esteem ($p < 0.05$). It was obtained significant correlations between the scores of anxiety, depression and self-esteem ($p < 0.001$). The data indicated that the prevalence of anxiety in elderly people was higher than the depression with satisfactory values of global self-esteem. It was concluded that the assessment and intervention to psychological component level can enable a significant reduction of psycho-emotional changes that was found.

Key words: *Old people. Respiratory disease. Anxiety. Depression and self-esteem.*

CO 002. OXYGEN THERAPY PROTOCOL IN AN INTERNAL MEDICINE WARD

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Introduction: In Portugal, there are criteria for oxygen therapy (O_2Tx) in outpatients and in prehospital setting, however there are no recommendations for inpatient use. In 2008, the British Thoracic Society (BTS) published recommendations (updated in 2017) for O_2Tx in the acute setting, based on target oxygen saturation range (IA-SpO_2). In one study, Estudo Multicêntrico de Oxigenoterapia (Neves, 2012), concluded that Portuguese internal medicine wards (SMI) weren't following the best practices and demonstrating better results with IA-SpO_2 prescription.
Objectives: Implementation of an O_2Tx protocol based on IA-SpO_2 prescription in a SMI, and assessing the improvement in quality of inpatient care.
Methods: After a pilot audit in 2016, the O_2Tx protocol was created based on the BTS recommendations and training was given to doctors and nurses. Quarterly audits were conducted prospectively during 2017, evaluating the prescription, risk of hypercapnic respiratory insufficiency (IR2), prescription fullfilment and correct administration. Data analysis performed with Excel and SPSS.
Results: A total of 391 patients were evaluated, 207 (52.9%) female, aged between 18 and 98 years (mean 76.4 ± 14.4) and with a mean hospital stay of 7.4 ± 7 days. 283 (72.4%) patients had a O_2Tx prescription, 240 of which (84.8%) target based, and there was a progressive increase in the adequacy of the prescription during the quarterly evaluations (1st 28, 70%; 2nd 100, 28.6%; 3rd 74, 90.2%; 4th 38, 95%; $p = 0.006$). We identified 101 (35.7%) with risk of IR2. At the time of verification, 183 (76%) of the patients with target-prescription were on target; 27 patients were at risk of worsening hypercapnia. 2% of the patients with O_2Tx had no prescription. Comparing to the pilot audit, there was a significant increase in the target oxygen saturation range prescription (23.9% vs 84.8%, $p < 0.001$), a decrease in fixed rate prescription (21.7% vs 0%, $p < 0.001$), an increased identification

of patients at risk of IR2 (15.2% vs 35.7%, p = 0.006); 74.2% of the patients with IA-SpO_2 prescription were on target; 7% were above and 5% below target at time of screening.
Conclusions: Compared to the pilot audit, after the elaboration of the O_2Tx protocol and the training of the medical and nursing teams, there was a significant improvement in IA-SpO_2 prescription, in the identification of patients at risk of IR2, and there were no fixed rate prescriptions. However, there is room to improve, namely regarding the adequacy of O_2 administration and SpO_2 monitoring, in order to minimize patient's risks and improve their outcomes.

Key words: *Oxygen therapy. Protocol.*

PC 003. QUALITY "A" PULMONARY FUNCTION TEST: MYTH OR REALITY

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Introduction: Spirometry is the most-widely used pulmonary function test and its validity depends on meeting quality standards.
Objectives: Evaluate the quality of the spirometries performed in the Pulmonary Function Laboratory (PFT) of a Public Hospital Pneumology Department according to the *American Thoracic Society/ European Respiratory Society* (ATS/ERS) guidelines.
Methods: We conducted a prospective study of the analysis of the spirometries performed in the PFT during a two week period, according to ATS/ERS quality grading. Tests were characterized concerning acceptability (emphasis on back-extrapolated volume – BEV and forced expiratory time – FET) and repeatability criteria, as well as ventilatory pattern (defined by the limits of normality). Subjective level of difficulty performing spirometry was addressed with a visual analogical scale. All data were analyzed using software IBM® SPSS® Statistics version 22.
Results: Spirometries from eighty patients were enrolled (45 males) with a mean age of 62.89 years (42.5% over 69 years) and 30.19 Kg/m^2 of Body Mass Index (BMI). About half of the patients (53.7%) had already done spirometry and considered the test difficulty as medium to easy (41.3% and 41.3%, respectively). Most of the tests didn´t revealed spirometric abnormality (60.0%), 31.3% had obstructive abnormalities and 2.5% were suggestive of restrictive abnormalities. Mean Forced Vital Capacity (FVC) was 2.98 L, Forced Expiratory Volume in one second (FEV_1) was 2.13 L and 61.3% of the tests had FEV_1 bigger than 80% of the predicted value. Patients performed an average of 5.70 manoeuvres. A mean of 2.93 curves were acceptable, with mean Vex of 81.73 ml, FET 9.56 seconds, FVC repeatability 47.80 ml and FEV_1 repeatability 40.14 ml. Most of the tests met quality grade "A" (82.5%) for both FVC and FEV_1 and just 5 tests (6.3%) were classified as "F".
Conclusions: This study showed that only a small percentage of patients weren't able to meet ATS/ERS spirometry quality standards. Future studies with larger sample are needed to establish which variables (anthropometrics, demographics, social or functional) are determinant to achieve quality standards for spirometry.

Key words: *Pulmonary function. Spirometry. Quality control.*

PC 004. PULMONARY FUNCTION TESTING PROVOKES SIGNIFICANT CHANGES IN THE HEMODYNAMIC STABILITY

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Introduction: Pulmonary function tests (PFT) like spirometry are at present considered a standard procedure in the pre-operative risk evaluation. However, little is known regarding the hemodynamic effect of PFT, although relevant intra-thoracic pressure swings can be expected.
Methods: We investigated in 30 patients during standard PFT maneuvers the hemodynamic parameters (HP) by the non-invasive beat-by-beat Nexfin-HD recording. Here listed HP include: systolic blood pressure (Sys), cardiac output (CO) and heart rate (HR). All HP were analyzed during tidal volume (TV), start of expiration (E), middle expiration (ME), re-inspiration (RI) and post re-inspiration (PI). A mean of at least 3 stable pulse waves was calculated for each time point. Statistical significance was calculated by the Friedman non-parametric test for pairwise comparison. A $p < 0.05$ was considered significant.
Results: Mean results are demonstrated in the table. All three parameters underwent significant changes during the PFT. Expiration increased significantly the blood pressure by 43 mmHg when compared to TV and was at E significantly higher when compared to all other time points. During ME it decreased and returned after inspiration to initial value. CO decreased 50% during expiration, however it reached significance only during IE and ME when compared to RI and PI ($p < 0.001$). HR increased constantly up to RI 22 bpm reaching statistical significance at ME when compared to TV (< 0.001).
Conclusions: Our results indicate, that PFT has a significant impact on essential hemodynamic parameters. While non-invasive peripheral HP measurement cannot be transcribed one-to-one in absolute values a previously presented study could demonstrate, that invasive systolic BP measurement has the same pattern at PFT maneuvers although not the same amplitude as Nexfin-HD values. Pre-operative PFT in unstable patients should be further discussed by these results.

Key words: *Espirometry. Blood pressure. Cardiac output.*

PC 005. SWYER-JAMES-MACLEOD SYNDROME: RETROSPECTIVE CASE SERIES IN A CENTRAL HOSPITAL

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Introduction: Swyer-James-MacLeod Syndrome (SJMS) is a rare clinical-pathologic entity, characterized by obliterative bronchiolitis secondary to a respiratory infection during childhood. This leads to developmental defects on pulmonary vasculature, resulting in unilateral lung hypoplasia and air-trapping related hyperlucency. The disease has a variable clinical presentation, partially

Table PC 004

	Tidal volume	Expiration	Midexpiration	Re-Inspiration	Post Re-inspiration
Systolic BP	121 (44)	164 (52)	95 (32)	112 (39)	143 (58)
Cardiac Output	6.0 (5.2)	4.0 (2)	4.0 (3)	7.0 (3)	6.0 (3)
Heart rate	74 (16)	78 (9)	90 (15)	96 (20)	79 (20)

Median (IQ range).

related to the presence of bronchiectasis. Although SJMS is generally recognized during childhood upon recurrent respiratory infections, the clinical manifestations are diverse and some cases of incidental diagnosis have been reported. Our aim was to characterize a population of patients with SJMS under follow-up at a tertiary hospital.
Methods: We included all cases of adult SJMS patients under follow-up at Hospitais da Universidade de Coimbra, and collected demographical, clinical, laboratorial and imaging data.
Results: A total of six patients were included, four of which were male. The median age at referral was 50 years. Dyspnoea was the most common presenting symptom, and two thirds had at least one record of haemoptysis or bloody sputum. Only one out of six was a previous smoker. All the patients had a chest CT, and the left lung was most commonly affected (four cases). Two thirds of the patients had bronchiectasis, and haemoptysis were most frequent among the latter. Lung function test results were available in five cases, only one of which was normal. One case had obstruction, two mixed and one restriction. During follow-up, four patients kept important functional limitation, permanent or due to frequent exacerbations. One patient died due to unrelated cause.
Conclusions: SSJM is a rare finding, but is commonly associated with chronic symptoms, The clinical and functional characteristics are quite variable. Bronchiectasis are frequently associated with haemoptysis or bloody sputum.

Key words: *Swyer-James-Macleod syndrome. Unilateral hyperlucent lung.*

PC 006. RESPIRATORY FAILURE APPOINTMENT IN VILA FRANCA DE XIRA HOSPITAL

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Introduction: The Respiratory Failure Appointment (RFA) began on April 12th. Patients are referred from hospitalisation on Internal Medicine sections or from Pulmonolgy appointments. It occurs weekly and it is currently held on the Day Hospital, with the intervention of pulmonologists, cardiopulmonology technicians and nurses. Its main goals are to evaluate a patient's criteria for oxigenotherapy and/or ventilation and optimization of early therapy. Monitorization is achieved by clinical evaluation, filling of mMRC scales, CAT, Borg, SGRQ, LCADL, Euro-Qol visual, HAD, pulmonary function tests, measure of arterial blood gas, overnight oximetry and a 6-minute walk test. The patient brings their ventilation equipment, which is checked, as well as their data card. Their therapy is reviewed and their inhalation technique verified and taught, when necessary, in every appointment. The RFA works alongside the Physical Medicine and Rehabilitation, namely with the respiratory rehabilitation program (RR) with exercise training.
Objectives: Characterization of patients evaluated on the RFA.
Methods: A retrospective cohort study of the Respiratory Failure Appointment (RFAs) conducted between April 2012 and June 2018 was carried out. Data was collected on the clinical processes and the results of the complementary diagnostic tests. The following were considered for analysis: age, gender, main diagnosis, number of comorbidities, number of drugs, peak flow, ventilation, oxygen therapy and respiratory rehabilitation program (RR). The results are presented in the form of descriptive statistics, obtained through the SPSS V 20.0 program.
Results: In the analyzed period, 173 patients were evaluated, with a mean age of 72.7 years ± 13.6. The majority was male (58%). The most frequent diagnosis was chronic obstructive pulmonary disease (COPD) (38.15%), followed by overlap syndrome (11.6%) and thoracic wall disease (9.8%). On average, they had 3.1 ± 1.9 comorbidities and 7.3 ± 1.3 drugs per patient. The mean FEV1 was 1111.08 ml ± 860.4. At the first appointment, 58.2% of the patients had Type II Respiratory Failure (RF), 10.3% had type I, 31.5% had no RF. Of these, 63% were under oxygen therapy and 36.4% under ventilation, with the most frequent being the ST-mode Binible. Of the patients included, 18.4% performed RR.
Conclusions: The characteristics of the patients included in the RFA reinforce the need for an integrated approach in controlling the complexity of chronic respiratory disease. This global evaluation also allows for the justified suspension of ventilation therapy or oxygen therapy initiated in the acute phase. Of note, despite the proven benefits, only 18.4% perfomed RR.

Key words: *Respiratory failure. COPD. Overlap syndrome. Oxygen therapy. ventilation. Vila Franca de Xira Hospital.*

PC 007. PULMONARY REHABILITATION IN INTERSTITIAL LUNG DISEASES – A RESTROSPECTIVE STUDY

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Introduction: There is increasing evidence to support the use of Pulmonary Rehabilitation (PR) in patients with Interstitial Lung Disease (ILD), however, data are limited. The aim of this study was to evaluate the results of a PR program in a population of patients with ILD.
Methods: We conducted a retrospective, observational study of a cohort of patients with ILD who were referred to pulmonary rehabilitation program, between January 2016 and December 2017. Patients were characterized with respect to gender, age, and respiratory functional parameters. Dyspnea was assessed with the modified Medical Research Council (mMRC) scale; exercise capacity was measured using 6-min walk test (6MWT). The RR program was individualized for each patient and included: therapeutic exercise, daily life activities training, energy conservation techniques, breathing techniques and, in cases with indication for oxygen therapy, the adaptation of the patient to this therapy. For statistical analysis we used SPSS version 17.0. The quantitative and qualitative variables were compared with Wilcoxon Test.
Results: Thirty-four patients were enrolled (20 female, 14 male), with a mean age of 65.41 years. The mean duration of the PR program was 4.59 months [minimum 2, maximum 14]. The mean of functional parameters was: forced vital capacity (FVC) 70.22%; forced expiratory volume in the first 1 second (FEV1) 69.39%; total lung capacity (TLC) 69.17%; diffusing capacity for carbon monoxide (DLCO) 50.79% and diffusing capacity corrected for alveolar volume (DLCO/VA) 63.95%. From the analysis of PM6M variables, a significant improvement of dyspnea, walk distance and peripheral capillary oxygen saturation (SpO_2) was observed. The mean values were: initial dyspnea 3.2 vs final 2.3; (p = 0.015), Walk distance initial 320.50 vs final 361.06 meters; (p = 0.000) and initial SpO2 86.71% vs final 88.79%; (p = 0.030). There was no statistically significant difference in the lower limbs fatigue (p = 0.407) or peak heart rate (p = 0.668).
Conclusions: Despite of the limited number of patients enrolled, studies have shown benefits of PR programs in DDPP. In this study there was a statistically significant improvement in dyspnea, distance walked and SpO_2.

Key words: *Pulmonary rehabilitation. Interstitial lung disease.*

PC 008. SMOKING CESSATION COUNSELLING, SPIROMETRY AND PULMONARY REHABILITATION IN PRIMARY HEALTH CARE – THE TRIAD OF HCG ESTUÁRIO DO TEJO

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At Health Centers Group (HCG) Estuário do Tejo, respiratory system diseases are the fourth leading cause of death with a mortality rate due to Chronic Obstructive Pulmonary Disease (COPD) of 50.2 and 13.8 per 100,000 inhabitants, for men and women respectively. Primary prevention, timely screening, early detection and Primary Health Care (PHC) intervention are essential measures to reduce COPD incidence rates, morbidity and mortality. Tobacco use is, by far, the most important risk factor for the development of COPD. The benefits of smoking cessation include respiratory functional improvement, associated with a decrease in the incidence of other tobacco-related pathologies, making the intervention the best cost-benefit solution. This is one of the distinctive offers of HCG Estuário do Tejo which was reframed in March 2017 as a result of the Decree Law 6300/2016 that foresees smoke cessation consultations, access to spirometry and respiratory rehabilitation in PHC. The smoke cessation consultation has a unique dynamic, since, in addition to medical and nursing consultation, the patients have at their disposal a therapeutic group moderated by the Physician, Nurse and Psychologist, where they are encouraged to share their doubts and strategies, and also a movement class ran by an Occupational Therapist, where they practice physical activity. It is a differentiated consultation, focused on the consolidated change of lifestyles. Spirometry is a non-invasive study of the respiratory function performed by the Cardiac Physiologist and has been accessible to users of these health centres group since June 2017. Undergoing this exam at PHC level allows an earlier diagnosis and enhances the possibility of delaying the natural evolution of the disease. Ideally, patients with COPD should be sorted into PHC as belonging to a vulnerable group, requiring periodic medical surveillance according to their stage of severity. Respiratory Rehabilitation is a global and multidisciplinary intervention, instituted as a program targeting symptomatic chronic respiratory patients, aiming the reduction of their symptoms and regain of their ability to participate in daily activities, allowing their social and/or professional reintegration. This pilot project in the area of Respiratory Rehabilitation started in December 2017 and works closely with Hospital Vila Franca de Xira. Patients are screened for their degree of severity - the most serious perform respiratory rehabilitation in a hospital environment and the less severe and/or stable patients in the Alverca unit. By reducing the constraints it increases the accessibility and adherence to respiratory rehabilitation programs. The program is carried by the Physiotherapist in cooperation with a multidisciplinary team and integrates an educational component, apart from the physical exercise sessions, with skills teaching and training, in order to assure the adoption of measures to control risk factors, adherence to therapy and promotion of self-control and management of chronic respiratory disease. Thus, Prevention, Diagnosis and Rehabilitation is already possible in PHC.

Key words: *Smoking cessation counselling. Spirometry. Pulmonary rehabilitation. Primary health care.*

PC 009. GUILLAIN BARRÉ SYNDROME IN THE SUBACUTE PHASE: RESPIRATORY EVALUATION AND APPROACH IN AN INTENSIVE REHABILITATION PROGRAM

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Introduction: Guillain Barré syndrome (GBS) is a demyelinating inflammatory polyneuropathy and the most common cause of neuromuscular flaccid paralysis in developed countries. Prognosis is overall favorable, although a significant amount of patients presents permanent deficits that affect life quality. Respiratory insufficiency occurs in up to 30% of patients due to involvement of the inspiratory and expiratory muscles. Aspiration pneumonia and atelectasis may also occur, due to compromise of the bulbar musculature. Respiratory complications may persist, with incomplete respiratory recovery. The literature is still sparse in the knowledge of the evolution of the respiratory function of these patients. The authors designed a prospective observational study that aimed evaluation of respiratory function in GBS patients, in intensive rehabilitation program (IRP).
Methods: Patients included had GBS diagnosis and were admitted consecutively in an intensive rehabilitation program in a specialized center. Pulmonary function evaluation included spirometry, manometry, nocturnal respiratory poligraphy or nocturnal oximetry.
Results: Out sample included 18 patients (10 male and 8 female). Mean age at diagnosis was 63 years old. Mean time from the beginning of the clinical symptom sto the diagnosis was 5 days. Eleven patients had a probable predisposing factor. Ten patients presented facio-bulbar compromise and four patients needed invasive ventilation. None was tracheostomized. Seven patients had a restrictive pattern, one of which had a severe pattern. Among the patients who needed invasive ventilation, 3 of them had a restrictive pattern. Seven patients had PIM or PEM values lower than 60% of predicted, all of which had a normal spirometry pattern. Considering the patients with spirometry or manometry evaluation abnormalities (14 patients), 12 of them were evaluated with sleep study or nocturnal oximetry and we objectified nocturnal hypoxemia in 6; given these results, 4 of them required non-invasive ventilation.
Conclusions: Results from this study reveal considerable prevalence of changes in respiratory function at admission, even in patients without previous mechanical ventilation. It seems that a systematic evaluation of respiratory function is important and necessary to appropriately address and design the rehabilitation program.

Key words: *Guilliam Barré Syndrome. Respiratory evaluation. Intensive rehabilitation program.*

PC 010. THE VALUE OF CD4/CD8 RATIO IN LYMPHOCYTIC ALVEOLITIS

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Introduction: Broncoalveolar lavage (BAL) is a useful tool in the study of interstitial diseases. The role of the CD4/CD8 ratio in the diagnosis of sarcoidosis has been discussed, with some studies showing its utility while others show it is highly variable.
Objectives: Assess the specificity of the CD4/CD8 ratio for the diagnosis of sarcoidosis, in lymphocytic alveolitis.
Methods: All the BALs preformed between July of 2015 and July of 2017 were reviewed, and the ones with both lymphocytic alveolitis (> 15% lymphocytes) and with clinical and/or histological diagnosis were selected. The statistical analysis was performed using SPSS-23.
Results: Population of 64 patients, with a mean age of 58.66 years old (SD ± 15.17), and 59.4% males. All of the patients, except for one with auto-immune disease, presented altered imaging studies. Patients were divided in 5 different groups – sarcoidosis (n = 12), non-sarcoidosis interstitial disease (n = 28), infection (n = 12), cancer (n = 7) and pneumoconiosis (n = 5). About the BALs, the median percent of lymphocytes was 28.5% (IQR ± 23.5), and the median CD4/CD8 ratio was 2.15 (IQR ± 3.38). The value of the CD4/CD8 ratio showed a statistically significant difference when comparing patients with sarcoidosis (4.70, IQR ± 3.98; 5.17, SD ± 1.96) against other subgroups, namely versus all non-sarcoidosis (1.50, IQR ± 2.75; $p < 0.05$), non-sarcoidosis interstitial disease (1.40, IQR ±

2.78; p < 0.05), infection (1.85, IQR ± 3.90; p < 0.05), cancer (2.00, IQR ± 1.90; p < 0.05), pneumoconiosis (0.80, IQR ± 2.00; p < 0.05), organizing pneumonia (0.95 IQR ± 4.50; p < 0.05) and hypersensitivity pneumonitis (2.5, SD ± 1.74; p < 0.05). The comparison against patients with tuberculosis (n = 3 and median of 3.9) did not show significant difference. The specificity of the CD4/CD8 ratio, calculated for a 3.5 and 4.5 cut-off, was of 76.47% and 84.62%, respectively. This marker showed a good diagnostic accuracy, with an AUC of 83.40%.
Conclusions: In patients with altered imaging studies and lymphocytic alveolitis, the CD4/CD8 ratio is higher in patients with sarcoidosis. This marker shows good specificity for the diagnosis of sarcoidosis. Higher CD4/CD8 ratio values are associated with higher specificity.

Key words: *Sarcoidosis. BAL. CD4/CD8 ratio.*

PC 011. TREATMENT-EMERGENT METABOLIC DISTURBANCES AND COMORBIDITIES IN 2 COHORTS OF SARCOIDOSIS AND HYPERSENSITIVITY PNEUMONITIS PATIENTS ATTENDING AN ILD OUTPATIENT CLINIC

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Introduction: Sarcoidosis and hypersensitivity pneumonitis (HP) are two worldwide prevalent, high-morbidity interstitial lung diseases (ILD), that often require long-term corticosteroid therapy (CST), eventually in combination with immunosuppressive agents. Both therapies potentially induce metabolic disturbances that aggravate the global disease-related morbidity.
Objectives: Retrospective analysis of the comorbidity profile and the metabolic deregulation associated with corticosteroid and immunosuppressive therapies in both diseases.
Methods: Retrospective data was collected in two groups of 30 sequential patients with Sarcoidosis and HP that required the abovementioned therapies, regarding body mass index (BMI), comorbidities, glucose and lipid profiles, uraemia and thyroid function, before and after immunomodulation therapy. Temporal within-group comparisons were performed.
Results: The group of 30 sarcoidosis patients presented a mean age of 49.7 years, with 50% males and a mean initial BMI of 29.2 Kg/m^2. The 30 patients HP group displayed a mean age and BMI of 65.1 years and 30.7 Kg/m^2, with 56.7% females. In the two respective groups diabetes was initially present in 3.3% and 23.3%, dyslipidaemia in 36.7% and 60.0%, ischemic heart disease in 6.7% and 23.3% and thyroid dysfunction in 10.0% and 3.3%. Average follow-up time was 8.2 and 2.2 years respectively. Besides, 43.3% and 63.3% required intervention with immunosuppressive agents and 63.3% and 16.7% needed treatment with antimalarial agents. The mean overall CST exposure was 4.7 and 2.5 years, respectively. In the HP group, a significant treatment-related increase of 1.1 Kg/m^2 in BMI was found (p = 0.02). A non-significant trend towards worsening of glycaemia and uraemia in both diseases was also depicted. There were no relevant differences in the lipid profile and thyroid function.
Conclusions: Treatment-emergent metabolic disturbances should be carefully surveyed during sarcoidosis and HP follow-up, as they can importantly account for the disease burden. We found a significant increase in the BMI in the HP group and a tendency towards aggravated glycaemic and uremic profiles during treatment in both diseases. Larger cohort studies should be performed to further investigate these effects.

Key words: *Sarcoidosis. Hipersensitivity pneumonitis. Interstitial lung diseases. Metabolic disturbances.*

PC 012. REFRACTORY GRANULOMATOSIS WITH POLYANGIITIS PRESENTING AS CAVITATED PULMONARY NODULES

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Introduction: Granulomatosis with polyangiitis (GPA) is a necrotizing granulomatous vasculitis involving small-medium vessels. Anti-neutrophil cytoplasmic antibody (ANCA) is commonly seen. Drug-free remission can be achieved but relapses are common. Herein, we report a refractory case of GPA with a challenging therapeutic approach.
Case report: A 43 years-old, Caucasian, non-smoker, female patient presented with rhinitis and pulmonary tuberculosis with multiple lung nodules and isolation of drug-sensitive Mycobacterium tuberculosis complex. Despite long term anti-TB regimen therapy, nodules increased in size and even cavitated leading to further investigations. Repeated microbiological specimens were negative for fungi, bacteria and mycobacteria. Transbronchial lung biopsy showed only non-specific inflammatory changes. *Aspergillus fumigatus* serology and precipitins were negative. There were no renal, hepatic or hematologic alterations. Autoimmune studies revealed positive p-ANCA antibodies. IgG and IgA levels were mildly decreased. Clinically, she complained only of asthenia. Pulmonary function tests and 6-minute walk test were normal. Video-thoracic assisted lung biopsy revealed vasculitis in arterioles and venues with focal necrosis. However, granulomas or multinucleated giant cells were not documented. Thereafter, the patient was diagnosed with localized form of GPA. Initially, she received oral prednisolone (1 mg/kg/day) and oral methotrexate (25 mg/week). During the first year of therapy, a 50% volume reduction of pulmonary nodules was achieved. However, a later gradual increase and cavitation of pulmonary lesions with recurrent haemoptysis occurred. Due to the disease relapse, IV cyclophosphamide was administered during a 1-year period. Yet, treatment had to be interrupted due to adverse events (blood cytotoxicity and urinary tract infections). Of note, complete remission was not achieved. Subsequently, maintenance immunosuppression with mycophenolate mofetil (due to thiopurine S-methyltransferase deficiency) was attempted with no vain. Rituximab was started as a salvage therapy.
Discussion: GPA treatment has been evolved over last 2 decades transforming it from a deadly disease with 80% 1-year mortality without treatment to a relapsing remitting one. According to European League against Rheumatism/American College of Rheumatology (EULAR/ACR) recommendations, treatment has to be tailored to disease-extension and maintained for at least 24 months. Usually, it is administered into two consecutives phases: induction phase with either methotrexate or mycophenolate mofetil for non-organ-threatening GPA and maintenance phase when the disease is in remission. Corticosteroids are usually combined to either regimen in induction phase with gradual tapering. Methotrexate or azathioprine is equally effective and are essential for treatment maintenance. Mycophenolate mofetil is probably less effective and reserved for cases in which previous drugs are contraindicated or not well-tolerated. Recently, rituximab has been shown to be superior to azathioprine as a maintenance regimen particularly in those who had positive ANCA and kidney disease. Invaluable severity scores were used to adjust treatment protocol in order to avoid unnecessary over immunosuppression in limited forms. Rituximab has proven useful in patients with refractory disease, particularly in those previously treated with cyclophosphamide. Intravenous immunoglobulin may be used in refractory cases or when severe infections or hypogammaglobulinemia are the main limitations to induction therapy. Yet, data are limited mainly to patients with progressive crescent glomerulonephritis.

Key words: *Granulomatosis with polyangiitis. Vasculitis. Relapse.*

PC 013. PRELIMINARY PILOT STUDY ON THE BENEFIT OF SCREENING FOR LUNG CANCER IN A HIGH RISK POPULATION

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Introduction: The mines of Urgeiriça, which operated since 1913 for radio production, later became the main uranium producer in Portugal, having definitively closed its installations in 2001. For ex-workers and their families, an increased risk to health has been estimated, especially with regard to exposure to radioactive material, a recognized occupational risk factor for lung cancer. Considering this aspect, and scientific evidence already published on the use of low-dose thoracic computed tomography (CT) for lung cancer screening in high-risk groups, this imaging exam was recently included as a diagnostic tool in the Intervention in Health Program (IHP) addressed to former employees of the Uranium National Company (UNC).
Methods: In the context of the IHP, which was addressed to former employees of the UNC, in 2017 a group of participants considered to be exposed to cumulative risk factors for lung cancer (history of exposure to uranium, effective activity within the mine, and tobacco load greater than 20 pack-year) was selected. Of the 77 individuals who were selected to participate in this pilot screening project using low-dose CT, it was possible to carry out the study in 66. The studied variables were age, gender, exposure time, smoking load, number and size of nodules found. The recommendations of Fleischner's classification were used to establish follow-up of the patients.
Results: 64/66 participants were male. The median age was 65 years, with the first quartile at 61 years and the third quartile at 68 years. 36/66 low dose CT showed the presence of pulmonary nodules, 4 of which reported only calcified micronodulation. With respect to the remaining 32 CT thorax, the mean number of nodules found was 2 nodules per examination, which was also the median and mode value. As regards to the dimensions of the largest nodules found, the mean was 6 mm; the largest nodule was 16.3 mm and had suspicious features, namely spiculation. Other alterations were the presence of emphysema in 5/66 patients and pleural thickening/calcification in 2/66 patients. At the time of the study, 29/66 participants were still being evaluated.
Conclusions: Of the 66 patients participating in the study, a suspected 16.3 mm spiculate nodule was found on CT thorax. This patient was later evaluated with PET/CT and extemporaneous biopsy, which indicated that it was a benign lesion. At the time of this study, 29 patients were still under close evaluation, and the results presented will be reviewed later. Several studies, particularly in the USA, indicate that low dose CT may be useful in screening for lung cancer in selected individuals at high risk. More studies will be important to definitively justify its implementation as a screening method in the diagnosis of lung cancer, namely studies directed to the European and national population.

Key words: *Uranium. Radioactivity. Lung neoplasia. Low dose computed tomography.*

PC 014. TUMOR BIOMARKERS IN HYPERSENSITIVITY PNEUMONITIS

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Objectives: To evaluate serum levels of several tumor markers in patients with hypersensitivity pneumonitis (HP) in follow-up at Pulmonology A Department of Coimbra's University Hospital. To analyse possible association between tumor markers elevation and disease severity through clinical factors, pulmonary function tests (PFTs) and HRCT features.
Methods: A retrospective analysis of patients with diagnosis of HP between 2001 and 2017 in follow-up at Pulmonology A Department of Coimbra's University Hospital whom underwent tumor markers serum measurement. Statistical data were processed using SPSS Statistics v23.
Results: 34 patients (17 male and 17 female), aged between 30 and 89 years old were identified, 73.5% (n = 25) non-smokers. In the majority of the cases, the causative agent was bird exposure (58.8%, n = 20). PFTs results showed minimum values for total lung capacity (TLC) and forced vital capacity (FVC) of respectively 19.7% e 16.9% of predicted with mean value of 74.1% and 72.6%. Diffusing capacity for carbon monoxide (DLCO) mean value was very low (53.8%), with minimum value of 18.1% of predicted. The majority of the patients (67.6%, n = 23) had fibrosis on HRCT. 24 patients (70.6%) were treated with steroids or imunossupressants and 9 (26.5%) were in pretransplantation follow-up. One patient received a lung transplant. 13 (38.2%) patients had chronic respiratory failure receiving long-term oxygen therapy. Concerning to hospital stays since the beginning of 2017, in the majority of the cases hospital admission wasn't necessary (55.9%, n = 19), 5 (14.7%) patients were admitted once or twice, and 3 (8.8%) were admitted 3 or 4 times. 7 patients died (20.5%) before 2017. The following tumor markers were measured in this population: CEA, CA 19.9, CA 15.3, CA 72.4, CA 125, alpha-fetoprotein, neuron specific enolase (NSE) and CYFRA 21.1. In this population NSE and alpha-fetoprotein levels were in the normal range. CEA and CA 19.9 were elevated in 8 patients and CA 72.4 in 4 patients. CA 125 (15 patients), CA 15.3 (10 patients) and CYFRA 21.1 (12 patients) were elevated in a larger number of patients. Despite the finding of association between the elevation of some markers and PFTs decline, only elevated CA 19.9, CYFRA 21.1 and CEA showed significant correlation with lower PFTs results. Hospital admission, the presence of chronic respiratory failure and fibrosis on HRCT fail to correlate with tumoral markers elevation.
Conclusions: The studied population was heterogeneous and had severe disease, as shown by HRCT and PFTs results. Tumor biomarkers may be elevated in hypersensitivity pneumonitis and associated with disease severity and prognosis, especially through PFTs results.

Key words: *Hypersensivity. Pneumonitis. Biomarkers. Tumor.*

PC 015. LYMPHANGIOLEIOMYOMATOSIS AND LANGERHANS CELL HISTIOCYTOSIS: NINE CASES REVIEW

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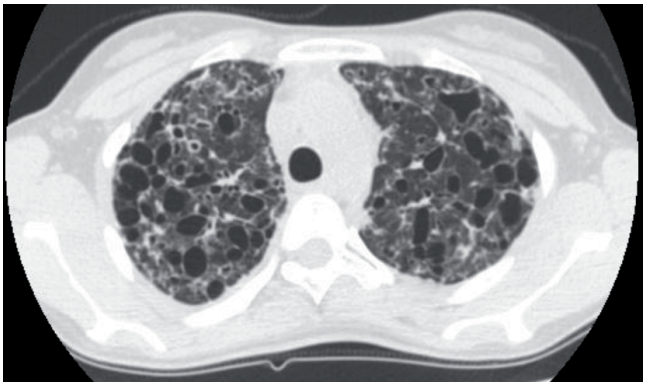
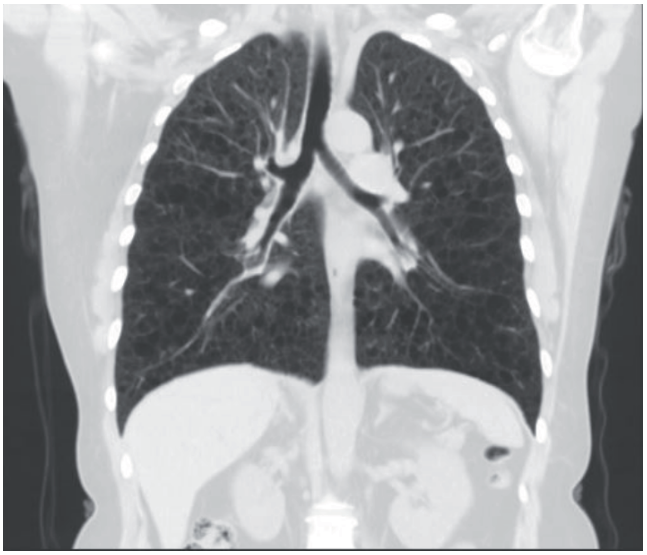
Introduction: Diffuse cystic lung diseases are rare and there is lack of consensus in their definition, etiology and treatment. Examples include Langerhans cell histiocytosis (LCH) and lymphangioleiomyomatosis (LAM). Retrospective descriptive observational analysis of nine cases of these diseases currently followed at the interstitium of Santa Marta Hospital, using the clinical process, is presented.
Case reports: Four with LCH, equal distribution of gender (2/2), mean age at diagnosis 35 (± 6) years and all active smokers at diagnosis with a mean of 14.5 (± 6.7) packet units. Personal history of asthma (1), none with relevant family history. Definitive diagnosis (pulmonary biopsy) in two cases and presumptive clinical-radiological in the other two. Two asymptomatic - radiological findings and the other two detected in the symptomatic study: cough and dyspnea (2), wheezing (1) and weight loss (1). Flexible bronchofibroscopy with bronchoalveolar lavage (BAL) (4) and transbronchial biopsy (3): no alteration (2), nonspecific alterations (1) and CD1a+ cells in BAL (1). Respiratory

function tests: obstructive (2) and restrictive (2); all with decreased DL_{CO} (4). None with proven extra-pulmonary involvement. Follow-up for a median of 25 (8.5-68.5) months. All under prednisolone. Three mantained smoking habits with the following evolution: asymptomatic and radiological and functional improvement (1), symptomatic and radiological improvement and functional stability (1) and radiological improvement but symptomatic and functional decline (1). Only one maintains smoking cessation, being asymptomatic and with radiological and functional improvement. No report of respiratory failure or pneumothorax. Five with LAM, all pre-menopausal female, median age at diagnosis of 50 (35-53) years, two ex-smokers and three never smokers. None with a relevant past of respiratory personal or family history. Definitive diagnosis in one, probable in two and possible in two. All symptomatic: dyspnea (5), cough (2) and pleuritic chest pain (1). Diagnosis triggered by: dyspnea study (2), pneumothorax (1), radiological findings: in coronary CT angiography (1) and post-respiratory infection re-evaluation (1). Flexible bronchofibroscopy (with BAL) performed in one case: no relevant alteration. Respiratory function tests: normal (1); slight obstructive pattern (1); and moderate obstruction with decreased DL_{CO} (3). Extra-pulmonary involvement: angiomyolipoma (1) and pericardial effusion (2). Follow-up for a median of 87 (49-221) months. Two cases (both with moderate obstruction) initiated sirolimus: one with symptomatic and radiological stability, initial functional decline but current stability; another with symptomatic and radiological stability and functional improvement. The other three mantained symptoms, with radiological and functional stability. No cases of new respiratory failure, pneumothorax or extrapulmonary involvement in the follow-up.





Discussion: Despite the small sample size, we present demographic, presentation and evolution characteristics of two rare diseases, highlighting the importance of clinical suspicion. We also present therapeutic choices and emphasize the lack of therapeutic consensus.

Key words: *Langerhans cell histiocytosis. Lymphangioleiomiomatosis. Diffuse cystic lung disease. Interstitial lung disease.*

PC 016. OUTCOME AND SAFETY OF NINTEDANIB IN IDIOPATHIC PULMONARY FIBROSIS

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Introduction: Idiopathic pulmonary fibrosis (IPF) is a fibrosing interstitial pneumonia with a poor prognosis. Anti-fibrotic therapies, such as nintedanib, have emerged in the last decade as a major improvement in the disease management.
Objectives: To assess the safety of nintendanib and its impact on disease progression of patients with diagnosis of IPF.
Methods: Retrospective analysis of IPF patients treated with nintedanib. Response was evaluated at 6, 12 and 24 months. Disease progression was considered when FVC decline ≥ 10% and/or DLCO ≥ 15%.
Results: A total of 42 patients on nintedanib were included, with a mean age of 72.0 ± 8.9 years and thirty-two (76.2%) were men. Prior to the introduction of Nintedanib, twenty-four patients (57.14%) underwent other therapies (seven patients previously under pirfenidone). Although mostly of mild intensity, side effects occurred in 50% of patients, with diarrhoea being the most frequent (76.18%). Four patients had to stop nintendanib for intolerance and 11 had to reduce the dose. At 6 months, 64% of the patients had disease stabilization (16/25 patients), at 12 months 54.54% (12/22 patients) and at 24 months 50% (8/16 patients). During follow-up, 8 (19.04%) patients died, two of which were directly attributable to IPF.
Conclusions: Although the occurrence of adverse events was relevant, nintedanib was effective as the treatment of patients with IPF, contributing to disease stabilization in a significant number of patients.

Key words: *Idiopathic pulmonary fibrosis. Nintedanib.*

PC 017. SARCOIDOSIS' CLINICAL AND FUNCTIONAL FEATURES: HOW THEY INFLUENCE THE DISEASE OUTCOME

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Introduction: Sarcoidosis' (SD) natural history can vary from self-limiting in most patients (pts) to life threatening in others.
Objectives: To find out whether the clinical and functional features at the time of the diagnosis and during follow-up period influence the outcomes of SD.
Methods: Retrospective study with outpatients with SD, followed in our hospital from January 2012 to December 2016. Initial clinical features, lung function test (LFT) and the presence of pulmonary hypertension (PHT), or its development during follow-up, were collected. The primary outcome (PO) was all-cause mortality. The secondary outcome (SO) was the development of new imagiological findings, evidencing disease progression.
Results: 56 pts were included: 64.3% female; mean age at the time of diagnosis 44 ± 2 years. 79% were Caucasians and 21% were Ne-

groid. At the time of the diagnosis, 34% of pts had evidence of intolerance to physical activity, 23% complaint of dry cough and 12,5% presented with dyspnea. On the initial LFT, 12.5% of pts had low arterial blood oxygen at rest and 25% had low DLCO. PHT developed in 5.4% pts and 5.4% pts initiated domiciliary oxygen therapy (DOT). At a median follow up time of 4 years (IQR of 2 years) there were 3 PO and 19.6% pts had progression of radiological disease. Pts with dyspnea at presentation died significantly more (p = 0.019), as well as those with hypoxemia (p = 0.024), PHT (p = 0.002) and DOT (p = 0.002). Negroid's (p = 0.045) and those with low DLCO (p = 0.046) had more evidence of radiological disease progression.
Conclusions: The initial clinical and functional features, as well as the development of PHT and the need for DOT, significantly influence the outcome of pts with SD.

Key words: *Sarcoidosis. Clinical features. Functional respiratory tests.*

PC 018. EFFICACY AND SAFETY PROFILE OF PIRFENIDONE IN IDIOPATHIC PULMONARY FIBROSIS

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Introduction: Idiopathic pulmonary fibrosis (IPF) is a progressive fibrosing disease associated with poor prognosis. Anti-fibrotic therapies, such as pirfenidone, have been shown to be effective in delaying the progression of the disease.
Objectives: To investigate the safety of pirfenidone and its impact on functional evolution of patients with IPF.
Methods: Retrospective analysis of IPF patients treated with pirfenidone. Response was evaluated at 6, 12 and 24 months. Disease progression was considered when FVC decline ≥ 10% and/or DLCO ≥ 15%.
Results: A total of 40 patients were included, the majority male (n = 34; 85%), with a median age of 73.5 years (min.51; max. 88). Prior to pirfenidone, 20 patients (52.1%) underwent other therapies, 4 of these were under nintedanib. Side effects occurred in 17 patients (42.5%), with gastrointestinal and cutaneous effects being the most frequent. There was a need to interrupt treatment in 8 (20%), 5 due to gastrointestinal effects and 3 due to cutaneous toxicity. At 6 months, 58.3% of the patients had disease stabilization (14/24 patients), at 12 months 52.6% (10/19 patients) and at 24 months 45.5% (5/11 patients). During follow-up, 8 (20%) patients died, 4 of which were directly attributable to IPF, with a median survival of 287 days (min. 71, max. 287) after initiation of therapy.
Discussion: In this sample, pirfenidone showed an acceptable safety profile, with a functional stabilization of the disease, in medium to long term, in a significant number of patients.

Key words: *Idiopathic pulmonary fibrosis. Pirfenidone.*

PC 019. CHRONIC HYPERSENSITIVITY PNEUMONITIS AND ILD-GAP MODEL

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Introduction: The clinical course of interstitial lung diseases (ILDs) is difficult to predict, mainly due to its heterogeneity. The ILD-GAP (gender, age, physiology) model was validated as a mortality predictor in major chronic ILD subtypes, including hypersensitivity pneumonitis.
Objectives: Characterization and analysis of mortality of chronic hypersensitivity pneumonitis (cHP) patients, accordingly to ILD-GAP category.
Methods: Retrospective analysis of chronic hypersensitivity pneumonitis patients, followed in an ILD outpatient department. Clinical, functional, radiological and broncoalveolar lavage (BAL) data were obtained. Patients with a follow up time under 12 months were excluded. Statistical analysis was performed using SPSS software.
Results: We included 37 patients (12 male and 25 female), with a median age of 71 years (45-84 years) and 70.3% were non-smokers (n = 26). Nine patients (24.3%) used oxygen therapy. Bird exposure was the most frequently detected (n = 27, 73%). Regarding lung function, the patients presented a median FEV1 of 79.5%, FVC of 75.5% and DLCO of 37.8%. 7 patients (16.3%) had UIP pattern. Lymphocytosis (L≥ 15%) was present in 66.7% (n = 24) of the patients that performed BAL. Considering the ILD-GAP model, the patients were divided in to: 37.8% - 0-1 category; 40.5% - 2-3 category; 18.9% - 4-5 category and 2.7% - > 5 category. 64.8% of patients (n = 24) were treated with immunosuppressors. Two patients were referred to lung transplant. Median follow-up time was 20.0 months. 13.5% (n = 5) of patients died in the first year of follow-up (ILD-GAP category: 2 patients were on group 2-3; 2 patients were on group 4-5; and one patient was on group > 5). One death in the 2-3 category was not related to the pulmonary disease. There was a statistical significant difference between the proportion of deaths in the different categories of ILD-GAP model (chi-square test, p = 0.033). No association was found between the presence of UIP pattern and death (p = 0.098). The ILD-GAP model showed a moderate and significant correlation with mortality (r = 0.544; p = 0.001). In terms of survival, the mean survival of patients in category 0-3 was 34 months and in the category 4-6 was 15 months (p < 0,001).
Conclusions: Despite having a small sample, we observed moderate and significant correlation between ILD-GAP model and death. Therefore, and according to the literature, the ILD-GAP model seems to be a good predictor of severity and mortality in the group of chronic HP patients.

Key words: *Hypersensitivity pneumonitis. ILD-GAP. Mortality.*

PC 020. OMALIZUMAB IN THE TREATMENT OF ALLERGIC ASTHMA - EXPERIENCE OF A REFERENCE CENTER

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Introduction: Omalizumab (OMA) is a humanized monoclonal antibody that selectively binds to immunoglobulin E (IgE) and is approved for the treatment of patients with moderate-to- severe persistent allergic asthma.
Objectives: To characterize the population of patients with moderate to severe asthma under treatment with OMA for at least 12 months, followed by the Pneumology Department.
Methods: Retrospective study where socio-demographic variables, smoking history, comorbidities, total IgE and sensitization pattern were evaluated. The following parameters were evaluated at baseline/before (T0), at 4 months (T4) and at 12 months (T12), for treatment with omalizumab: number of exacerbations, daily inhaled corticoid dose, forced expiratory volume in the first second (FEV1) and asthma control test (ACT).
Results: Included forty-one patients, with a mean age of 51 ± 10 years and most of them were female (75.6%). The mean body mass index (BMI) was 30.1 ± 5.1 kg/m^2. The majority of patients were

Table PC 020

	T0	T4	T12
ACT (mean ± standard deviation)	11 ± 1.6 (8-15)	21 ± 3.2 (p < 0.05)	23 ± 2.6 (p < 0.05)
FEV_1 (mean ± standard deviation)	56 ± 14 (25-87)	69.1 ± 17.6 (p < 0.05)	74 ± 19.4 (p < 0.05)
Nº of exacerbation on need of OCS	41 (100%)	9 (22%) (p < 0.05)	3 (8.3%) (p < 0.05)
Equivalent dose of daily budesonide (µg)	1,230 ± 487.8	940 ± 321.4 (p < 0.05)	760 ± 331.5 (p < 0.05)

non-smokers (n = 33, 80.5%), six were ex-smokers (14.6%) and 2 active smokers (4.9%). The mean smoking load was 11 UMA. The most common comorbidity was rhinitis (n = 32.78%), followed by sinusitis (n = 9, 22%) and nasal polyposis (n = 8, 19.5%). The mean total IgE value identified was 443.9 ± 591.6 KUI/L. Almost half of the patients had previous immunotherapy (43.9%). The mean of the sensitization was in descending order: mites (21 [51.2%]), pollens and grasses (5 [12.2%]), faneras (3 [7.3%]). 8 patients (19.5%) had non- atopic asthma. Regarding the administration regimen, the majority of the patients (n = 35, 85.4%) underwent 4/4-week therapy; mean OMA of 361.2 ± 161.6. After initiation of therapy, the majority of patients presented clinical and functional improvement, demonstrated by improvement in the ACT questionnaire, improvement in mean FEV1, reduction in the number of exacerbations requiring oral corticosteroids (OCS), and the equivalent dose of daily budesonide (Table). The majority of patients (90.2% n = 37) had no side effects associated with the drug, and 3 cases of alopecia and 1 case of headache were reported, all without cessation of therapy.
Conclusions: The authors found that omalizumab was effective in treating patients with moderate to severe persistent allergic asthma, not only in improvement asthma control (mean ACT is greater), but also in the significant improvement of FEV1. As found in other studies, omalizumab not only significantly reduced the need for daily oral and inhaled corticosteroid cycles, but also improved the quality of life of these patients.

Key words: *Allergic asthma. Omalizumab.*

PC 021. ASTHMA IN PREGNANCY: THE IMPORTANCE OF DISEASE CONTROL

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Introduction: Asthma is the chronic disease most associated with pregnancy, and its prevalence in this population has been raising. Several studies have shown that pregnant women with asthma are at increased risk of severe complications during pregnancy and/or childbirth. In addition, there appears to be an association between poor disease control and an increase in adverse outcomes.
Objectives: To describe the evolution of pregnancy and childbirth in asthmatic women followed in the consultation of Allergy-Pneumology of a central hospital, and to stablish associations between poor control of the disease (prior to and during pregnancy) and severe complications during pregnancy/delivery.
Methods: Retrospective observational descriptive study, based on the analysis of clinical processes, of women who were pregnant and with an established diagnosis of asthma according to GINA guidelines, between January 2014 and July 2018. Severe complications were defined as any of the following: pre-eclampsia, preterm delivery, emerging cesarean section, intrauterine growth restriction (IUGR), low birth weight and congenital malformations. Asthma Control Test was used to assess asthma control. Continuous variables were expressed as mean and standard deviation and the categorical variables were expressed in frequency and percentage. For the comparative analysis of the categorical variables, the chi-square test or Fisher's Exact Test was used. The level of significance was defined as p < 0.05.

Tabela 1 - Características das grávidas (n = 19)

	n (%) ou média ± DP
Idade (anos)	32,3 ± 1,1
Hábitos tabágicos	
Não fumadora	13 (68,4%)
Ex-fumadora	4 (21,1%)
Fumadora	2 (10,5%)
Comorbilidades	
Rinite	17 (89,5%)
Obesidade	2 (10,5%)
RGE	2 (10,5%)
Contagem de eosinófilos (células/µl)	188 ± 22,65
Atopia	15 (78,9%)
Imunoterapia específica prévia	4 (21,1%)
Controlo da doença prévio à gravidez	
Controlada	15 (78,9%)
Parcialmente controlada	2 (10,5%)
Não controlada	2 (10,5%)
Controlo da doença durante a gravidez	
Controlada	10 (52,6%)
Parcialmente controlada	6 (31,6%)
Não controlada	3 (15,8%)
Step-up da terapêutica	10 (52,6%)
Degrau da GINA antes do parto	
Degrau 1	2 (10,5%)
Degrau 2	7 (36,8%)
Degrau 3	7 (36,8%)
Degrau 4	3 (15,8%)
Complicações durante a gravidez e/ou parto	
Parto pré-termo	2 (10,5%)
Restrição do crescimento intrauterino	3 (15,8%)
Cesariana emergente	3 (15,8%)

Results: We included 19 women, one of whom had not yet entered labor, between the ages of 23 and 40 years (mean age: 32.3 ± 1.1). Rhinitis was the most frequent comorbidity, affecting 89.5% (n = 17); two women (10.5%) had gastroesophageal reflux and two other were obese. Most had a history of atopy (78.9%, n = 15), and 21.1% (n = 4) had previously been treated with allergen-specific immunotherapy. Regarding smoking, 68.4% (n = 13) were non-smokers, 21.1% (n = 4) were former smokers and 10.5% (n = 2) were smokers during pregnancy. All had mild serum eosinophilia (mean: 188 ± 22.65 cells/µl). Concerning asthma control, 10.5% (n = 2) had the disease partially controlled prior to pregnancy and another 10.5% (n = 2) uncontrolled disease. During pregnancy, 31.6% (n = 6) presented periods of partially controlled disease and 15.8% (n = 3) uncontrolled disease. In 52.6% of the women (n = 10), medication step-up according to GINA stepwise approach was needed during pregnancy; at the last consult before delivery 10.5% (n = 2) were on step 1, 36.8% (n = 7) on step 2, 36.8% (n = 7) on step 3 and 15.8% (n = 3) on step 4. The complication rate was of 36.8% (n = 7). The most frequent complications were IURG (n = 3) and emergency cesarean section (n = 3). There were no cases of pre-eclampsia or congenital malformation. Uncontrolled disease during pregnancy was associated with a higher rate of complications (p = 0.043) compared to controlled or partially controlled disease. However, poor control of pre-pregnancy disease did not appear to be associated with worse outcomes.

Conclusions: Despite the small sample size, this study reinforces the importance of good control of asthmatic disease during pregnancy in the prevention of complications.

Key words: *Asthma. Pregnancy. Disease control.*

PC 022. THE IMPACT OF WEIGHT LOSS BEYOND THE LUNG FUNCTION: THE BENEFIT ON ASTHMA OUTCOMES

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Introduction: Obesity promotes metabolic and structural changes and this is why obese individuals present several associated comorbidities such as pulmonary disorders. Association between obesity and asthma is well-established and obese asthmatics (OA) present more symptoms, with more difficult control, decreased response to therapy and worst quality of life. Obesity-related asthma phenotype show different characteristics and there is growing evidence that weight loss improves asthma outcomes.
Objectives: To evaluate the impact of weight loss in lung function (LF) of obese individuals who underwent bariatric surgery and, in a group of OA, its impact in asthma control, quality of life, LF and in controller medication.
Methods: Prospective, longitudinal study of obese patients undergoing bariatric surgery between July 2015 and July 2017 in the Surgery Unit of CHUC. Patients were classified as asthmatic or non-asthmatic obese (N-AO). Patients with other pulmonary disease than asthma were excluded. LF was assessed by spirometry and plethysmography before and after 6 to 9 months of surgery. In OA, control of symptoms and quality of life were also evaluated using CARAT and AQLQ, as well as step of treatment (GINA 2018). Data were processed by appropriate statistical methods using SPSS®, version 19.0 (SPSS, Inc., Chicago, IL). p-values < 0.05 were considered significant.

Study population characteristics

Characteristics	Non-asthmatic obese	Asthmatic obese	p-value
	n (%) or mean ± SD	n (%) or mean ± SD	
Gender Male/ Female	5 (27.8)/13 (72.2)	2 (25)/6 (75)	0.935
Age (years)	42 ± 8.3	48 ± 11.9	0.196
Initial weight (kg)	122.7 ± 23.8	112 ± 23.1	0.261
Initial BMI (kg/m^2)	45.5 ± 6.1	43 ± 5.4	0.531
BMI decrease (kg/m^2)	11.3 ± 3.5	11.3 ± 4.7	0.892
Smoking habits s			
Non-smoker	13 (72.2)	5 (62.5)	0.849
Current smoker	4 (22.2)	2 (25)	
Former smoker	1 (5.6)	1 (12.5)	
Initial lung function			
VC (%)	103.6 ± 13.1	100.1 ± 12.7	0.807
FVC (%)	102.7 ± 13.4	99.7 ± 10.9	0.724
FEV_1 (%)	100.5 ± 17.6	89.6 ± 12.5	0.102
$FEF_{75\%}$ (%)	68.5 ± 36.2	38.5 ± 15.8	0.047
$FEF_{25-75\%}$ (%)	83.6 ± 33.2	53.3 ± 20.4	0.03
TLC (%)	104.1 ± 10.3	102.5 ± 10.3	0.531
RV (%)	108.6 ± 18.2	110.2 ± 23.7	0.892
R_{tot} (%)	110 ± 35.2	162.2 ± 52.7	0.019

Results: 26 patients were included, all obese, the majority class III (n = 22). Initial mean BMI was 44.7 ± 5.9 kg/m^2. LF and other characteristics are depicted in the table. There was no significant difference concerning gender (p = 0.935), age (p = 0.196), smoking habits (p = 0.849), initial (p = 0.531) and mean decrease (p = 0.892) of BMI between OA (n = 8) and N-AO (n = 18) (Table). Before surgery, OA showed a mean CARAT score of upper airways of 6.1 ± 3.1 and of lower airways of 13.4 ± 4.1. 25% were in step 3 and 75% in step 4 of treatment. After 6-9 months of weight loss: BMI decreased 11.3 ± 3.8 kg/m^2, p < 0.001; N-AO showed an increase in VC (199 mL, p = 0.005), FVC (249 mL, p = 0.011), FEV_1 (228 mL, p = 0.002) and TLC (137 mL, p = 0.2). R_{tot} (-90 kPa*s/L, p = 0.003), $FEF_{75\%}$ (316 mL, p = 0.002) and $FEF_{25-75\%}$ (358 mL, p = 0.014) also improved; OA showed an increase in VC (268 mL, p = 0.107), FVC (303 mL, p = 0.04), FEV_1 (295 mL, p = 0.017) and TLC (659 mL, p = 0.036). $FEF_{75\%}$ (291 mL, p = 0.018), $FEF_{25-75\%}$ (428 mL, p = 0.012) and R_{tot} (-170 kPa*s/L, p = 0.035) also improved; OA also showed an improvement in mean CARAT score of upper airways of 3.9 ± 1.9 (p = 0.017) and of lower airways of 4.2 ± 4.4 (p = 0.027), as well as a mean decrease of 1.8 ± 1 (p = 0.017) in step of treatment. Mean initial AQLQ was 9.6 ± 5.3 and improved 8.1 ± 5.6 (p = 0.017). Comparing the improvement in LF between N-AO with OA there were no significant differences concerning VC (p = 1.0), FVC (p = 0.849), FEV_1 (p = 0.495), TLC (p = 0.54), $FEF_{75\%}$ (p = 0.849), $FEF_{25-75\%}$ (p = 0.567) or R_{tot} (p = 0.397).
Conclusions: After weight loss, all lung capacities and dynamic volumes improved, with statistical significance in FEV_1, FVC, $FEF_{75\%}$, $FEF_{25-75\%}$ and R_{tot}, of both groups. Despite higher improvement in OA, difference between groups was not significant. Before surgery, OA showed no controlled symptoms of rhinitis and asthma which improved with significance after weight loss, as well as quality of life, together with a significant decrease in treatment step. We conclude that our approach to this asthma phenotype should combine both pharmacological and non-pharmacological therapies, such as weight loss, instead of primarily focusing on disease control by stepping up asthma therapy.

Key words: *weight loss. Bariatric surgery. Lung function. Asthma control. Quality of life. Controller medication.*

PC 023. SEVERE ALLERGIC ASTHMA - DOES EFFICACY OF OMALIZUMAB DEPEND ON EOSINOPHIL COUNT?

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Introduction: Omalizumab is an anti-IgE monoclonal antibody used for the treatment of severe allergic asthma. More recently, new therapies for severe hypereosinophilic asthma (anti-IL5) have emerged. Current studies have sought to verify the efficacy of omalizumab in patients with severe allergic asthma depending on the number of eosinophils.
Objectives: Characterization of patients receiving omalizumab according to the cut-off of eosinophils (300 cells/µL) in peripheral blood, considering the control of the disease, the number of exacerbations and the need for systemic steroids.
Methods: Retrospective study based on the analysis of clinical data of patients with severe allergic asthma who have received omalizumab therapy for at least 2 years, with subsequent descriptive analysis.
Results: Twenty-four patients were included, 62.5% female and 37.5% male, with a mean age of 52.4 ± 14.5 years. The minimum IgE value was 50 U/L and the maximum value was 3,265 U/L. Prior to initiation of therapy with omalizumab, eighteen patients (75%) had eosinophils > 300 cells/µL in peripheral blood, and only 6 patients (25%) had eosinophils < 300 cells/µL. In patients with eosinophils > 300 cels/µL, the mean IgE value was 665 U/L, 5 patients (27.8%) had systemic corticosteroid therapy (mean dose value - 17 mg), only 3 patients (16.7%) had asthma control and the mean number of exac-

erbations of 5/year. In these patients the mean number of exacerbations over the first year of therapy was 0.6 per year and over the second year was 1 per year. Sixteen (88.9%) and twelve patients (66.7%) had asthma controlled at 1 and 2 years of therapy, respectively. In patients with eosinophils < 300 cells/µL, mean IgE value was 318 U/L, 3 patients (50%) had systemic corticosteroid therapy (mean dose value - 10 mg), 2 patients (33.3%) had asthma controlled and the mean number of exacerbations was 5.7 per year. In these patients the mean number of exacerbations over the first year of therapy was 1.2 per year and throughout the second year was 0.6 per year. Five (83.3%) and four patients (66.7%) had asthma controlled at 1 to 2 years of therapy respectively. All patients discontinued daily systemic corticosteroid therapy until the end of the first year of therapy.
Conclusions: After analyzing the data presented, we could verify that there was a significant decrease in the number of exacerbations and an increase in the number of patients with controlled asthma. All patients who received systemic corticosteroids daily stopped treatment at the end of one year. Finally, there appears to be no difference in the efficacy of omalizumab therapy depending on the characterization in the two groups.

Key words: *Severe allergic asthma. Omalizumab. Peripheral eosinophilia.*

PC 024. ADDRESSING THE TRAIT WITH BIOLOGICS

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Objectives: To evaluate the impact of omalizumab and mepolizumab, in type two asthmatics, according to their endotype.
Methods: Cross-sectional study that included severe asthmatics under omalizumab or mepolizumab (data collected in 04.2018, Pulmonology Department A-CHUC). Clinical-demographic data, complementary exams, symptom/quality of life questionnaires, number of exacerbations and changes to usual medication were analysed.
Results: Group treated with mepolizumab: n = 6, 83% (n = 5) female, mean age 50 ± 17.3 years, all eosinophilic. Skin prick test (SPT) positives: 3 (1 with clinical correlation); IgE < 18 IU/ml: 5. Comorbidities: 100% (n = 6) ENT (50% rhinosinusitis + nasal polyposis; 33.3% rhinosinusitis and 16.7% rhinitis); 66.7% (n = 4) overweight/obesity; 33.3% (n = 2) atopic dermatitis; 33.3% (n = 2) anxiety disorder and 16.7% (n = 1) former smoker. All under grade 4/5 of treatment (GINA 2018), 50% under systemic corticosteroids. Eosinophilia (mean pre/post): 7.15%/617 cells to 1%/67 cells. Questionnaires (mean pre/post): CARAT-UA increase 2 points and 5.3 in CARAT-LA; ALQ decreased 2.7 points; EuroQol-5D decreased 1.8 points. PFTs: improvement of 13% in FEV_1 (73 to 86%) and 6% in FEV_1/FVC (58 to 64%); eNO 239 (n = 5) to 91 ppb (n = 3). Exacerbations (total for the 6 patients): year prior to treatment, 27 (= 0.375 exacerbations/month); after 48 cumulative months, 3 (= 0.06 exacerbations/month). Mean dose of systemic corticosteroid pre/post: 16/10 mg. Group treated with omalizumab: n = 13 (3 were off-label), 61.5% (n = 8) female, mean age 44.2 ± 18.3 years, 61.5% (n = 8) eosinophilic. SPT positives: 10; IgE 1,125 ± 2,778.6 IU/ml). Comorbidities: 92.3% (n = 12) ENT (50% rhinosinusitis + nasal polyposis; 41.7% rhinosinusitis and 16.7% rhinitis); 69.2% (n = 9) overweight/obesity; 53.8% (n = 7) anxiety disorder; 46.1% (n = 6) GERD and 23.1% (n = 3) atopic dermatitis. All under grade 4/5 treatment (GINA 2018), 2 under systemic corticosteroids. Eosinophilia (mean pre/post): 4.9%/441 cells to 4.4%/374 cells. Questionnaires (mean pre/post): CARAT-UA increase 0.9 points and 6.4 in CARAT-LA; ALQ decreased 4.2 points; EuroQol-5D decreased 1.1 points. PFTs: improvement of 7.9% in FEV_1 (79.8 to 87.7%), mild decrease in FEV_1/FVC (71.2 to 70.7%). Exacerbations (total for the 13 patients): year prior to treatment, 40 (= 0.26 exacerbations/month); after 144 cumulative months, 6 exacerbations (= 0.04 exacerbations/month). Mean dose of systemic corticosteroid pre/post: 13.5/9 mg.
Conclusions: In both groups there was an extraordinary reduction in the number of exacerbations, although more in the mepolizumab group (0.315 vs 0.22), having this group a higher number of exacerbations in the pre-treatment period. The reduction in corticosteroids dose was similar. Regarding the PFTs, the improvement in FEV_1 and FEV_1/FVC was more significant in the mepolizumab group, and it's important to note that its baseline values were lower, mainly the FEV_1/FVC. Another fact that stands out is that a more significant reduction in eosinophilia in the mepolizumab group was in line with a greater functional improvement. Being the value of ≥ 400 eos/µL associated with greater risk and the eosinophilia associated with obstruction, further studies should evaluate this relationship. Finally, even though comorbidities didn't differ between groups, being the ENT the most common, improvement in nasal symptoms was more noticed in the mepolizumab group. On the other hand, in the omalizumab group, bronchial symptoms showed a greater improvement. The impact of ENT comorbidities control on severe asthma outcomes should also be further assessed.

Key words: *Asthma. Biologics. Exacerbations.*

PC 025. MOUTHPIECE VENTILATION IN STABLE COPD (CASE DESCRIPTION)

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Introduction: Non-invasive ventilation (NIV) treatment reduces dyspnea, reduces respiratory work and improves gas exchange in patients with acute and chronic respiratory failure, such as patients with Chronic Obstructive Pulmonary Disease (COPD). Intermittent mouthpiece ventilation is a method of ventilatory support in neuromuscular patients that is widely studied and used. Studies have already been carried out to evaluate the effectiveness of the NIV mouthpiece in patients with exacerbated COPD, but it hasn't been done yet in patients with stable COPD, regarding life quality.
Case report: In order to evaluate the efficacy of intermittent mouthpiece ventilation, at improving life quality in patients with stable COPD with high dependence, two patients were consulted for chronic respiratory insufficiency at the Centro Hospitalar Entre o Douro and o Vouga (CHEDV), performing NIV more than 20 hours a day, with a proactive attitude and good social and family support. Case 1: 71-year-old man, former smoker of, former cooper, with a history of COPD, cor pulmonale and dilated cardiomyopathy. Case 2: A 64-year-old man, former smoker, former salesman, with a history of COPD, thoracoabdominal trauma with extensive thoracic sequelae and pulmonary thromboembolism. These are two cases of GOLD IV COPD with very severe obstructive ventilatory alterations and pulmonary hyperinflation. Gasometries performed at follow-up visits always revealed, in both cases, a type II respiratory failure with CO2 improvement after NIV treatment in both ventilatory modes. For chronic respiratory insufficiency (CRI) treatment both make long-acting oxygen and two NIV modes with Hybrid Ventilator (spontaneous/timed pressure mode at night with oronasal mask and volume mode with mouthpiece during the day). After analyzing the data from the two Saint George Respiratory Questionnaire (SGRQ), it was concluded that patients improved their autonomy, freedom of movement and social interaction. In terms of life quality, SGRQ showed no alterations in symptomatology, but a 14% improvement in activity and a 50% improvement in impact. There was also a relief of pressure points on the face, thus improving comfort and favoring facial aesthetics.
Conclusions: From the analysis of these cases it is concluded that the use of mouthpiece ventilation, as an adjuvant in ventilation, in

patients with stable COPD, can improve their life quality. However, a more in-depth study with a more comprehensive sample is necessary to verify the viability of this ventilatory option, always as an option and never as a single ventilation mode.

Key words: *COPD. NIV. Mouthpiece. SGRQ questionnaire.*

PC 026. THE CONTRIBUTION OF COMMUNITY PHARMACIES FOR THE EARLY DIAGNOSIS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE - CAMPAIGN "DO YOU KNOW THE SIZE OF YOUR LUNGS?"

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Introduction: In Portugal access to spirometries in primary healthcare is still done mainly through the referral of patients to the hospital pneumology services, which implies high waiting times to perform these tests. Although the number of patients with a COPD diagnosis in the primary healthcare setting increased steadily, the number of patients with a COPD diagnosis based on a spirometry is still low, corresponding to 32.3% of the total diagnoses in 2016. Therefore, there is a need to increase accessibility to spirometries, which is one of the goals presented in the National Respiratory Diseases Program of 2017.
Objectives: To describe the implementation of a COPD awareness campaign by a group of pharmacies, in partnership with the Portuguese Lung Foundation (Fundação Portuguesa do Pulmão, FPP), and its contribution to the identification of people at risk of developing the disease.
Methods: During the celebrations of the World COPD Day in 2017, the campaign "Do you Know the Size of Your Lungs?" was launched, which included interventions to raise awareness of chronic respiratory diseases, in particular for COPD and its risk factors, and the promotion of spirometry tests in pharmacies performed by cardiopneumology technicians, with further validation of the spirometric examinations by pneumologists identified by the FPP. To detect people with criteria to perform a spirometry, the questionnaire "COPD: What is its degree of risk?" (adapted from The Global Initiative for Chronic Lung Disease) was applied. The reports of the spirometric examinations, validated by the pneumologists, were delivered to the participants by the pharmacists, who intervened according to the results. Data were collected through GoogleForms® after obtaining informed consent, and treated using Excel® software.
Results: During the campaign (November 2017 to January 2018), 2,020 spirometry tests were performed in 130 pharmacies. Data were collected from 1,527 patients, 56.3% (n = 860) of which were women, with a mean age of 58.1 ± 15.4 years. More than half (54.8%; 837) of the participants tested were smokers or ex-smokers. In 29.3% of the patients for whom it was possible to obtain a valid exam (n = 1251), changes in the ventilatory pattern were detected: 21.3% (n = 267) obstructive ventilatory pattern; 5.8% (n = 73) restrictive ventilatory pattern and 2.2% (n = 27) mixed ventilatory pattern. According to the evaluation, 665 participants were referred to other services, 140 of which to the Smoking Cessation service, 10 to Pharmaceutical Consultation and 394 participants were referred to the physician.
Conclusions: Community pharmacists play a key role in raising public awareness to the risk factors of the disease and the importance of its early diagnosis. The validation of the spirometry tests by the pneumologists allowed the pharmacy teams to carry out a more effective follow-up to each patient, either in the referral to the physician, or in the follow-up of a possible initiation of therapy and control of the disease.

Key words: *COPD. Spirometry. Screening.*

PC 027. INHALER TECHNIQUE IN ELDERLY ASTHMA OR COPD PATIENTS – A PREDICTIVE TOOL FOR CLINICAL RISK

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Introduction: Elderly individuals with asthma or COPD more frequently have poor clinical control and exacerbations than younger patients. Several factors may be involved, namely incorrect inhaler technique or other associated comorbidities, but most studies are inconsistent and contradictory. Our objective was to develop a tool for the principal predictors of clinical risk in these patients.
Methods: Multicentre cross-sectional study with patients using any inhaler type on a regular basis. Demographic, socioeconomic and clinical characteristics were collected as potential predictors, and the outcomes were quality of life, presence of symptoms, lung function (as% of predicted FEV1 values) and exacerbations in the previous year. Linear and logistic regression models were set up to identify significant variables.
Results: We included 130 participants, mean age of 74.4 (± 6.4) years. The prevalence of inhaler technique errors was 71.6%. 82.3% had respiratory comorbidities and 56.2% had moderate to severe disease. Multivariate analysis showed that the most predictive variables of clinical control were previous doctor-provided teaching of inhaler performance, smoking load, anti-influenza vaccination and depression status. Respiratory comorbidities and educational level were also predictive of clinical control, as well as of exacerbations. Lung function was associated with smoking load, inhaler adherence rate, as well as with wrong inhaler dose activation and absent end pause.
Conclusions: Different factors seem to be associated with clinical control and risk of exacerbations in Asthma and COPD, and some of them, such as good adherence and inhaler performance, smoking cessation and respiratory comorbidities should be addressed with caution in these patients.

Key words: *Asthma. Chronic obstructive pulmonary disease. Inhalers. Aged.*

PC 028. SPIROMETRY PRESCRIPTION; QUALITY ASSESSMENT

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is characterized by progressive and persistent airflow limitation resulting from chronic inflammation of the airways and lungs in response to inhaled harmful particles. This pathology has a high underdiagnosis rate (86.8%), with spirometry being suggested in individuals over the age of 40 and with a smoking load greater than 10 pack-years.
Objectives: Evaluation and quantification of quality improvement, after application of interventional measures for the diagnosis of COPD in smokers enrolled in the smoking cessation medical appointment of Santo da Serra Health Center from 07/31/2016 to 12/31/2017 inclusive.
Methods: Quality assurance and improvement study, retrospective. Smokers over the age of 40 and smoking load greater than 10 pack-years were included. The records of the request for spirometry and diagnosis of COPD, obtained through the clinical process, were evaluated. First evaluation in November 2016. Measures implemented: request of spirometry to all patients at risk and promotion of smoking cessation. Second evaluation in December 2017. Statistical analysis performed through Excel.

Results: Between 01/01/2014 and 07/31/2016, 139 smokers were observed for the first time, of which 60% (n = 83) were over the age of 40 and had a smoking load greater than 10 pack-years. Of these, 47% (n = 39) were asked for spirometry and 11 smokers were diagnosed with COPD. Between 07/31/2016 and 12/31/2017, 118 smokers were observed for the first time, of which 66% (n = 78) were over the age of 40 and had a smoking load greater than 10 pack-years. Of these, 96% (n = 75) were asked for spirometry and 8 smokers were diagnosed with COPD.
Conclusions: The intervention performed resulted in a significant increase in the percentage of spirometry required, and consequent early diagnosis of COPD. We consider that the result achieved was positive, with a 49% increase in the request for spirometry. We intend to maintain and reinforce the corrective measures applied, allowing the orientation and appropriate treatment of these patients.

***Key words**: COPD. Spirometry.*

PC 029. ADHERENCE TO COPD TREATMENT – "THE ELEPHANT IN THE LIVING ROOM"

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Treatment of chronic obstructive pulmonary disease (COPD) promotes symptoms improvement and reduction of exacerbations and hospitalizations. However, poor medication adherence has been described in patients that have multiple treatment regimens and polypharmacy. The aim of the present work was to determine adherence to treatment regimens in COPD patients through the number of refilling prescriptions provided by the records of the electronic application, known as PEM (electronic prescription of drugs), which provides evidence of drug refill. It was considered that a patient would be adherent if he had refilled more than 80% of his prescriptions. It was also evaluated if the number of inhalations per day could influence adherence and if patients with poor adherence had more exacerbations. We have selected patients from our general consult of pulmonology with COPD diagnostic (according to the criteria GOLD), between June 2016 and June 2017, and the degree of therapeutic adherence was determined in a follow up of 12 months. A total of 42 patients diagnosed with COPD were included, 81% (N = 34) were men, mean age was 71 years old (minimum 45, maximum 91), 57% (N = 24) of the patients were older than 70 years. 52% of patients were in the GOLD D stage. Only 50% (N = 21) of patients were adherent to treatment and 38% (N = 8) of them had at least one exacerbation. It should also be noted that among patients classified as GOLD D and those with FEV1 < 50%, approximately 60% (N = 13) and 78% (N = 14), respectively, were adherent to treatment. So we conclude that PEM is a good instrument for the evaluation of treatment adherence in COPD patients. 50% of these patients did not comply with the prescribed treatments and adherence increased with diseases' severity.

***Key words**: Adherence. COPD. Inhalotherapy.*

PC 030. IMPACT OF HOME NIV FOR COPD CHRONIC RESPIRATORY FAILURE

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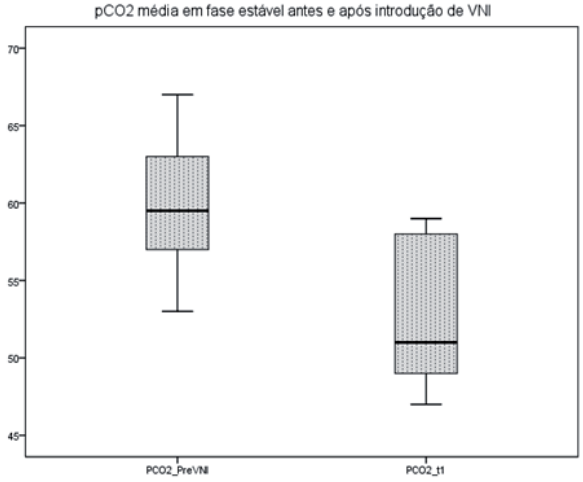
Introduction: Home NIV for stable COPD is of proven benefit. However, some issues remain controversial, as for determining the best mode or timing for implementation, as well as exact patient selection criteria. It is therefore important to reflect and analyse current practice, in order to outline future strategies.
Objectives: To characterize a sample of stable COPD patients, followed as outpatients in a specialized ventilation therapy consultation of a central hospital.
Methods: Retrospective observational descriptive study, based on analyses of clinical records of patients under home NIV with COPD as the main diagnosis and ≥1 year follow-up. The following were excluded: concomitant diagnosis of Obstructive Sleep Apnea Syndrome (OSAS), other pathologies inducing hypoventilation and application of EPAP > 8 cmH_2O. We considered the evaluations performed between 3 and 6 months after treatment onset. Demographic, clinical and laboratorial data were collected and statistical analysis was performed, continuous variables were expressed as mean and standard deviation and categorical variables were expressed in frequency and percentage. For the comparative analysis of continuous variables, we used paired samples T-test and considered significance for $p < 0.05$.
Results: 10 patients were included, mostly males (n = 8; 80%), with mean age at treatment onset of 72 ± 12.9 years, mean FEV1 of 30.4% ± 3.5% and mean AHI of 1.37 ± 0.85 events/h, with only 1 non-smoker. The majority (n = 8, 80%) presented imaging findings suggestive of Pulmonary Hypertension. We observed 2 deaths, both due to respiratory failure. The majority of patients started ventilation at a stable state (60%, n = 6). Survival after NIV onset was 97 ± 58.3 months. All patients had hypercapnic respiratory failure, previously under long-term oxygen therapy, with evidence of chronicity (χ [HCO3] = 39 ± 5.07 mmol/L, $p < 0.05$). 2 patients started NIV mode iVAPS. The remaining were under ST bilevel (n = 8); of these, n = 5 patients started treatment with PS > 10 cmH_2O and n = 4 with IPAP > 18cmH2O. EPAP values varied between 4 and 6 cmH_2O and IPAP between 14 and 22 cmH2O. Good adherence was reported in most cases (n = 8, 80%). The data obtained between 3 and 6 months after treatment onset, showed NIV was effective in reducing PaCO2 ($p = 0.001$), with a mean reduction of 7.3 ± 4.55 mmHg, and [HCO3] ($p < 0.001$), with an mean reduction of 5.75 ± 3.32 mmol/L, with no changes observed in supplemental O2 flow rate ($p = 0.6$). There was no significant impact on the frequency of 1-year-hospital-admissions for respiratory disease ($p = 0.1$).



Conclusions: The application of "high intensity" NIV is limited by patients' tolerance and adherence to therapy. Thus, the results obtained after the first year of follow-up may have been conditioned by the application of sub-optimal ventilation parameters. The main limitations of this work are the small sample size and retrospective study design.

***Key words**: NIV. High intensity NIV. Stable COPD. Type 2 respiratory failure.*

PC 031. THE DIAGNOSTIC ROLE OF FORCEPS TRANSBRONCHIAL LUNG BIOPSY IN INTERSTITIAL LUNG DISEASES

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Introduction: First introduced in 1965, forceps transbronchial lung biopsy (fTLB) has been utilized in most centres and is usually associated with a variable diagnostic yield, dependent on the imaging pattern on High Resolution Chest CT (HRCT). The publication in 2017 by the Fleischner Society of new guidelines regarding the imaging classification of interstitial lung diseases (ILD), namely Usual Interstitial Pneumonia (UIP), combined with the progressive development of transbronchial lung criobiopsy, which is technically more promising but currently less available, should prompt a reflection pertaining to which should be the correct positioning of fTLB in the study of selected ILD subgroups.
Objectives: To evaluate the diagnostic yield of fTLB in a case series of patients with suspected ILD, stratified into subgroups based on the the Fleischner Society 2017 imaging criteria.
Methods: We conducted a retrospective study based on clinical file consultation of patients with suspected ILD who underwent fTLB at our department between June 2015 and May 2018. We collected data regarding demographics, initial diagnostic suspicion, imaging pattern on HRCT (revised and reclassified according to the mentioned guidelines), procedure details (technical and diagnostic yield, adverse events) and final diagnostic stratification after multidisciplinary evaluation. Descriptive statistical analysis was performed using IBM® SPSS® Statistics v24 software and results are presented in frequency and percentage, when indicated.
Results: During the considered time, 29 patients with suspected ILD underwent fTLB. Of total, 4/29 were classified as presenting a "Probable UIP" imaging pattern, 5/29 "Indeterminate for UIP" and 20/29 "Most consistent with non-IPF (idiopathic pulmonary fibrosis) diagnosis". There was representation of lung parenchyma in 24/29 cases (82.8%), however only 12/29 provided diagnosis (final diagnostic yield of 41.4%). When stratified into subgroups, we found that most diagnosis were obtained in the "Most consistent with non-IPF diagnosis" group (10/20), with most cases corresponding to granulomatous diseases: silicosis (4/10), sarcoidosis (2/10). On the other hand, diagnostic yield was minimal in the "Probable UIP" group (1/4), with one case of rheumatoid arthritis-associated lung disease, and in the "Indeterminate for UIP" group (1/5), with one case of chronic hypersensitivity pneumonitis. The most frequent immediate complication was haemorrhage (4/29), nevertheless with the need for Fogarty catheter adaptation in just one case. Only one case of post-procedure pneumothorax was observed (classified as moderate and requiring chest-tube drainage). One patient died about 10 days after the procedure attributably to acute exacerbation of underlying fibrotic lung disease.
Conclusions: Regardless of the low number of cases under analysis, our results are in agreement with those of wider series, portraying fTLB as a non-complication-free procedure, with a low global diagnostic yield. Nevertheless, careful selection of patients according to the imaging pattern on HRCT (favouring those with a "Most consistent with non-IPF diagnosis" pattern) may prove to be useful when it comes to increase diagnostic yield.

Key words: *Transbronchial lung biopsy. Interstitial lung disease.*

PC 032. HEMOPTYSIS - THE EXPERIENCE OF A DISTRICT HOSPITAL

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Introduction: Hemoptysis is defined as blood expectoration that originates from the lower respiratory tract. Its severity may differ from slightly blood-streaked sputum to massive hemorrhage, which has a mortality rate between 23-75%. The diagnostic tests are an essential part of the diagnostic evaluation. The prevailing etiologies in the developed countries are bronchiectasis, lung cancer, and bronchitis while in the non-developed countries pulmonary tuberculosis takes equal importance. In 7-34% of the cases, the cause is unknown. Treatment and prognosis may vary according to case severity.
Objectives: Evaluate patients admitted for hemoptysis regarding its etiology, diagnostic tests, treatment and one-year outcome.
Methods: A retrospective analysis of patients with who performed a bronchofibroscopy because of hemoptysis between January 2012 and June 2017 was conducted.
Results: From the 2,942 bronchofibroscopy analysed, 180 patients were selected and included in this study, 103 (57.2%) of those required hospitalization. The mean age was 61.2 years (± 16.0) and 68.9% were male. Regarding diagnostic tests, 83.3% performed chest X-ray and 93.2% chest computerized tomography prior to bronchofibroscopy. The latter successfully located the hemorrhage source in 31.7% of the cases and established the definitive diagnosis in 21.7% through the analysis of biopsies or bronchoalveolar lavage that were performed. Infection was the most frequent etiology (31.1%), followed by bronchiectasis/sequela disease (28.3%), and lung cancer (18.9%). Among the infectious causes, bronchitis/lower respiratory tract infection represents 57.1%, pneumonia 26.8%, pulmonary tuberculosis 8.9%, aspergilloma 5.4%, and mycetoma 1.8%. The etiology remained unclear in 10.0% of the cases. In most patients (81.7%), the hemorrhage was auto-limited or controlled with medical treatment. Bronchoscopic intervention (cold saline, adrenaline, argon plasma coagulation, direct hemostasis achieved with rigid bronchoscope) was performed in 25 patients (13.9%), urgent surgery in 3 and urgent arterial embolization in 2. During these 5 years, elective arterial embolization was performed in 5 patients. There were 4 deaths (2.2%) by hemoptysis, representing 50% of massive hemoptysis. As for the etiology, one case of congenital coagulopathy (fibrinogen deficiency), another of cancer and two of bronchiectasis were observed.
Conclusions: The main etiologies correspond to what was found in the literature regarding developed countries. However, the impact of tuberculosis is still present in Portugal since almost all bronchiectasis cases in this study are associated with old tuberculosis sequelae. The analysis of the hemoptysis severity were limited in this study due to the lack of reliable data of this kind available on clinical processes. Regarding the diagnostic tests, there is to say that only in emergency cases chest computerized tomography was not performed before bronchofibroscopy. The main identified etiologies associated with worse prognostic diverge between different series. Bronchiectasis were the main cause of death, suggesting the need for greater awareness and early intervention in regards to these patients. After this retrospective analysis, the need for a better uniformization of the hemoptysis evaluation and approach is clear. To that end, the definition of protocols should be considered.

Key words: *Hemoptysis. Bronchofibroscopy.*

PC 033. BRONCHOLITH: A BRONCHOSCOPIC FINDING

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Introduction: The designation broncholith it's defined by endogenous calcified material at the tracheobronchial tree. It's the result

of the erosion and exteriorization of calcified lymph nodes, towards the respiratory lumen. The lymph nodes calcification can be secondary to chronic granulomatous infections (as tuberculosis, histoplasmosis or fungal infections) or other pathologies as Silicosis. The clinic expression will vary depending on the location of the broncholith and the extent of bronchial erosion, some patients are asymptomatic. The broncholith associated complications mentioned in the literature involve obstructive pneumonia, lung atelectasis, hemoptysis, bronchiectasis, mediastinic abcess, broncholithiasis and trachea-esophagic or broncho-esophagic fistula.

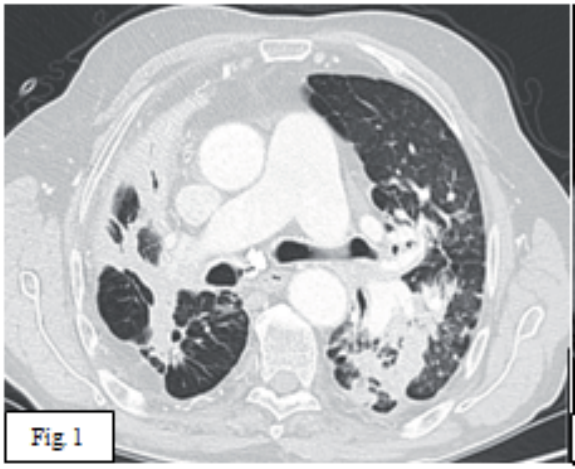
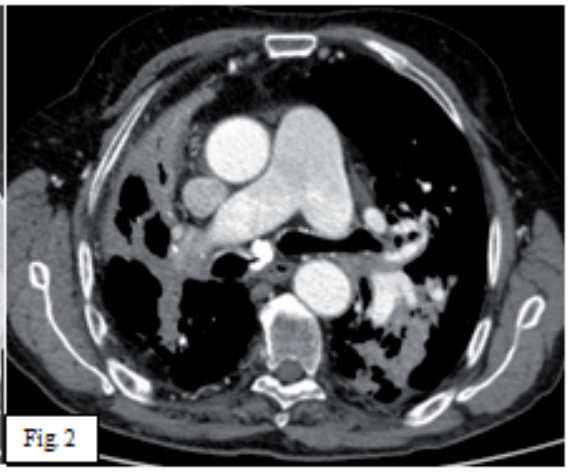


Fig 1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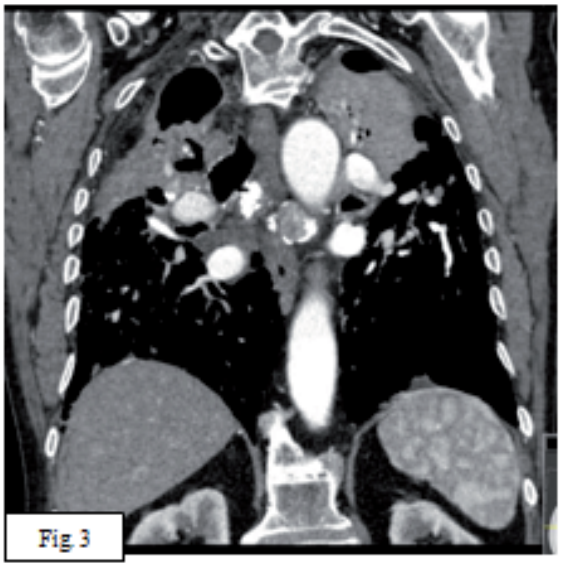
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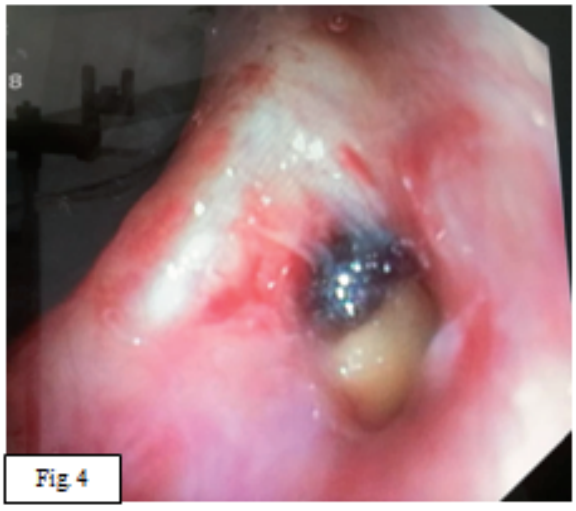
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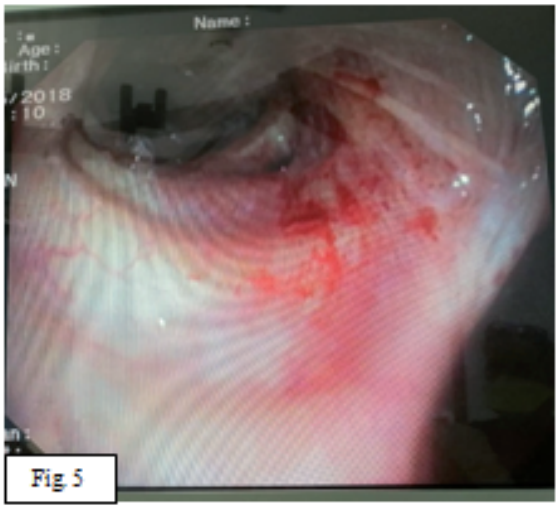

Fig 5

Figures 1, 2 and 3. Tomography appearances of the broncolith.
Figures 3 and 4. Bronchoscopy appearances of the broncolith.

Case report: Male, 76 years, with pseudotumoral silicosis and previous infection of tuberculosis (treated in 2012). He was admitted to a hospital because of a episode of hemoptysis. In a clinical stability moment, a videobronchofibroscopy was performed that showed an ostium in the right principal bronchus medial wall opening to calcified material. Conjugating this finding with the thorax tomography, the final diagnose of Broncholith was achieved. In the hospital admission the patient was also submitted to an arterio-arterial fistula embolization. The hemoptysis were resolved.
Discussion: To achieve the best therapeutic approach, it's important to verify the relation of the broncholith with the bronchial wall. In case that the broncholith it's free in the bronchial tree the best option it's to remove it through bronchofibroscopy or rigid bronchoscopy to minimize and/or treat complications associated. In the case that the broncholith is adherent to the bronchial wall, the therapeutic interventions are more susceptible to create a situation of hemorrhage and fulminant hemoptysis so the procedures should be wisely considered. In the literature the application of cryotherapy through bronchoscopy, or surgical interventional are described. In this particular case, the broncholith was firmly adherent to the mucosa and it was decided not to intervene. The case was signalized and it's being accompanied.

Key words: *Broncholith. Bronchofibroncopy. Hemoptysis.*

PC 034. PLEURAL EFFUSION APPROACH IN BREAST CARCINOMAS, PLEURODESIS WITH CYTOSTATIC

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Introduction: In patients over 50 years of age about 40% of pleural effusions are caused by malignant disease. Breast carcinoma is the second most common cause of malignant pleural effusion. Approximately 7 to 11% of breast cancer patients develop pleural effusion during the course of the disease. The most commonly used treatment is chemical pleurodesis with a sclerosing agent. Talc is the most common sclerosing agent since it is effective in preventing relapses (70 to 100%), despite the side effects. In our institution, the quality of the sterilization process of the talc cannot be guaranteed, so we feel the need to use another agent. An alternative sclerosing agent is mitoxantrone a widely studied cytostatic chemotherapy agent, used in metastatic breast carcinomas.
Objectives: This retrospective study aims to describe the use of mitoxantrone as a sclerosing agent in chemical pleurodesis in patients with breast carcinoma.
Methods: Patients with pleural effusions secondary to breast cancer who underwent chemical pleurodesis with mitoxantrone between 2007 and 2016 were included. A chest tube was inserted and when drainage was below 200 ml/24 h, mitoxantrone was instilled, the dosage was calculated by body surface of the patient. The chest tube was dislodged after 6h. Follow-up was performed with chest X-rays at 24 hours and every 3 weeks. The success of pleurodesis was defined by the relapse or not of the effusion, and the complications were recorded.
Results: A total of 9 patients with pleural effusion secondary to breast carcinoma were enrolled. The success rate was 78%. There was only one complication, one patient who had subcutaneous emphysema. In the 2 relapsed patients, a second pleurodesis was attempted in only 1, and there was success on the second attempt. None of the patients were alive at the time of the study.
Conclusions: Pleurodesis is the result of the junction of 2 Greek words *pleura* and *desis* (meaning union) and the goal is to attach the visceral pleura to the parietal pleura so that there is no accumulation of liquid or air between the two. As malignant pleural effusion indicates a pre-terminal condition, the goal is to make symptomatic treatment in order to improve the quality of life of the patient. Mitoxantrone is a synthetic anthracenedione that has been shown to have activity in metastatic breast carcinoma, but its intrapleural mechanism of action has not yet been established. The results demonstrate that, like in previous studies, mitoxantrone is a safe agent, without major side effects or complications, and is effective in the treatment of pleural effusion secondary to breast carcinoma. However, despite this success rate, it does not demonstrated to be superior to pleurodesis using talc in the treatment of neoplastic pleural effusion. The safety profile of mitoxantrone, with almost no complications, is emphasized, and the fact that it can be used when the talc is not available.

Key words: *Pleural effusion. Brest cancer. Mitoxantrone. Pleurodesis.*

PC 035. TUBERCULOUS PLEURAL EFFUSIONS APPROACHED BY MEDICAL THORACOSCOPY

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Introduction: Tuberculosis persists as a main cause of pleural effusion worldwide, especially in developing countries. The diagnostic acuity of medical thoracoscopy (MT) is reportedly high, close to 90%. Adenosine deaminase (ADA) is regarded as an easily accessible, high sensitivity tool for tuberculous pleural effusion (TPE).
Methods: Analysis of all cases of TPE managed by semi-flexible MT in a district hospital Pulmonology department in the last 4 years. The following data set was analyzed: patient demographics; pleural fluid lymphocytosis, free or septated effusion configuration; thoracoscopic findings; pleural fluid ADA values; mycobacteriological results of pleural biopsies and fluid; histopathological analysis of pleural biopsies and intervention performed.
Results: From all patients managed by medical thoracoscopy in the last 4 years (n = 140), a total of 16 patients were found with tuberculous pleural effusion (11.4%), with a mean age of 56.8 years and consisting of 62.5% males. Female patients have a lower mean age (54.4 years *versus* 57.9 years). Most of the pleural effusions were septated (62.5%). Mean fluid lymphocytosis was 75%. Mean ADA level was 32.8U/L (SD ± 14.4) and its sensitivity was only 18.8%, the specificity was 95.9%, PPV 37.5% and NPV of 90.0%. The following thoracoscopic patterns were found: diffuse micronodulation (31.2%), pleural septations (12.5%) and simultaneous micronodulation and pleural septations (31.3%). Adhesiolysis was performed in 12.5% of patients. Ziehl-Nielsen microscopy on pleural fluid was negative in all patients, PCR and culture were positive in 6.3% and 18.8%, respectively. Ziehl-Nielsen microscopy, PCR and culture on pleural tissue were positive in 12.5%, 37.5% and 50% of patients, respectively. Pathological evidence of granulomas was found in 43.8% of cases (diagnostic sensitivity of 43.8%). In 37.5% only a non-specific pleuritis pattern was found. The combined diagnostic sensitivity of all tests for TPE was 93.7%.
Conclusions: The high diagnostic acuity of semi-flexible MT for TPE relies in combining pathological analysis with mycobacteriological workup. The amount of tissue sent could be a relevant factor. The surprisingly low mean ADA level in our study merits reflection.

Key words: *Pleural effusion. Medical thoracoscopy. Tuberculosis.*

PC 036. STATISTICAL STUDY OF MEDICAL THORACOSCOPY OF A HOSPITAL GROUP I

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Medical thoracoscopy is a procedure frequently used in the diagnosis of pleuro-pulmonary pathology that allows the observation of the

pleural space, biopsies and therapeutics. This, with the adjuvant of chemical pleurodesis, has a recognized role in the treatment of secondary pneumothorax, recurrence of primary spontaneous pneumothorax and in effusions with unknown etiology and relapses. Despite the high diagnostic rates, the etiology of 7-10% of the effusions remains to be established. It is a safe procedure with minor and self-limited complication rates in competent hands. The purpose of this study is to present the case series of the medical thoracoscopy in the Pulmonology Department of the Leiria Hospital Center, including its indications and the results obtained. Medical thoracoscopy is performed in the service under general anesthesia with pulmonary exclusion. Between September 2016 and July 2018, 56 medical thoracoscopies were performed (50 patients, 2 thoracoscopies were excluded for insufficient data): 19 diagnostic (35.2%), 20 therapeutic (37%) and 15 (27.8%) with both purposes. The mean age of the patients was 53.3 years (σ = 21.7) and the median age was 56.5, with 36 patients (72%) males. All procedures were performed without immediate intercurrences. The pleural effusion was characterized by pleural effusions (51.9%), pneumothorax 37% (20), suspected tuberculosis (3.7%), pulmonary mass in study 2.7% (2), pulmonary neoplasia 1.9% and empyema 1.9% (1). Of the thoracoscopies performed with a diagnostic effect, 14.8% (8) presented malignant effusions due to pulmonary neoplasia, 14.8% (8) pulmonary metastasis effusion, 5.6% (3) empyema, 3.7% (2) pleural tuberculosis, 1.9%) due to chronic inflammatory process, 1.9% (1) pancreatitis effusion, 1.9% (1) congestive heart failure, 1.9% (1) of the patients dropped, 9.3% (5) were sent to another hospital and in 9.3% (5) the etiology was not conclusive. Chemical pleurodesis was performed in 53.5% (15) of the effusions, 8 cases were neoplastic, 3 were under study and 4 were followed in another hospital. Of the patients who could not be diagnosed, the most frequent macroscopic findings were pelouse-pulmonary adhesions and only one had a nodular formation with a non-conclusive cytological study. Of the patients presenting with pneumothorax, 70% were spontaneous primary (14), 30% (6) secondary and 40% (8) recurrent. In all, chemical pleurodesis was performed with Steritalc. To date, only one primary pneumothorax recurrence has been seen contralaterally. The casuistry described is in agreement with the literature. The efficacy of chemical pleurodesis was 100% regardless of the thoracoscopic stage of Vanderschueren.

***Key words**: Medical toracoscopy. Pleural effusion. Penumothorax.*

PC 037. PREVALENCE OF DEPRESSION IN A POPULATION WITH SELF-REPORTED EXCESSIVE SLEEPINESS

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Introduction: Hypersomnia, defined as excessive daytime sleepiness (EDS) and/or excessive sleep duration, is common among patients with psychiatric conditions. The multiple sleep latency test (MSLT) is considered the gold standard for diagnosing excessive sleepiness. Depression affects about 20% of the Portuguese population throughout life, and is acknowledged as a major cause of incapacity and the second cause of loss of healthy life years. Considering the impact of depression in the Portuguese population, and that hypersomnolence may be present in up to 57.1% of these patients, the possibility of this diagnosis should be considered in the evaluation of the population referenced for suspected hypersomnia. The authors propose a retrospective study to determine the prevalence of depression in a population performing MSLT.
Methods: The population included the patients with self-reported EDS who performed MSLT throughout the year 2017. Patients with a previous history of psychiatric disorders were excluded, and the Hamilton questionnaire (HAM-D, 17 items) was used to screen for depression in the subgroup that accepted to participate in the study. The overall prevalence of depression (defined as a HAM-D score > 7) and pathological sleepiness (defined as a mean sleep latency less than 8 minutes) was calculated. The subgroup of patients with EDS was compared to the rest of the population concerning the mean HAM-D score and the prevalence of depression (HAM-D score > 7) calculating the t-test and the chi- square respectively.
Results: In a total of 52 patients, 18 patients were excluded because they presented a previous history of psychiatric pathology. Thirty-four patients (21 males) with a mean age of 52.3 ± 9.9 years were included. The prevalence of depression and pathological somnolence according to MSLT criteria was, respectively, 38.2% and 61.8%. In EDS patients, the mean score obtained in the HAM-D test was significantly higher than the score obtained in the remaining patients (8.4 ± 2.3 vs 5 ± 3.1, p = 0.017). The prevalence of depression in patients with EDS was significantly higher when compared to the rest of the population. (52.4% vs 15.4%, OR = 3.1, p = 0.036).
Conclusions: Only 61.8% of the patients who self-report EDS, present it effectively by TLMS criteria. The prevalence of depression in a population studied by self-reported EDS was significantly higher when compared to the rest of the population. Considering this finding, it may be pertinent to screen for the presence of depression in patients with EDS.

***Key words**: Depression. Multiple sleep latency study. Excessive somnolence.*

PC 038. MONOCYTE/HDL RATIO IN OBSTRUCTIVE SLEEP APNEA: EFFECTS OF POSITIVE AIRWAY PRESSURE THERAPY

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Introduction: Obstructive sleep apnea syndrome (OSAS) is characterized by repetitive episodes of limitation of airflow, which result in intermittent nocturnal hypoxia. Several mechanisms are involved in the increased risk of developing cardiovascular disease. The monocyte/HDL ratio (MHR) has been shown to be a good marker of systemic inflammation, with patients with cardiovascular disease showing increased values. Several studies have demonstrated the protective effect of positive airway pressure regarding cardiovascular risk, however, there are no studies evaluating its effect on the reduction of MHR.
Objectives: To evaluate the effect of positive airway pressure (PAP) therapy on monocyte/HDL ratio after 6 months of PAP.
Methods: Prospective study that included 47 male patients with the diagnosis of OSAS. Patients with other sleep disorders, neuromuscular pathology, renal disease, thyroid pathology, heart failure, neoplasms, chronic inflammatory disease or prior PAP use were excluded. Basal MHR and after 6 months of PAP therapy (S9 Resmed®, Australia) were assessed. Statistical analysis was performed using SPSS version 24 (Chicago, IL, USA).
Results: 47 male patients were recruited, with a mean age of 47.2 ± 7.7 years and a BMI of 31 kg/m^2 (Interquartile range (AIQ) of 4.3). Twenty-two patients presented mild/moderate OSAS and 25 severe OSAS. Before the initiation of PAP, MHR was higher in the severe OSAS group when compared with the mild/moderate OSAS group (11.03 IQR 5.0 vs 9.88 IQR 3.8; p = 0.045). After 6 months of PAP there was a significant reduction of MHR from 10.29 (IQR 4.5) to 9.18 (IQR 3.3; p

= 0.021). In the subgroup analysis (severe and mild/moderate OSAS), there was a statistically significant reduction of MHR in the severe OSAS group (11.03 IQR 5.0 vs 10.24 IQR 3.36; p = 0.005).
Conclusions: The present study demonstrated that monocyte/HDL ratio changed significantly after 6 months of PAP therapy in OSAS patients, being the reduction greater in severe OSAS, supporting its cardiovascular protective effect. Our study has reinforced the importance of this marker as complementary tool of diagnosis and treatment response in OSAS patients.

Key words: *Obstructive sleep apnea. Monocyte/HDL ratio. Cardiovascular risk.*

PC 039. OBSTRUCTIVE SLEEP APNEA SEVERITY RISK FACTORS: A CASE-CONTROL STUDY

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Hospital Beatriz Ângelo.

Introduction: Gender, age and body mass index (BMI) are risk factors for moderate to severe obstructive sleep apnea (OSA). Data on smoking habits and on gender-specific impact of age and BMI are more limited.
Objectives: To analyze the influence of age, gender, BMI and smoking habits in OSA severity.
Methods: A retrospective analysis of patients who performed a cardiorespiratory polygraphy (CRP) in our hospital in 2015 and 2016 was conducted. Adults diagnosed with OSA (apnea-hypopnea index [AHI] > 5) were selected and characterized regarding demographics and smoking habits.
Results: 834 CRP were performed and 707 patients were included with a mean age of 58.4 ± 13.3 years. 63% were male. Mean BMI was 34.2 ± 7.1 kg/m^2. 53% were never smokers, 31% were formers smokers and 16% were current smokers. OSA was mild in 41%, severe in 34% and moderate in 25%. Men had an odds ratio of 2.6 for AHI > 15. A correlation between OSA severity and BMI was found in men and women and between OSA severity and age was established in women. BMI above 40 kg/m^2 had an odds ratio for AHI > 15 of 2.4 in men and 2.3 in women. In women, age above 70 years had an odds ratio of 2.5 for AHI > 15. No correlation between smoking habits and OSA severity was established.
Conclusions: Male gender is an independent risk factor for moderate to severe OSA. OSA severity risk factors are different in men and women. In our population, both genders showed a correlation between BMI and OSA severity but only women showed a correlation between age and OSA severity. Contrary to some published data, smoking habits were not related to OSA severity. Establishing risk factors for moderate to severe OSA may help delineating better strategies to treat these patients.

Key words: *Sleep apneia. Age. BMI. Gender. Smoking habits.*

PC 040. OSA THERAPY DECISION – IS IT DIFFERENT BETWEEN CLINICIANS?

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Obstructive sleep apnea (OSA) is a chronic disease with a raising prevalence, characterized by upper airways collapse during sleep, leading to intermittent obstructive apnea/hypopnea events. Considering its clinical impact and morbimortality indexes, a huge importance has been stated, even triggering the existence of sleep expert consultation. Nonetheless, most of these patients are observed by general pulmonologists, and therefore the medical conduct adopted may differ from those physicians specialized in sleep medicine. In this sense, the aim of the present study was to compare the treatment applied by sleep specialists, general pulmonologists and residents, in OSA patients followed in the Sleep Laboratory Unit of Hospital São João, Porto, Portugal. From 100 patients included (mean age 56.7 ± 12.0 years, 58.5% men), 46.2% had mild OSA criteria. Cardiovascular, cerebrovascular and depressive disorders were present, respectively, in 76.0%, 8.5% and 16.0% patients included. Regarding chronic medication, 76.4% were under antidiabetic, antihypertensive, anti-depressive and anti-hyperlipidemic agents. Mean AHI = 19.5 ± 16.2 events/h, mean desaturation index 18.0 ± 15.1, mean SpO_2 93.4 ± 2.2%, mean Epworth scale 9.3 ± 5.9, mean daytime pCO2 40.9 ± 14.0 mmHg, mean FEV1% 104.5 ± 19.2 and mean FVC% 109.6. ± 19.3. Concerning medical conduct, sleep specialists tended to be more conservative regarding therapeutic strategies, prescribing more weight loss, postural conditioning and general sleep hygiene measures than pulmonologists (Cohen kappa coefficient = 0.223; p = 0.000) and residents (Cohen kappa coefficient = 0.187; p = 0.000). In relation to respiratory support therapy, pulmonologists mostly prescribed APAP/CPAP treatment (43.1%) followed by residents (40.8%) and sleep specialists (24.5%). PSG repetition was mostly recommended by pulmonologists (15.4%), followed by residents (10.5%) and sleep specialists (6.6%). These findings pointed out that sleep specialists are more conservative when prescribing OSA therapy, saving costs but probably also undervaluing OSA severity. Further studies, including a higher sample size are needed to deepen our knowledge on this field, namely to improve the overall accuracy of this data.

Key words: *OSA. Therapy decision. Sleep hygiene. Respiratory support therapy.*

PC 041. OSA THERAPY DECISION BY PULMONOLOGY SPECIALISTS AND PULMONOLOGY RESIDENTS – ARE THEY PRESCRIBING ALIKE

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Obstructive Sleep Apnea (OSA) is a chronic disease with high impact on quality of life, as well as in cognitive capabilities and cardiovascular risk. Characterized by intermittent apnea/hypopneia events, it is triggered by upper airway collapse during sleep, being its severity mainly measured by Apnea-Hipopnea Index (AHI). Nonetheless, other factors may also be considered, such as daytime sleepiness, comorbidities, night desaturation index and daytime CO_2. In the last decades, given this pathology diagnosis' raise, it is common to identify OSA patients in any pulmonology appointment. Admitting the huge burden of this pathology and its management consequences, like ventilatory support or general sleep hygiene measures prescription, the focus of this study was to assess and compare the criteria used by both pulmonology residents and specialists to prescribe OSA therapy in patients followed in Sleep Laboratory of Hospital de São João, Porto, Portugal. From 139 patients enrolled (mean age 56.37 ± 12.37 years, 58.4% men), 21.0% had severe OSA, 28.0% moderate OSA, 44.1% mild OSA. Regarding comorbidities, 77.3% had cardiovascular disease (CVD), 17.0% psychiatric disorders and 8.5% cerebrovascular pathology. Mean AHI = 20.4 ± 17.0 events/h, mean desaturation

index 19.0 ± 16.0, mean SpO_2 93.4 ± 2.1%, mean Epworth scale 9.3 ± 5.9, mean daytime pCO_2 40.1 ± 11.8 mmHg, mean FEV1% 103.6 ± 19.0 and mean FVC% 108.7 ± 18.3. Accordance level between selected criteria by residents and specialists before making a clinical decision was statistically different (Cohen kappa coefficient = 0.148; p = 0.000). Residents mostly considered AHI (45.5%), followed by AHI plus CVD (14.6%) and AHI plus daytime sleepiness (12.2%). Specialists had the same evaluation order, although giving a different importance: AHI (30.3%), followed by AHI plus CVD (15.2%) and AHI plus other factors (15.2%), such as comorbidities, sleep quality and insomnia. Analysing therapeutic measures adopted, there was a significant disagreement between both groups (p = 0.000). Specialists prescribed more APAP/CPAP treatment than residents (51.5% vs 46.7%, respectively), asked more PSG repetition to clarify their decisions (16.2% vs 13.3%, respectively) and prescribed less general sleep hygiene measures (23.3% vs 36.6%, respectively).
These findings show that residents tend to be less onerous on health system resources, perhaps due to their recent internship in sleep laboratory, reinforcing the importance of sleep specialists presence in each pulmonology centre to approach OSA patients.

Key words: *OSA. Therapy decision. Criteria. Pulmonologists. Residents.*

PC 042. OBSTRUCTIVE SLEEP APNEA AND PERIODIC LIMB MOVEMENTS DURING SLEEP – AN ASSOCIATION TO REMEMBER

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Introduction and objectives: Obstructive sleep apnea syndrome (OSAS) affects 24% of men and 9% of women and periodic limb movements during sleep (PLMS, significant when PLMS > 15/h) incidence rates range between 5 and 20%. These two nosologic entities may coexist. PLMS generate arousals and autonomic activation which may increase cardiovascular risk. Our goals were the assessment of PLMS in a group of patients diagnosed with OSAS and compare demographic and polissonographic data between OSAS patients with and without PLMS.
Methods: Retrospective study of patients with clinical suspicion of OSAS that underwent polissonography (PSG) during a 2 year period (2015-2016). Data were analysed with SPSS® software, and patients were split into two different groups, OSAS without PLMS (PLMSI < 15/h) and OSAS with PLMS (PLMSI > 15/h).
Results: Out of 157 patients diagnosed with OSAS, concerning severity the disease was mild in 45.2% of patients (n = 71), moderate in 29.3% (n = 46) and severe in 25.5% (n = 40). Regarding patients with OSAS without PLMS (n = 142), 59.1% (n = 84) were men, average age was 56.1 years-old (± 12.1), average BMI was 31.2 kg/m^2 (± 6.1) and 26.1% (n = 37) had smoking habits history. Most frequently found comorbidities were arterial hypertension (53.5%; n = 76), dyslipidemia (35.9%;n = 51) and type II diabetes (16.9%;n = 24). Average score on Epworth sleepiness scale (ESE) at baseline was 8.7 (± 5.6). Average Respiratory Disturbance Index (RDI) was 24.2/h (± 20.0), average oxygen desaturation índex (ODI) was 19.3/h (± 19.4), average arousal index was 32.8/h (± 18.2), average sleep efficiency was 78.2% (± 13.9) and average PLMSI was 1.8/h (± 3.4). Positive airway pressure (PAP) was instituted in 92 patients (64.7%) and at 6 month evaluation average ESE was 4.1 (± 3.6) and average residual AHI 2.1/h (± 3.1). Concerning cases of OSAS with PLMS (n = 15), 53.3% were women (n = 8), average age was 65.3 years-old (± 10.4), average BMI was 29.8 kg/m^2 (± 4.2) and 33.3% had smoking habits history. Most frequently found comorbidities were arterial hypertension (46.7%; n = 7), dyslipidemia (46.7%; n = 7) and type II diabetes (33.3%, n = 5). Average ESE at baseline was 9.5 (± 5.2). Average RDI was 16.7/h (± 13.8), average ODI was 12.5/h (± 13.1), average arousal index was 35.4/h (± 15.3), average sleep efficiency was 60.3% (± 20.3) and average PLMSI was 39.3/h (± 41.6). One patient presented with restless legs syndrome, 2 were under medical therapy associated with PLMS and 1 had low ferritin serum levels. PAP was initiated in 10 patients (66.7%) and at 6 month evaluation average ESE was 2.4 (± 1.8) and average residual AHI 2.1/h (± 2.9). None of the patients started PLMS targeted pharmacological therapy. Despite sample size difference which can come as a limitation, we verified that OSAS patients with PLMS were older (p value = 0.004) and had lower sleep efficiency (p value = 0.001) than OSAS patients without PLMS.
Conclusions: Considering OSAS great morbidity, assessment of PLMS presence in these patients is of relevance due to its contribution for increased cardiovascular risk. Suspicion of OSAS and PLMS coexistence will determine the diagnostic and treatment approach.

Key words: *Sleep obstructive apnea. Periodic limb movements during sleep. Cardiovascular risk.*

PC 043. OSA CHARACTERISTICS IN ACROMEGALIC PATIENTS

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Introduction: Acromegaly is considered a rare pathology, with an estimated prevalence in Europe of 30 to 70 individuals per million. Acromegaly results from persistent hypersecretion of growth hormone (GH) which stimulates hepatic secretion of insulin-like growth factor-1 (IGF-1). The prevalence of Obstructive Sleep Apnea (OSA) can reach 69% of patients with acromegaly and active disease. In these patients, OSA is due to craniofacial deformations, overgrowth of soft tissues such pharynx, larynx or tongue (macroglossia), inducing thickening of the airway.
Methods: We conducted a retrospective observational descriptive study including all acromegalic patients with diagnosis of OSA, treated at Pedro Hispano Hospital.
Results: At our Hospital, 23 patients have diagnosis of Acromegaly. Of them, 16 had realized a polysomnography (the others did not accept to perform the sleep study). OSA prevalence in acromegalic population was 69% with a median age of 65 ± 17 years and a majority of females (82%). Mean BMI was 30 ± 3,7 kg/m^2 and neck circumference 40 ± 3,9 cm. 91% present a Mallampati score of IV. The median Epworth score was 2 ± 16 and the Stop-Bang Questionnaire 4 ± 3. The median score of Beck Depression Inventory was 15 ± 18. Arterial hypertension, diabetes and dyslipidemia were the most frequent comorbidities with 64%, 46% and 36% respectively. In terms of symptoms, 73% referred snoring and only 36% breathing interruptions. When the diagnostic of acromegaly was performed, 90% presented a macroadenoma and at the time of the sleep study, 82% had controlled acromegaly. The median Respiratory Disturbance Index (RDI) was 22 ± 44. In terms of severity of OSA, 18% was considered mild, 46% moderate and 36% severe. One patient had inclusion criteria of Obesity-Hypoventilation Syndrome and one of Positional sleep apnea. Seven patients were on Auto-CPAP and one on positional treatment.
Conclusions: OSA is a prevalent disorder in acromegalic patients. In our sample, the majority of patients were female with a nonspecific clinical presentation. Therefore, we think it is important to systematically exclude OSA in these patients by performing a polysomnography.

Key words: *OSA. Acromegaly.*

PC 044. QUALITY OF THE ASSISTANCE REPORTED BY THE PATIENTS ON HOME RESPIRATORY CARE IN A REGION OF LISBON

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Introduction: The services provided by home respiratory care companies (HRC) have a key role in the follow-up of patients on home ventilation therapy. This assistance determines treatment adherence and effectiveness, reason why it's necessary to be of a high quality. Since 2014 the Portuguese law 9483/2014 advocates the minimal requirements for the provision of this care, standardizing them and ensuring their efficiency and rationalization. The quality evaluation of this service at patient's perspective is also important.
Objectives: To evaluate the compliance of the good assistance by the HRC companies.
Methods: Pilot study which was carried out through a questionnaire made according to the HRC companies specifications currently in force (CP 2017/100). The included patients were at follow-up at a Non-Invasive Ventilation and Sleep Unit in a Pulmonology Department, being all of them exclusively on home ventilation therapy.
Results: The questionnaire was applied from the 16st till the 27st of July, to 100 patients on home ventilation therapy (Obstructive Sleep Apnea: 82%; Central Sleep Apnea: 12%), with an average age of 66,3 ± 12,7 years old. Most of the patients (75%) were on APAP, 11% on servo ventilator, 6% on BiPAP and 6% on CPAP. Around 25% of the patients didn't know about the 24-hour assistance service; 75% didn't know about the possibility of travel assistance in continental Portugal. More than half of the patients (57%) received a home visit 24h after equipment installation at the hospital. At the first home visit, instructions were given regarding interface placement (95%), working (92%), maintenance and cleaning of equipment (90%). More than 90% reported that the information provided at the first home visit was useful and had an impact on the use of the equipment. Only 48% of patients reported receiving a visit one month after initiation of therapy. Regarding assistance to technical problems, most patients replied that the problem was resolved within a maximum of 3 days (68%) and effectively (70%). Only 19% of patients reported having been given the equipment use report prior to follow-up visits. Concerning the renewal of prescriptions, 29% of patients reported that the company did not alert them to the need to regularize them. Globally, the majority (82%) of patients assumed to be "satisfied" or "very satisfied" with the services provided. All companies presented high and consistent levels of satisfaction among themselves, even when analysed separately. Unsatisfied patients were on therapy longer than the satisfied patients, although this difference was not statistically significant (63.3 ± 44 months VS 52.4 ± 52.8 months, p = 0.482).
Conclusions: This study showed that most of the patients were satisfied with the care provided. Some aspects that should be improved were identified, namely the lack of knowledge about the existence of permanent care and the absence of a home visit one month after starting treatment. The most relevant aspect, however, relates to the low percentage of patients receiving a monitoring report on the use of the equipment.

Key words: *Home respiratory care companies. Quality. Home ventilation therapy.*

PC 045. IMPACT OF AN NECK POSITION THERAPY DEVICE FOR THE TREATMENT OF OBSTRUCTIVE SLEEP APNEIA IN SELF-PERCEPTION OF SLEEP QUALITY

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Introduction: Positional therapy is an alternative to the continuous positive airway pressure on obstructive sleep apnea (OSA) treatment. As a result, devices have been developed that explore the effects of position on a patients sleep, and allow a proper treatment. The neck position therapy devices (NPTD), use a vibrating stimulus, and this feedback may have an effect on sleep quality. The perception of a "good night rest" is subjective for the individual and couldn't be correspondent to the real sleep time.
Objectives: Correlate the self-perception of sleep quality with the possible interference by the NPTD, through the use of data provided by the NPTD and the sleep diaries.
Methods: Longitudinal cohort study, prospective. We included 14 patients with OSA treated with a NPTD (NightShift™ Sleep Positioner) for 2 months. Self-perception of sleep time and quality was assessed by completing a sleep diary (based on the the AASM sleep diary). The quality of sleep was assessed objectively using the data available in the detailed reports of the NPTD, allowing: sleep time, sleep efficiency (SE), wake after sleep onset (WASO) and wakening index (WI). The results are presented using descriptive statistics, and for the evaluation of sleep quality throughout the experience, simple linear regression and Pearson correlation are used, obtained with the SPSS V 20.0.
Results: 5 female 9 male, average age 52.5 ± 11.2 years, average body mass (BMI) 28 ± 3 kg/m^2. There was no trend of variation in the values for SE, WASO and WI (r2 ~0). We found a weak correlation factor (p < 0.3) between the ES, WASO and WI values and the categorical answers concerning the subjective self-evaluation sleep quality.
Conclusions: There were no significant differences in sleep quality with the using of a NPTD. However, a period of 2 months may be insufficient to validate this conclusion and therefore a long-term monitoring and evaluation will be important.

Key words: *Obstructive sleep apnea. Sleep quality. Positional therapy.*

PC 046. THE IMPACT OF LUNG CANCER IN A PULMONOLOGY INPATIENT DEPARTMENT

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Introduction: Lung cancer continues to be one of the most frequent neoplasms, being the main cause of death from cancer in Portugal and it has an established association with tobacco use. Respiratory neoplasms represent a significant burden at the hospital setting and hospitalizations are associated with high mortality rates.
Objectives: The main objective of this review consisted of characterizing inpatients with a diagnosis of pulmonary cancer, analysing the reasons that led to hospitalization, its mortality rate and evaluating the weight of this pathology in hospital admissions.
Methods: Retrospective review of hospitalized patients with pulmonary neoplasm in a pulmonology department during the year 2017.
Results: During 2017, we observed that lung neoplasm was responsible for 28% (n = 175) of admissions in our service. A total number of 125 patients with pulmonary neoplasm were hospitalized, 39 of whom had more than one hospitalization during this period. We found the disease to be more prevalent in males (78%) and those with smoking habits (29% smokers, 57% former smokers), but there was no significant difference in mean age between sex groups. The

median length of hospital stay was 10 days and the mortality rate was 35% (n = 61). The most frequent histological type was adenocarcinoma (67%), followed by epidermoid carcinoma (17%) and small cell lung carcinoma (7%). In what concerns initial staging, 66% had distant metastases at the time of diagnosis (stage IV) and only 10% were diagnosed at early stage (I or II). The subgroup of patients diagnosed in hospital admission had an n = 34 (19%). All of these cases were detected in locally advanced or metastatic stage: 31 in stage IV and 3 in stage IIIB, and 10 patients died during hospitalization. In this subgroup, the most common presenting symptoms were dyspnoea and weight loss in 36%, followed by neurological symptoms resulting from cerebral metastasis in 29%, haemoptysis in 9% and pleural effusion in 6%. The main reasons for hospitalization were the deterioration of general status in patients in end-stage pulmonary neoplasm (21.7%), respiratory infections/pneumonia (14.9%), pulmonary mass under study (11.4%), uncontrolled pain (8%), malignant pleural effusion (5.1%) and pulmonary thromboembolism (4,6%). A significant part of hospitalizations (16%) were motivated by complications from neoplasm treatment (chemotherapy and/or radiotherapy), such as febrile and non-febrile neutropenia, pancytopenia, esophagitis and radiation pneumonitis. The overall mortality of these patients until the time of writing was 65%, with 80% being diagnosed in the last two years.
Conclusions: Most patients were diagnosed in advanced stages of the disease, which explains the poor prognosis of lung cancer and its high mortality. Smoking, the main risk factor, responsible for 80-90% of cases, was present in 86% of patients. Treatment complications, which are frequent and severe, often lead to prolonged hospitalizations and increased lung cancer-related mortality.

***Key words**: Lung cancer. Mortality. Staging.*

PC 047. INTERSTITIAL LUNG DISEASE INDUCED BY SYSTEMIC THERAPY FOR LUNG CANCER

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Introduction: The emergence of immunological therapies and molecularly targeted agents in the treatment of patients with lung cancer may trigger specific lung toxicity patterns. Interstitial lung disease is a potentially serious and underrecognized entity induced by these therapies.
Case reports: The authors present two cases of interstitial lung disease induced by lung cancer treatment. Case 1: a 45-year-old man, smoker (30 UMA), diagnosis of stage IV lung adenocarcinoma with pulmonary, cerebral and pulmonary metastasis. A 1st line therapy with cisplatin and pemetrexed with concomitant cerebral radiotherapy was initiated, completing 6 cycles with partial response and without revealing toxicity. Due to progression of the pulmonary disease, a complementary molecular study and expression was performed, which revealed EGFR, ALK and ROS1 negative, with PD-L1 expression > 50%, leading to the initiation of a 2nd line with immunotherapy with pembrolizumab (2 mg/kg of 3-3 weeks). After 3 cycles of treatment, the patient presented complaints of dyspnea and cough, without fever or other symptoms. At physical examination, presentation of peripheral saturation of 90%. ChestCT revealed thickening of the interlobular septa and bilateral ground-glass opacities with apico-caudal and peripheral distribution, sparing the lung immediately adjacent to the pleura, indicative of a pattern of non-specific interstitial pneumonia (NSIP). Treatment with pembrolizumab was suspended and systemic corticosteroid therapy was started, solving the radiological findings with progressive clinical improvement. Five months later, a chestCT was performed with opacity regression in depolished glass. For oncologic issues, pembrolizumab was reintroduced but a close surveillance was performed. After 9 cycles, the chestCT revealed disease stability. Case 2: a 75-year-old man, ex-smoker, diagnosis of stage IV lung adenocarcinoma, EGFR mutation (exon 21), lung and pleural metastasis and abdominal adenopathies. A 1st line treatment of gefitinib was performed with partial response and without relevant toxicity. After 16 months, progression of primary lung lesion was detected that a mutational study of re-biopsy revealed EGFR mutation with negative T790m. The therapy was changed to cisplatin and pemetrexed, without revealing toxicity and the disease was stable for 5 months. Subsequently, evidences revealed disease progression and osimertinib off-label (80 mg/day) treatment was initiated. After 35 days of treatment, he was admitted to the emergency department for dyspnea and hypoxemia (peripheral oxygen saturation of 64%). AngioCT chest demonstrated bilaterally extensive densification in ground-glass, thickening of the interlobular septa and also bilateral thromboembolism. The clinical condition of the patient did not allow bronchoalveolar lavage or biopsy. Based on imaging and clinical findings, interstitial lung disease induced by osimertinib was diagnosed. Therefore, a treatment with systemic corticosteroid pulses and discontinuation of osimertinib, associated with anticoagulation was initiated resulting in clear clinical and radiological improvement.
Discussion: The cases reported in this study demonstrated that the use of the novel therapies for lung cancer have consequences in interstitial lung disease. The increased use of these new therapies in current oncological practice has made the rare interstitial lung disease a progressively more frequent clinical condition with a significant impact on the patient's clinical status.

***Key words**: Interstitial lung disease. Lung cancer. Pembrolizumab. Osimertinib.*

PC 048. HOSPITALIZATION DUE TO THROMBOEMBOLISM IN CANCER PATIENTS - A RETROSPECTIVE STUDY

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Introduction: Pulmonary thromboembolism (PTE) is an important cause of morbidity and mortality. The association between oncologic disease and thromboembolic disease is known, in particularly for the lung cancer, in which its incidence iis increasing.
Objectives: To describe the prevalence and prognosis of PTE associated with oncologic diseases, in particular with lung cancer.
Methods: Retrospective study of all episodes of PTE with hospitalization in the Pulmonology Department over a period of 10 years (January 2007 to January 2017), with the selection of cancer patients and study of their clinical features.
Results: A total of 173 patients diagnosed with PTE in the mentioned period were evaluated and 54.3% were female with a median age of 72 years. Of the total number of patients with PTE, 30.1% were cancer patients and they were significantly younger than non-cancer patients ($p < 0.05$) but there was no statistical difference between groups for sex. The most prevalent cancers were pulmonary (67.3%), colorectal (11.5%) and breast (5.8%), and the majority of patients exhibited metastases (50%) or had performed chemotherapy (71, 2%). The total mortality rate resulting from PTE was of 10.4%, with a statistically significant lower mean survival in the oncologic disease group ($p < 0.005$). In the pulmonary oncology patients group, mean age was 62.9 years and 62.9% of the patients were male. In this group, PET was more prevalent in adenocarcinoma (65.7%), small cell (11.4%), followed by epidermoid (5.7%) and adenosquamous (5.7%) cancer. The majority of patients was in stage III-IV (94%) at the time of the event and had performed chemotherapy (85.7%). In most cases, PTE occurred in the first year of diagnosis of lung cancer (68.6%) and in only one case before it.

The imaging modality used in the diagnosis of PE was computerized angiotomography. There was an increase in the number of hospitalizations due to PE during the study period mentioned above, and in the last 3 years the increase was 50% compared to the same previous period. Regarding the treatment performed, all patients received low molecular weight heparin and subsequent anticoagulant therapy and in two cases fibrinolysis was performed. In-hospital mortality rate in this group was 28.6%.
Discussion: This study demonstrates that PTE is common in cancer patients, especially in advanced stages of the disease. The higher prevalence observed in pulmonary adenocarcinoma is in agreement with the literature since this histological type is associated with a higher thrombotic risk. The increase in the number of hospitalizations due to PE during the study period probably arises from the increase in the incidence of adenocarcinoma in relation to the epidermoid. Increasing age and cancer prevalence associated with thrombogenicity of chemotherapy agents reinforces the need to assess the risk of venous thromboembolic disease in these patients and to assess the performance of antithrombotic prophylaxis.

***Key words**: Pulmonary thromboembolism. Lung cancer. Prognosis.*

PC 049. IMMUNOTHERAPY IN ADVANCED NON-SMALL CELL LUNG CANCER: FIFTY PATIENT ANALYSIS

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Introduction: Immunotherapy is a treatment that uses the patient's immune system to fight the disease. It includes different strategies to stimulate the immune system to obtain a specific antitumor response, with consequent clinical benefit.
Objectives: To characterize the population of patients treated with immunotherapy for lung cancer and evaluate its effectiveness.
Methods: Retrospective analysis of patients with advanced non-small cell lung cancer (NSCLC), subjected to immunotherapy as first or second line treatment, which were followed at the oncological pneumology appointment of the University Hospital Center of Coimbra. Clinical and demographic data and effectiveness of therapy were analyzed.
Results: Included 50 individuals, of which 72% were male, with a median age of 63.2 years. Most patients (66%) presented performance status (PS) of 1, 28% PS of 0 and 6% PS 2. 28% were smokers and 42% ex-smokers. Regarding the histology, 74% of the patients had adenocarcinoma, 20% squamous carcinoma and 6% adenosquamous. The majority of patients (90%) were in stage IV and 10% in stage IIIB. 28% of patients had PD-L1 expression in more than 50% of tumor cells, 20% between 1 and 50% and 52% negative or unknown expression. Regarding first line therapy, the majority of the patients (86%) were treated with chemotherapy (QT) and 14% with immunotherapy. The most frequently QT combination was platinum with pemetrexed (62.8%), followed by carboplatin with paclitaxel (16.3%) while all immunotherapy patients started with pembrolizumab. Regarding the patients treated with immunotherapy as a first-line strategy, 85.7% had disease control and 14.3% progression, while those treated with QT, 73.9% had disease control and 26.1% progression, with statistical significance difference (Fisher exact test, $p = 0.014$). Regarding the second line therapy, 52.4% started with nivolumab, 33.3% with pembrolizumab, 4.8% with atezolizumab and 3.5 with QT. Among the patients treated with immunotherapy as a second line strategy, 9.4% presented partial response, 68.8% clinical stability and 21.9% progression. There were no statistically significant differences between PD-L1 expression in tumor cells and therapeutic efficacy (Fisher's exact test, $p > 0.05$). The most common non-immune related side effects were fatigue and nausea, while colitis and endocrinopathies were common immune related side effects. Death occurred in 20% of patients. There were no statistically significant differences in mortality according the sex, age, smoking habits, performance status, therapy or PD-L1 expression ($p > 0.05$).
Conclusions: Our results suggest that the use of immunological checkpoints inhibitors in the treatment of advanced NSCLC has shown good response rates, both in the first and second line, with tolerable side effects and easy handling. Therefore, immunotherapy is another important tool in the therapeutic approach of advanced NSCLC.

***Key words**: Non-small cell lung carcinoma. Immunotherapy. Approach.*

PC 050. METASTATIC LUNG ADENOCARCINOMA ALK+. THERAPEUTIC APPROACH

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Introduction: The choice of treatment for non-small cell lung cancer (NSCLC) patients in advanced disease stage has presented relevant modifications in recent years, accompanying the discovery of the molecular mechanisms underlying the development of these tumors. Crizotinib is a small, first generation molecule, within the ALK (anaplastic lymphoma kinase) tyrosine kinase inhibitors. More recently, second generation inhibitors have appeared.
Objectives: To characterize the patients with ALK+ translocation and to evaluate the treatment approach.
Methods: Retrospective analysis of patients with ALK+ translocation followed at the oncological pneumology appointment of the University Hospital Center of Coimbra, in the last 5 years (2013-2017). Clinical and demographic data and the therapeutic approach were analyzed.
Results: Included 29 individuals, of which 55% were female, with a median age of 59.9 years. 69% were non-smokers, 24.1% ex-smokers and 6.9% smokers. Regarding histology, 93.1% of the patients presented adenocarcinoma and 6.9% adenosquamous; most patients (93.1%) were in stage IV. On the first line therapy, the majority of patients (51.7%) were treated with classical chemotherapy (QT), 41.4% with ALK inhibitors and 6.9% with QT combined with radiotherapy. The most frequently used QT combination was platinum with pemetrexed (70.6%). Regarding ALK tyrosine kinase inhibitors, 83.3% started with crizotinib and 16.7% with alectinib. Among the patients treated with ALK inhibitors, 66.7% presented partial response, 25% clinical stability and 8.3% progression, while among those treated with QT, 23.5% presented partial response, 35.3% clinical stability and 41.2% progression, with statistical significance difference (Fisher's exact test, $p = 0.046$). Regarding second line therapy patients, 58.6% initiated crizotinib, 17.2% second generation ALK inhibitors (10.3% with alectinib and 6.9% with ceritinib) and 3.5 classical QT. Relatively the patients treated with ALK inhibitors as a second line strategy, 68.2% presented partial response, 18.2% clinical stability and 13.6% progression. Death occurred in 34.5% of patients. There were no statistically significant differences in mortality according to gender, age and therapy ($p > 0.05$).
Conclusions: Our results suggest that the use of tyrosine kinase inhibitors in the treatment of metastatic lung adenocarcinoma ALK+ has shown good response rates, both in first and second line therapy. Therefore, oncogenic changes for which specific therapies have been developed should be investigated in clinical practice and the therapeutic approach for these patients will involve sequencing their inhibitors.

***Key words**: Metastatic lung adenocarcinoma. Tyrosine kinase inhibitors. ALK +.*

PC 051. IMMUNOTHERAPY IN LUNG CANCER: NIVOLUMAB EXPERIENCE

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Introduction: Immune checkpoint inhibitors have recently emerged as promising therapeutic agents in non-small cell lung cancer (NSCLC) of adult, particularly in patients previously treated with chemotherapy regimens and/or target inhibitor agents. Inhibitors of programmed death cell protein 1 (PD1) and programmed death cell protein ligand-1 (PD-L1) have demonstrated anti-tumoral activity and clinical responses globally favourable.
Objectives: Evaluation of efficacy and safety of nivolumab in patients with NSCLC, after conventional chemotherapy.
Methods: Retrospective analysis of clinical records of patients with NSCLC, accompanied in Pulmonary Oncology, submitted to nivolumab treatment following conventional chemotherapy, in the period of January 2016 to May 2018. It was conducted a descriptive analysis of demographic characteristics and statistical analysis of treatment-related features; the nivolumab treatment was held until disease progression, intolerable toxicity or death. Statistical analysis was conducted with recourse to IBM software SPSS 23th version – taking into account a level of statistical significance p = 0.05.
Results: Nivolumab was applied in twenty-three patients. Twenty patients (87%) were male. The average age stood on 62.6 ± 7.9 years-old (minimum: 42; maximum: 75). All patients were smoker (n = 12) or former smoker (n = 11). Relative to histological type of neoplasm, 69.6% of patients (n = 16) presented squamous-cell lung cancer; the remaining (30.4%; n = 7) presented lung adenocarcinoma. In 11 cases, Nivolumab was used in third line treatment, in 10 patients conducted in second line treatment; in the two remaining, in fourth and fifth lines, respectively. The average number of cycles of nivolumab administered was em 7.7 ± 7.2 (minimum: 1; maximum: 27). Progression-free survival of patients under nivolumab was, in average, 3.4 ± 1.4 months (minimum: 1.5; maximum: 5) in lung adenocarcinoma, and 5.8 ± 6.3 months (minimum: 0.5; maximum: 7.5) squamous-cell lung cancer. In this sample, significantly differences were not identified between patients with different Performance Status (PS), in terms of overall survival or progression-free survival rates. Twenty-one patients (91.3%) had carried out one to two previous treatment lines, observing lower overall (in average, 11 vs 20 months) and progression-free survival rates (11 vs 18 months), comparatively with those who had performed three to four previous treatment regimens, although these data do not present statistical significance (U = 5.0; p 0.08 e U = 8.0; p = 0.15, respectively). In almost half of patients (48%; n = 11), the drug was interrupted due to disease progression; five of these, died during treatment. In one patient (4.4%), Nivolumab was suspended due to opportunistic infection. There were no reports of immune toxicity of any location.
Conclusions: This sample, although short, reveals the importance of nivolumab as a therapeutic alternative in patients with NSCLC, following disease progression under chemotherapy. This agent had impact on survival, with good safety profile, even though they have not been identified predictive factors of longer response duration, with statistical, in this sample.

Key words: *Lung cancer. Progression. Nivolumab.*

PC 052. LUNG CANCER IN YOUNG PATIENTS – THE EXPERIENCE OF A TERTIARY CENTRE

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Lung cancer is a common cause of morbidity and mortality worldwide with a considerable economic burden. Although frequently diagnosed among the elderly according to current evidence approximately 10% of patients (pts) are aged ≤ 50 years. The authors performed a retrospective study analysing the lung cancer pts treated in a Pulmonology Department in a tertiary centre from January/2013 – January/2017. Demographic data, histological diagnosis, TNM staging, treatment approaches and mortality rate were studied. 1,286 pts were diagnosed with lung cancer (6.1% of which aged ≤ 50 yrs). 79 pts were studied: 44 male (55.7%) aged 32-50 yrs (mean 46), 57 current smokers (72.2%) and 6 ex-smokers (7.6%). Regarding histological diagnosis 56 patients had adenocarcinoma (70.9%), 9 had epidermoid (11.4%), 5 had small cell lung cancer (6.3%) and 9 had other histological types (11.4%). Concerning TNM staging at diagnosis there was predominance of advanced stages: 51 pts were IV (64.6%), 5 were IIIB (6.3%), 10 were IIIA (12.7%). EGFR mutation was positive in 11 pts, ALK rearrangement in 4 pts and KRAS in 2 pts. First line treatment approaches were adjusted to staging: 41 pts were treated with chemotherapy), 4 pts with target therapeutic and 3 with supportive care; 2 died before treatment. 13 had radiotherapy for metastatic lesions. 22 pts were treated with surgery (14 of which in combination with chemo or radiotherapy). The mortality rates at 6 months, 1 year and 5 years were 24.4%, 20.5% and 23.1% (overall mortality 67.9%). Lung cancer is associated with significant mortality rate in this population, which is probably related to the advanced stages at diagnosis and the impossibility of attempt of a curative approach in these cases.

Key words: *Lung cancer. Age. Prognosis. Mortality rate. Staging.*

PC 053. THE IMPORTANCE OF SCREENING T790M MUTATION IN THE TREATMENT OF PATIENTS WITH EGFR+ NSCLC FOLLOWING PROGRESSION WITH TKI

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Introduction: The molecular profile is a routine evaluation for treatment selection of patients with metastatic NSCLC. In patients with EGFR mutation the 1st and 2nd generation tyrosine kinase inhibitors (TKI) are effective but the progression invariably arises. The rebiopsy and/or liquid biopsy for resistance determination is currently standard, being T790M mutation the most frequently acquired mutation.
Objectives: Analysis of the cases of patients with EGFR+ NSCLC to whom were performed mutT790M screening in tumor biopsy and/or liquid biopsy after progression with 1st or 2nd generation TKI with evaluation of the type of treatment performed, response rate, progression-free survival and overall survival.
Methods: Retrospective evaluation study of patients with EGFR+ NSCLC to whom were performed mutT790M screening in tumor biopsy and/or liquid biopsy in the period from 02/2016 to 02/2018. Statistical analysis was performed with SPSS Statistics 20®, and survival analysis with Kaplan-Meyer method.
Results: We analyzed 24 cases, 14 (58.3%) female, with a mean age of 67.8 ± 13.39 years, all of them with stage IV Adenocarcinoma. MutT790M was screened in peripheral blood in 18 patients (78.3%) with a positive result in 4 (22.2%). Of the patients with negative mutT790M (n = 14), 5 did tumor biopsy that confirmed to be negative. The remainder did not do so because of lack of clinical conditions or absence of a biopsable site. In 6 patients, only tumor biopsy was performed, with a positive result in 5. Of the 9 positive patients (37.5%), all started treatment with osimertinib. Of the negative patients, 2 (8.3%) maintained the initial TKI, 8 (33.3%) started 2nd line with chemotherapy (QT; n = 4), immunotherapy (IT; n = 3) or other TKI 1), and 5 (20.8%) died before starting treatment. The response rate to osimertinib was 67% (1RC + 5RP), with 1 with

stable disease and 2 not assessed (died prior to response assessment). The response rate to 2nd line QT/IT/otherTKI was 25% (2RP), with 4 with stable disease and 2 with progression. The progression-free survival was 12 months with Osimertinib and 7.5 months with the other treatments. The 2 patients with CNS metastases at the time of initiation of osimertinib did not have progression on CNS under this therapy. Of the 9 patients who started osimertinib, 6 (66.7%) continue the treatment and only 3 (33.3%) died. Of the remaining patients, only 2 continue treatment and all others died. Median survival from the start of the 2nd line was 21 months for osimertinib and 12 months for QT/IT/otherTKI. There was no statistically significant difference (χ^2 = n 0.745, p = 0.388, χ^2 = n 0.511, p = 0.475) in the comparison of survival functions using log-rank and Breslow tests, probably due to the small sample size, but the survival curves show a marked difference between the two treatments.
Conclusions: Despite the sample size, the results show the importance of detection of mutT790M and the efficacy of treatment with osimertinib, both in response rate, progression-free survival and overall survival.

***Key words**: EGFR+ NSCLC. T790M mutation. Osimertinib.*

PC 054. THE LUNG CANCER IN ADVANCED STAGE AND THE SURGICAL THERAPY: SHOULD WE GIVE AN OPPORTUNITY?

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Most cases of non-small cell lung cancer (NSCLC) are diagnosed at an advanced stage of the disease, being the surgery rarely indicated in these situations. We present the case of a 75-year-old woman, non-smoker, diagnosed with lung adenocarcinoma in 2009 initially in stage IIIA (T2, N2, M0). She was submitted to neoadjuvant chemotherapy (CT) with regression of mediastinal adenopathies (group 4R). Therefore, it was proposed for surgery that became an exploratory thoracotomy because implants in the visceral and parietal pleura were verified, passing the disease to stage IV. The genetic study of the tumor revealed the mutation in the EGFR gene (exon 21) and she initiated 1st line therapy with a tyrosine kinase inhibitor: erlotinib with partial response during 15 months. In thoracic CT and CT-PET of control (2011) was documented progression of disease with increased volume and FDG uptake (SUV 5.4) of right upper lobe. Second-line therapy with chemotherapy was then performed: pemetrexed. On the reevaluation, at the end of the 4th cycle, there was progression at the same site (SUV 8.6) and moved to the 3rd line of vinorelbine treatment. At the end of four treatment cycles, there was an increase in uptake at the same site. Since progression of the disease was documented always in the same location, without any other focus of disease activity, namely in the pleura, it was discussed at a multidisciplinary meeting and underwent right upper lobectomy with mediastinal nodal emptying (surgical staging: pT2, N1, Mx – no evidence of pleural disease). Since she had already done three lines of therapy, she remained only under surveillance and without signs of relapse for 14 months. At the follow-up thoracic CT (2013), there was an increase in the volume of lymph nodes that, after mediastinoscopy, confirmed the presence of adenocarcinoma cells in the 4R and 2R groups. It was then proposed to radiotherapy (RT) on the mediastinum in a total dose of 66 Gy. The patient remained under surveillance with stabilization of the disease during 20 months until new progression was verified in chest CT (2015) with appearance of bilateral pulmonary nodules. She initiated a retreatment with erlotinib, which did for 24 months with partial response. At the end of 2017, she developed complaints of hemoptysis that led to hospitalization and that was admitted in relation to progression of the disease documented also endoscopically. Therapy was discontinued and the net biopsy showed the presence of the T790M resistance mutation. She then began treatment with osimertinib since February 2018, which has maintained until now with partial response. The patient remains asymptomatic, with a performance status of one. With this clinical case, we intend to show how complex the approach of the patient with lung cancer in advanced stage can be. The role of surgery in these cases is not completely defined, but here it has been shown to have an important impact on the time of disease stabilization and management of all other therapeutic lines.

***Key words**: Lung cancer. Advanced stage. Surgical approach.*

PC 055. THE EGFR MUTATION IN NON-SMALL CELL LUNG CARCINOMA: CASE-SERIES REVIEW

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Introduction: The presence of the EGFR gene mutation is a predictive marker of response to tyrosine kinase inhibitors (TKIs) in subjects with advanced stage non-small cell lung cancer (NSCLC).
Objectives: To describe the demographic characteristics, staging and response to therapy of patients with NSCLC with the mutation of the EGFR gene.
Methods: Consultation and review of the clinical processes of patients with NSCLC, followed at the Pneumology Oncology Department (Centro Hospitalar Lisboa Norte) between 2013 and 2016.
Results: From a total of 625 patients with NSCLC, 53 (8.5%) were identified with the EGFR mutation, with a mean age of 68 (± 12.4) years, a predominance of females (n = 37, 69.8%) and non-smokers (n = 41, 77.4%). In the Zubrod scale, most were in grade one (n = 37, 69.8%). The mutation most frequently described was exon 19 (n = 21, 39.6%) and 21 (n = 17, 32.1%). There was an equal distribution with respect to the location of tumors: 26 (49%) on the right and 25 (47.2%) on the left; there were 2 (3.8%) tumors located at the pleura. More than half of the tumors (n = 35, 66%) were centrally located. Concerning TNM classification, most patients were initially in stage IV (n = 52, 98.1%). Twenty-six (49.1%) were classified as M1b, 20 (37.7%) as M1a and 6 (11.3%) as M1c. The most common metastasis sites were pleura (n = 29, 55.8%), lung (n = 26, 50%) and bone (n = 20, 38.5%). Five patients died before being able to start treatment and one patient was treated elsewhere. Regarding the choice of 1st line therapy (n = 47), the preferential treatment was TKI (n = 35, 74.5%), followed by chemotherapy (CT) in 17 patients (36.2%); stage IIIB was initially treated with sequential CT/RT. Three patients started with CT and then was made a switch for TKI, resulting in 19 patients treated with erlotinib (40.4%) and 16 treated with gefitinib (34%). As complementary therapy, there were 22 patients submitted to RT, most cases (n = 11, 50%) to holocranial RT. The median time between diagnosis and treatment was 53 days for TKIs and 29 days for CT. Of the patients who underwent TKIs, there was stabilization of the disease in 8; partial response in 3; progression of the disease with the need to change the therapeutic line in 17 patients. Of this group of patients, 7 had died. Of the patients who had CT: there was progression in 8; partial response in 5 and 1 patient died. The median time between onset of treatment and evidence of disease progression was 8.4 months in patients treated with TKI.

Conclusions: In this group of patients, the EGFR mutation was described more frequently in non-smoking women. Most patients were initially treated with TKI, with more than half under surveillance.

Key words: *Non-small cell lung carcinoma. EGFR mutation. Advanced stage. Tyrosine kinase inhibitors.*

PC 056. ADVERSE EFFECTS OF EGFR TYROSINE KINASE INHIBITORS - THE CHVNG/E EXPERIENCE

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Introduction: Targeted therapies in non-small cell lung cancer (NSCLC) treatment has led to emergence of new toxicities, whose management and impact are not yet clearly defined.
Objectives: To understand the main side effects (SE) of EGFR Tyrosine Kinase Inhibitors (TKI), its frequency, severity and any factors related to its occurrence.
Methods: From February 2016 to January 2017, 27 advanced NSCLC patients treated with TKI were asked to collect data about toxicities through a dedicated questionnaire. The questionnaire was applied four consecutive times at days 0, 15, 30 and 60 after starting TKI (T0, T1, T2 and T3, respectively). The severity of SE was reported according to the Common Terminology Criteria for Adverse Events (CTCAE).
Results: We included 18 patients. Nine patients was previously excluded due to failure to complete the consecutive questionnaires or because they presented symptoms that overlapped with those routinely induced by TKI at the beginning of treatment. Mostly women (66.7%) with 67 ± 13 years old. Most had adenocarcinoma (88.9%) and EGFR mutation was present in 12 patients (66.7%). TKIs used were: erlotinib (61.1%), osimertinib (27.8%) and gefitinib (11.1%). All patients experienced at least one SE, being the most common skin toxicity (77.8%), mostly expressed as acne-like lesions and nail abnormalities of grade 1 or 2; the majority reported it between T0 and T1 (57.1%). The other common SE were: diarrhea (66.7%), ophthalmic disorders (50%), nausea (44.4%), oral mucositis (38.9%) and vomiting (22%). Mostly occurred till T1 except nausea and oral mucositis that were mostly reported only at T2. These SE were classified as grade 1 or 2; only one visual disorder was reported as grade 3. Elevated transaminases were obtained in 27.8% of patients, mostly observed at T3 and only one patient was forced to stop the treatment. One pneumonitis of grade 2 was observed at T2 and led to the suspension of TKI. Of the studied variables (age, gender, histologic pattern, EGFR mutation, number of previous treatments), none showed to be a predictor of the occurrence of the described side effects.
Conclusions: Although mostly of EGFR TKI SE are mild to moderate, they are very common and usually occur in the first 15 days of therapy. This study reinforces the importance of medical consultation after two weeks of treatment and the subsequent monthly monitoring (both clinical and analytical). A relevant surveillance and adequate early approach will improve the quality of life of these patients.

Key words: *Tyrosine kinase inhibitors. EGFR. Side effects.*

PC 057. IS IT REALLY A LYMPHOMA?

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Introduction: The detection of hilar and mediastinal adenopathies is extremely important in the differential diagnosis of various thoracic diseases, such as lung cancer, metastatic carcinoma, lymphoma, sarcoidosis or infection.
Case report: A 42-year-old male, former smoker (25 pack-years), previously healthy. After two episodes of respiratory infection of the upper airways, he developed dry cough, asthenia, anorexia and weight loss (20 kg), within three months. He also reported intermittent fever and nocturnal hypersudorese. No other specific organ complaints. Physical examination revealed bilateral cervical adenopathies. Laboratory data: hypochromic and microcytic anemia (Hb 8.3 g/dL), prothrombinemia 43%, PCR 31.7 mg/dL. Chest radiograph presented upper mediastinum enlargement, predominantly on the right. Chest-CT showed multiple and bulky cervical, mediastinal and hilar adenopathies, the largest one with 63 mm at right hili, compressing the right main bronchus; a ground-glass periferic opacity in the posterior segment of RUL (right upper lobe). Bronchofibroscopy without endobronchial changes. He underwent surgical excision of right supraclavicular adenopathy, whose anatomopathological results were compatible with lymph node metastasis of poorly differentiated malignant neoplasm, suggesting pulmonary and digestive tract additional study. Upper digestive endoscopy and colonoscopy without changes. PET-CT: supra-diaphragmatic hypermetabolic adenopathies and right massive cervico-mediastinal mass (SUVmax: 5.5); several densities dispersed by the lung parenchyma with slight FDG-F18 uptake, the larger one at the RUL, subpleural, with 23 × 12 mm. During the study, he underwent a new biopsy of adenopathy by mediastinoscopy, whose histological result was favorable for diffuse large B-cell lymphoma (DLBCL). The patient was evaluated by Hematology and started chemotherapy (QT) directed with CHOP scheme, despite anemia and thrombocytopenia. A bone marrow study was performed showing a marked infiltration by non-hematological tumor cells with immunohistochemistry similar to the initial adenopathy. Given the discrepancy between anatomopathological results and absence of response to the established therapy, a histological review was then made. The result was compatible with mixed lung adenocarcinoma (mucinous and myoepithelial). The patient evolved with hepatic, splenic, and lung bilateral metastasis, as well as bone marrow involvement, with severe anemia and thrombocytopenia which contraindicated conventional QT. He died six months after the disease onset.
Discussion: The authors decided to present this case as it shows the diagnostic challenge of poorly differentiated tumors, tending to be more aggressive and of rapid progression. Furthermore, presentation of lung adenocarcinoma with extensive lymphadenopathy along with medullary invasion is rare and may mimics a lymphoproliferative disease, delaying the initiation of targeted therapy.

Key words: *Adenopathy. Poorly differentiated neoplasm. Lung adenocarcinoma. Bone marrow involvement.*

PC 058. VIABILITY OF THE SAMPLES OBTAINED BY EBUS-TBNA FOR EVALUATION OF PD-L1 EXPRESSION IN PATIENTS WITH NON SMALL CELL LUNG CANCER

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Introduction and objectives: Immunotherapy has recently been authorized for first-line treatment in the advanced stages of non-small cell lung cancer (NSCLC) in patients with intense PD-L1 expression. Considering the increasing percentage of lung cancers diagnosed by EBUS-TBNA, it is extremely important to verify the viability of the samples obtained by this technique in the PD-L1 analysis.
Methods: Patients with a diagnosis of NSCLC obtained by EBUS-TBNA in which PD-L1 expression analysis was performed between March 2017 and July 2018 were considered. The sample was considered viable when more than 100 tumor cells were identified.

Results: Twenty-nine patients (20 men) were included. As for the histological type, 18 were adenocarcinomas, 9 squamous cell carcinoma and 2 poorly differentiated NSCLC. In a total of 27 patients it was possible to perform PD-L1 (94.1%) research, but in 2 (5.9%) patients there was not enough material. In 24 patients the PD-L1 study was performed in a single sample (in 11 cases in the lung mass, 6 cases in lymph node station 7, 2 cases in 4R, 2 cases in 11L, 2 cases in 11R, 1 case in 4L). In 3 patients the study was performed in more than one EBUS sample and in 2 patients the study was performed concomitantly in bronchial biopsy specimens. In these cases PD-L1 expression was similar. In 6 patients (20.7%) PD-L1 expression was higher than 50% (3 adenocarcinomas, 2 squamous cell carcioma and 1 poorly differentiated NSCLC), 10 cases were negative (less than 1%) and low expression (between 1 and 49%) 11.
Conclusions: Quantification of PD-L1 expression is possible in the aspiration puncture obtained through EBUS-TBNA.

Key words: *PD-L1 EBUS-TBNA.*

PC 059. LUNG CANCER: CASUISTRY OF THE ONCOLOGIC PNEUMOLOGY APPOINTMENT OF CHCB

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Introduction: Although it is considered one of the most preventable causes of death among malignant neoplasms, the incidence of lung cancer continues to increase worldwide. In Portugal, it remains the first oncological cause that condition a significant decrease in global average life expectancy.
Objectives: To evaluate the characteristics of patients with lung cancer from *Centro Hospitalar Cova da Beira* (CHCB), regarding certain epidemiological and clinical variables, risk factors and patient survival.
Methods: All patients with established diagnosis of malignant neoplasms, followed at the Oncology Pneumology clinic in CHCB during the last 2 years, were included in a retrospective observational study. Data were extracted from electronic clinical records and a descriptive statistical analysis was performed.
Results: The sample had 154 patients, 73 of whom were diagnosed more than 2 years ago, 43 in 2016 and 38 in 2017, with a median age of 68 years. They were predominantly male (77%) and had a positive history for other respiratory disease (53%). Tobacco consumption was shown to be a predominant risk factor, with a regular 59 smoking pack years, although a significant proportion of these patients (55%) quit on average 12 years before the date of diagnosis. Adenocarcinoma was the most frequent histological type of neoplasm (64%). A high number of patients started hospital follow-up already in advanced stages of the disease and the cases of mortality due to the neoplasm in question occurred in approximately 43% of the sample, with a median survival of 10 months after diagnosis. In contrast to the female gender, the men were those who presented a history of greater exposure to risk factors, worse prognosis at admission and less survival.
Conclusions: The characteristics of CHCB lung cancer patients follow national distribution patterns in terms of peak of incidence age, gender predominance, risk factor and frequency of histological type of neoplasm. There are asymmetries between genders, in terms of stage at admission and survival, that deserve to be analyzed. Malignant lung neoplasms translate into substantial loss of potential years of life, so, understanding which factors are involved in its early development and reserved prognosis remains necessary to attempt revert the current trend.

Key words: *Lung cancer. Casuistry. Cova da Beira.*

PC 060. CAVITATING LUNG METASTASIS AS A RARE PRESENTATION OF A SIGNET-RING CELLS CARCINOMA

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Introduction: Cavitary lung lesions are frequent manifestations of a wide variety of infectious and non-infectious pathological processes. Clinical presentation, epidemiology and radiographic characteristics may guide differential diagnosis but atypical presentations may occur. Furthermore, pathology findings may be hindered by cellular necrosis. Cavitation of metastatic lung lesions is rare. We report a rare presentation of gastric cancer with a cavitating lung metastasis.
Case report: A 47 years-old female, smoker, presented with progressive worsening of productive cough over a period of 9 months with hemoptysis in the last week. She had weight loss and fever of increasing frequency (every 3 hours, not controlled with antipyretics) in the last month and had also noted occasional black-stools. She looked pale and showed clubbing; all other physical examination was uneventful. Chest radiography showed a 5 cm, thick-walled, cavitating mass on the right superior lobe. Sputum and bronchial washings were negative for acid-fast bacilli. Blood analysis revealed an iron deficiency anemia (hemoglobin 8.9 g/dL), leukocytosis 20,000 with neutrophilia (80.8%), elevated CRP 20 and alkaline phosphatase 232.5 U/L. CT scan showed a 56 mm cavitated lung mass with irregular contour and pleural attachments, a small 3.8 mm nodule in the contralateral lung and thickening of the stomach wall. The patient was admitted and began antibiotics with no clinical improvement and persistence of fever and elevated inflammatory markers. Lung biopsy showed an undifferentiated and widely necrotic epithelial cellular pattern. Immunohistochemistry was only CK8/18 positive and CK7 focally positive. All other markers were negative. Endoscopy revealed a vegetating mass in the gastric fundus. Gastric biopsies showed a discohesive gastric carcinoma with signet-ring cells. Immunohistochemistry was only positive for CK8/18. Morphological comparison of each biopsy concluded that the lung lesion was metastatic from the gastric cancer. Fever was paraneoplastic and responded to dexamethasone.
Discussion: Lung metastasis may present with cavitated lesions in approximately 4% of cases. Not only is it infrequent on itself but presentation of a large, unique lung metastasis from gastric cancer is even rarer. In this case, immunohistochemistry did not help the pathological characterization of the tumor or its metastasis and morphological aspects were important for the final diagnosis. Paraneoplastic fever is related to inflammatory cytokines released by the tumor and cell necrosis. This case shows a rare presentation of a metastatic cavitary lesion in the lung, from a discohesive cell gastric carcinoma. Clinical information was crucial for the diagnosis and albeit advanced immunohistochemistry markers were available, these necrotic and undifferentiated lesions required a critical pathology interpretation.

Key words: *Lung metastasis. Signet-ring cells carcinoma.*

PC 061. SYNCHRONOUS TUMORS: CARCINOID TUMOR OF THE LUNG AND EXTRANODAL MARGINAL ZONE B-CELL LYMPHOMA OF THE MUCOSA ASSOCIATED LYMPHOID TISSUE (MALT), A RARITY

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Introduction: The incidence of synchronous tumors is increasing. The presence of a carcinoid tumor of the lung and an extranodal marginal zone B-cell lymphoma of the mucosa associated lymphoid tissue is rare, and an isolated case is described in the literature.

Case report: The authors present the case of an 84-year-old woman with previous diagnosis of deep venous thrombosis of the lower limb after stillbirth, with subsequent venous insufficiency of the chronic limb and dyslipidemia. Non smoking. She attended the Emergency Department for moderate hemoptysis and productive cough with mucus expectoration. She was hemodynamically stable with peripheral saturation 96% in ambient air. It stood out in the pulmonary auscultation vesicular murmur maintained and symmetrical bibasal crackles. Chest X-ray showed an heterogeneous hypotransparency in the right upper lobe (RUL), with rounded edges, 6 cm in diameter and interstitial reinforcement in the lower third of both lung fields. Partial respiratory insufficiency (PaO_2 53.4 mmHg, SaO_2 87.6%) was observed. The patient was hospitalized for hemoptysis. Of the complementary evaluation, we highlight: thoracabdominopelvic CT scan with an adenopathy (11 mm) in the pretracheal space retrocava and two millimetric ganglia in the aortopulmonary window; posterior segmental bronchi of the RUL with compression by solid lesion with 5 cm in the posterior segment of the RUL, with a slight uptake of the contrast injected, with bronchiectasis in its interior, conditioning compressive atelectasis. In the internal segment of the ML, a dense, nonspecific small area was observed; VBFC identified blood in the trachea from the posterior segment of the RUL with positive transbronchial pulmonary biopsy for lung tissue with fibrosis, pneumocyte hyperplasia and chronic inflammatory infiltrate; TTAP of the RUL lung lesion composed of inflammatory cells (lymphocytes, plasmocytes and fibroblasts without atypia, compatible with an inflammatory pseudo-tumor). During hospitalization, she presented hemoptysis, with hemoglobin drop, without the need for transfusion therapy. The patient was transferred to the Cardiothoracic Surgery Department and submitted to right postero-lateral thoracotomy for superior lobectomy and atypical resection of the thickened area at the end of the middle lobe whose anatomopathological examination of the RUL and ML samples highlighted areas of compatible morphological and immunophenotypic characteristics with B-cell lymphoma of the extranodal marginal zone of mucosal associated lymphoid tissue (MALT), described in the upper and middle lobe. At the level of the ML, a calcified area corresponding to a carcinoid tumor typical of the lung, with bone metaplasia of the stroma was also present. She was followed up in Pneumological Oncology, Hematology and Respiratory Rehabilitation. She died two years after diagnosis, due to intestinal occlusion secondary to invasive adenocarcinoma of the colon, with peritoneal carcinomatosis.
Discussion: The present case is highlighted by the rarity of the concomitant presence of carcinoid tumor of the lung and extranodal marginal zone B-cell lymphoma of the mucosa associated lymphoid tissue.

***Key words**: Carcinoid tumor. MALT. Synchronous tumors.*

PC 062. EXTRALOBAR PULMONARY SEQUESTRATION WITH AN ANEURYSMATIC ARTERIAL SUPPLY: CASE REPORT

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Introduction: Pulmonary sequestration is a rare congenital abnormality of the lower airway, consisting of the aberrant formation of segmental lung tissue, unconnected with the bronchial tree or pulmonary arteries and supplied by a systemic artery, usually a branch of the aorta. Extralobar sequestration is the least common type of pulmonary sequestration and is more frequent in males. Pulmonary sequestration can also be intralobar. Clinical manifestations are variable, from incidental findings to life-threatening complications. Surgical resection is the definitive treatment. We present a case for which the decision to remove sequestrated lung in this patient was complex, due to the atypical characteristics and exuberance of its vascular supply.
Case report: A 45-year-old healthy man with no past medical history was referred to Pulmonology outpatient with persistent chronic cough. He was taking inhaled corticosteroid prescribed by his Family Physician due to wheezing, with symptomatic benefit. Dyspnea, orthopnea, thoracic pain and constitutional symptoms were absent. Physical examination revealed dry crackles in the lower portion of right hemithorax; the remaining exam was unremarkable. Blood workup and arterial blood gas sampling results were normal. Spirometry revealed a reduced forced expiratory volume in 1 second, with positive response to inhaled bronchodilator, decreased maximum mid-expiratory flow rates and positive methacholine challenge test. Chest radiograph showed a homogeneous mass adjacent to right hemi-diaphragm and mediastinum. Thoracic CT scan revealed a large heterogeneous fusiform lesion under the lower right lung lobe, with about 15 × 8.2 cm calcified in its periphery and a peripheral hypodense component suggestive of mural thrombosis. This lesion appeared to be vascular in nature and seemed to be in contiguity with a vascular structure of the right lower pulmonary lobe. It appeared to communicate with an anomalous small arterial branch originating from the posterior aspect of the descending thoracic aorta. These findings were compatible with extralobar intrathoracic pulmonary sequestration. Surgical treatment was decided, and bilateral thoracotomy with laqueation of the anomalous thoracic vessel, removal of aneurysmatic lesion and wedge removal of the adjacent, unventilated lung fragment were performed. There were no postoperative complications. Histology of the removed lung fragment revealed a markedly distorted lung parenchyma, with lymphoplasmacytic inflammatory infiltrate, and an arterial vessel with fibrosis, aneurysmatic dilation and organizing thrombi occupying the whole lumen; no malignancy signs were found. Post-operatory thoracic CT scan did not show remarkable findings. Physical exam during the post-operatory follow-up revealed a de novo caved-in appearance of the anterior chest wall. The patient remained without any respiratory symptoms, however Pain Management experts consultation was required for analgesia adjustment.
Discussion: The surgical procedure was challenging because of the dimension and the unexpected behavior of the aneurysmatic vascular lesion. The potential risk of aneurysm rupture if the patient remained untreated had to be considered against the very high surgical risk before the decision to operate. This case also emphasizes the utmost importance of thoracic imaging in the planning of a complex surgical procedure.

***Key words**: Extralobar intrathoracic pulmonary sequestration. Congenital airway diseases. Thoracic arterial aneurysm.*

PC 063. HUGE MEDIASTINAL TERATOMA: CASE REPORT

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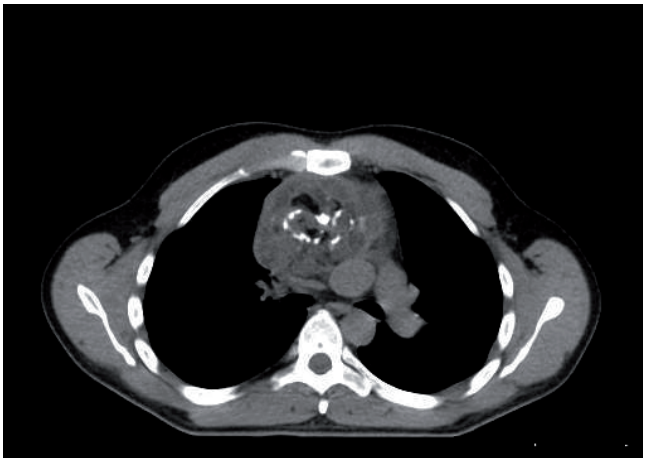
Case report: We present de clinical case of a 37 years old male, previously healthy, that enters an Emergency Department in early January 2018, presenting with right thoracic pain and right shoulder pain, starting 15 days earlier, with no accompanying signs or symptoms. The chest X-ray showed an enlarged mediastinum and the thorax CT (Computed Tomography) showed a huge anterior mediastinal heterogeneous multisept mass 14 × 12 × 7.5 cm, areas of liquid and of lipidic content and coarse scattered calcifications, that exceeds the limits of the endo-thoracic fascia in the right and insinuates in the anterior intercostal space; superior mediastinal blood vessels compression, pushing backwards the aorta and tightening the superior vena cava and the brachycephalic veins. The tumor markers Beta-hCG (Beta-human chorionic gonadotrophin),

CEA (Carcinoembryonic antigen) and AFP (Alpha-fetoprotein) were negative. The PET-CT (Positron Emission Tomography) showed anomalous heterogeneous FDG (Fluorodeoxyglucose) captation in a huge mediastinal mass extending to the anterior intercostal space in the right. A transthoracic biopsy was done in the swelling of the thoracic right wall and the result was negative for neoplastic cells and infection. The patient underwent surgical treatment decided in the Lung Unit Mutidisciplinary Meeting and was submitted to anterior mediastinal tumor mass resection and anterior intercostal abscess drainage, through a total esternotomy, in 12-02-2018. The procedure and the post-operative period went uneventful, with hospital discharge in 18-12-2018. The histology result was Mediastinal trigerminal mature teratoma. The patient continues on clinical and image surveillance, last follow-up in May 2018, he was clinically well back to work and physical activities. Mature teratomas are benign tumors, usually presenting between the 2nd and 3rd decades, being the most common mediastinal germ tumors, nonetheless infrequent (1-5% of mediastinal tumors). Are encapsulated lesions with cystic and solid areas, that can contain ectodermal tissue (skin, hair and teeth), mesodermal tissue (bone and cartilage), and even endodermic tissue (lung, pancreas, colon). They appear most frequently in the anterior mediastinum, as the case reported. Most teratomas are incidental findings in image studies for other reasons, but they can cause symptoms mainly by compression of the mediastinal and thoracic structures. The CT scan is the most important exam for the diagnosis and planning the surgical approach and the resectability, since the definitive diagnosis is established with surgical resection. These patients must have an active surveillance, because of a malignant transformation rate up to 4%.



Key words: *Teratoma. Mediastinal tumor. Anterior mediastinum.*

PC 064. MEDIASTINAL CAVERNOUS HEMANGIOMA: CASE REPORT

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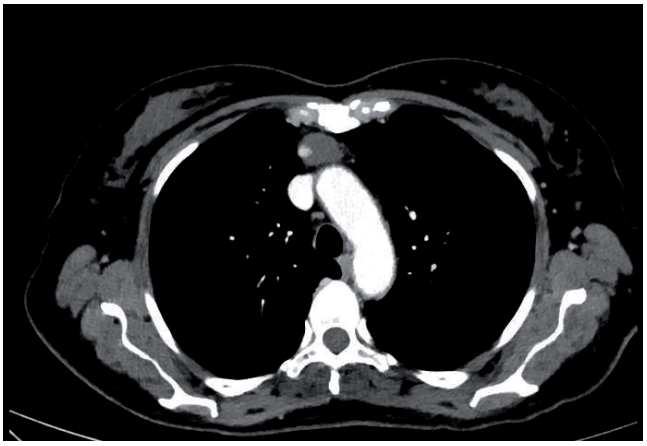
Case report: We present the clinical case of a 67 years old female, previously healthy, with a surgical clinical background of resection of benign lesions, adrenal ganglioneuroma in 2001 and intradural lipoma L5-S1 in 2018, diagnosed an anterior mediastinal tumor, incidentally found in a breast MR (Magnetic Resonance). The thorax CT (Computed Tomography) scan showed an ovoid nodular lesion in the anterior mediastinum, well circumscribed, 26 × 22 × 17 mm, with three focal areas of enhancement after intravenous contrast. The PET (Positron Emission Tomography) showed dim FDG (Fluorodeoxyglicose) uptake in a nodular lesion in the anterior mediastinum, 26 × 19 mm, with a maximum SUV (standard uptake value) of 2.5. This case was discussed in the Lung Unit Multidisciplinary Meeting, with a presumable diagnose of thymoma and decided surgical treatment. The patient was submitted to surgical resection of the anterior mediastinal tumor through a right-sided VATS (Video Assisted Thoracoscopic Surgery) procedure, three-port 5 mm access and CO2 (carbon dioxide) for lung collapse. The procedure and the postoperative period went uneventful and the patient was discharged in the day after surgery. The histology result was Mediastinal cavernous hemangioma, 30 mm long axis, positive for smooth muscle actin and CD31. In the postoperative Lung Unit Multidisciplinary Meeting was decided postoperative follow-up, next revaluation in September 2018 (3 months after surgery). Mediastinal hemangiomas are very rare benign vascular tumors, representing 0.5% of the mediastinal tumors. The definitive diagnose can be challenging for the non-specific imaging characteristics and the variety of the histological characteristics, lacking pathognomonic features. They are classified as cavernous, as the case presented and the most frequent type (> 90%), capillary and venous types, depending on the size of the vascular spaces. The CT scan with intravenous contrast is the most used imaging exam for diagnose of these lesions, and the dynamic contrast-enhanced CT can be helpful showing initial peripheral enhance after contrast injection and strong progressive central enhancement in the delayed phases, but they are rarely mentioned in the literature and little used. Despite de rarity of these lesions, awareness of the histopathological features in the mediastinum is of uttermost importance to avoid diagnostic and therapeutic errors. We can adopt an expectant, watchful approach in children and young adults because there are reports of spontaneous regression in this setting; for the symptomatic or the ones compromising vital structures, surgical resection remains the treatment of choice.



Key words: *Mediastinal cavernous hemangioma. Mediastinal tumor. Anterior mediastinum.*

PC 065. EARLY POSTOPERATIVE COMPLICATIONS AFTER LOBECTOMY

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CHUC.

Objectives: Pulmonary lobectomy is the most frequent type of pulmonary resection. It is associated with a low morbidity and mortality rate in centers with a high number of cases. The present study was carried out to describe the rate of complications in the Center of Cardiothoracic Surgery of the Hospitals of the University of Coimbra, and compare with what is already described in the literature.

Methods: Retrospective study, including patients who underwent lobectomy between January 2013 and January 2015, regardless of indication. The patients that your data could not be consulted was excluded, due to the impossibility of consulting the clinical process. To analyze the data was used the program Microsoft Excel version 15.13.3.
Results: During 2 years, 186 patients underwent lobectomy, and 147 patients were included after applying the exclusion criteria. The mean age of the patients was 60.1 years, in which 65% were male. The mean number of days of hospitalization was 6.8 days. The 30-day mortality rate was 0.68%. The most frequent complication was hemorrhagic with needed for transfusion of erythrocyte concentrate in 11.56% of patients, for transfusion of plasma in 19.05% of patients, and need for reoperation due to bleeding in 1.36%. The presence of persistent air leakage, defined as maintenance of air leakage after 5 days or more of surgery, was 8.84%, in which there was a need for reoperation due to maintenance of leakage in 2.04% of patients. Atrial fibrillation was documented in 7.48% of cases, requiring chemical cardioversion in 4.76%. The percentage of patients requiring intubation after surgery was 2.04%. The percentage of postoperative pneumonia was 2.04%. The 90 days re-hospitalization rate was 8.84%.
Conclusions: The most frequent complication observed in patients was hemorrhagic requiring transfusion, however, the percentage of patients requiring re-thoracotomy was lower than that described. The second most frequent complication was prolonged air leakage, similar to that described in the literature. Atrial fibrillation appears as the third most observed complication, where the percentage is below that described in the literature. However, the sample size should be enlarged for more substantiated and unambiguous conclusions, where the number of excluded patients should be reduced as much as possible to reduce bias.

Key words: *Lobectomy. Complications. Postoperative.*

PC 066. NOT EVERYTHING IS WHAT IT LOOKS LIKE - PULMONARY ARTERIOVENOUS MALFORMATIONS DO EXIST!

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Introduction: Pulmonary arteriovenous malformations (PAM) are abnormal communications between pulmonary arteries and veins. They are a rare condition with unknown etiology, pathogenesis and natural history. More than half of the cases appear in the context of hereditary hemorrhagic telangiectasia. Secondary/acquired PAM are less frequent and are due to hepatic cirrhosis, surgery/thoracic trauma, mitral stenosis, actinomycosis, xysomiasis, Fanconi syndrome, thyroid metastatic carcinoma or systemic amyloidosis. Only 40% of patients will have symptoms throughout his life, being the rest incidental findings.
Case report: The authors present the case of an 83 years old woman with hypertension, dyslipidaemia, hyperuricemia, diabetes and renal lithiasis. During her follow-up in the urology consultation she underwent an abdomino-pelvic CT-scan in which coalescing micronodular formations in the posterobasal segment of the RIL were identified (larger axis 21 × 20 mm). She was referred to pulmonology consultation for a better characterization of these findings, attending the suspicion of pulmonary neoformation. In the pulmonology consultation she denied dyspnoea, cough, thoracalgia, haemoptysis, fatigue, respiratory infections or weight loss. The observation was normal, and she had no hypoxemia in the arterial gasimetry. Laboratorial results (including tumor markers) were also normal, as well as the thoracic X-rays study. For a more detailed study she performed an angio-CT of the chest that revealed an anastomosis between the basal internal branch of the right inferior pulmonary artery with the branch of the right inferior pulmonary vein which was dilated and tortuous; without significant contrast product in the late study. A PAM was then assumed. Visible blood loss was excluded, as well as the presence of telangiectatic lesions, gastrointestinal symptoms and family history of haemorrhagic disturbances, making the diagnosis of hereditary haemorrhagic telangiectasia unlikely. Due to the advanced age, absence of clinical symptoms or associated complications she was given conservative therapy, maintaining only surveillance.
Discussion: The authors emphasize this case for this entity to be remembered because, although rare it may have huge complications. It's associated with a considerable embolization risk. It is estimated that 1 in 4 individuals will suffer a paradoxical embolic stroke, an abscess or a heart attack. Massive pulmonary hemorrhage is less frequent. Due to adaptative mechanisms, respiratory symptoms are often mild or even neglected by the patient, being recognised only after treatment. PAM treatment includes transcatheter embolization (preferred and recommended method in most cases), surgery (resection of the affected lobe, segment or fistulae) and, rarely, medical treatment. PAM treatment reduces the risk of paradoxical embolization and right-to-left shunt, promoting better tissue oxygenation and symptomatic improvement. Treatment decision should be based on multiple factors such as the patient age, symptoms, potential contraindications or operator experience. Given the above, these patients should maintain periodic surveillance. In conclusion, the authors emphasize the fact that PAM are uncommon but are also an important entity in the differential diagnosis of common pulmonary alterations, including hypoxemia, pulmonary nodules and haemoptysis.

Key words: *Pulmonary arteriovenous malformations. Etiology. Therapeutic.*

PC 067. MOLECULAR BIOMARKERS ASSOCIATED WITH RESPIRATORY INSUFFICIENCY IN AMYOTROPHIC LATERAL SCLEROSIS

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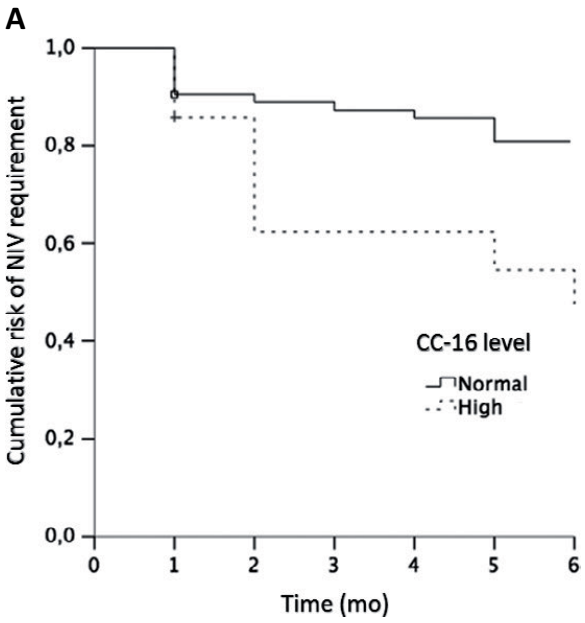
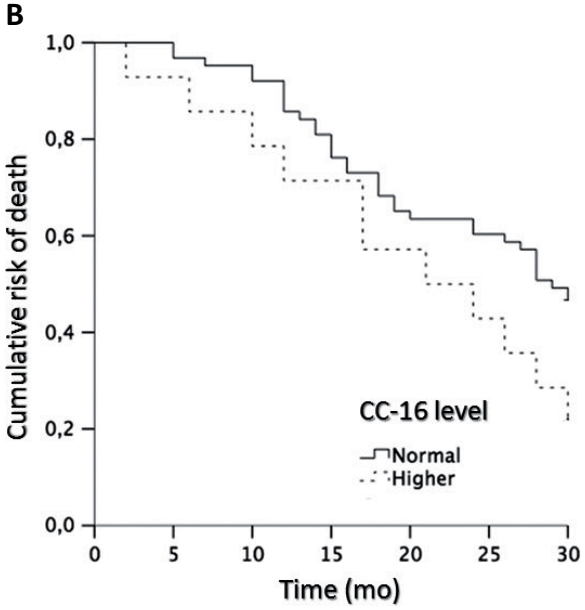
Amyotrophic lateral sclerosis (ALS) is a devastating and fatal neurodegenerative disorder characterized by rapid progressive degeneration of motor neurons in the spinal cord, brainstem, and motor cortex. Death typically occurs within 3–5 years after disease onset. The main cause of death in ALS is respiratory failure (RF). No effective treatment is available and no molecular biomarker related to respiratory outcome and to early ventilatory dysfunction was described so far. The club-cell protein (CC-16) is a biomarker associated with respiratory distress and lung inflammation. The aim of this work is to test if CC-16 could be new biomarker of ALS for early signs of respiratory insufficiency and disease progression. Additionally, we intend to study morphological and viscoelastic changes of the erythrocytes' membrane associating them with ALS patients' clinical profile. Eighty-one ALS patients and 30 matched controls were included. CC-16 were quantified by ELISA. Morphological and viscoelastic properties of the erythrocytes were analysed by Atomic Force Microscopy (AFM). CC-16 levels were significantly raised in ALS patients. In 17% of them, CC-16 level was above the upper cutoff value. On these patients, the risk of non-invasive ventilation was greater in the following 6 months and they tend to have higher mortality in the following 30 months. ALS patients have higher erythrocyte maximum height, area and volume, decreased erythrocyte membrane roughness and increased membrane stiffness

than the control group. These results indicate the abnormal erythrocyte structure and possible changes on membrane lipid composition on ALS patients. We propose that increased CC-16 levels could be a marker of lung inflammatory response, associated with ventilatory insufficiency and related to impending respiratory failure, which are not fully predicted by conventional respiratory tests. Abnormalities in erythrocyte morphology may enhance the risk of tissue hypoxia.



Kaplan-Meier's chart demonstrates that high levels of CC-16 is a prognostic indicator of non-invasive ventilation requirement in the next 6 months (p = 0.01).



Survival curves according to the concentration of CC-16, higher concentrations tend to be associated with poor prognosis (p = 0.07).

Key words: *Biomarkers. Respiratory dysfunction. Amyotrophic lateral sclerosis.*

PC 068. OUTCOMES OF VENTILATORY SUPPORT IN AMYOTROPHIC LATERAL SCLEROSIS (ALS)

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Amyotrophic Lateral Sclerosis (ALS) is a rare and progressive neurodegenerative disease. Nevertheless, it represents the most common and most severe motor neuron disease, with inevitable development of respiratory failure, and ventilatory support has a valuable prognostic impact, even in bulbar-onset ALS. Prospective study, from January 2009 to January 2018, selecting patients with confirmed or probable ALS, according to El Escorial criteria, sent to a pulmonology clinic, for functional evaluation and/or ventilatory support. Eighty-one patients were selected (11 dropping out), during the quarterly follow-up. The analysis included 70 ALS patients. The majority were males (64.3%; n = 45) with a mean age of 66 ± 11.3 years. They were mainly with a bulbar-onset (52.9%; n = 37). Only 5 ALS patients was cognitive compromise. To the first evaluation, forty-three ALS patients (61.4%) had already hypoventilation symptoms and 44 (62.9%) patients had already some degree of bulbar symptoms. The lung and respiratory muscle function evaluation showed: FVC-73.2 ± 30.9%; PIM-40.7 ± 29.7 cmH_2O; PEM-55.1 ± 42.7 cmH_2O; cough mechanics showed CPF-205.4 ± 129.1 l/min. This evaluation occurred 3 months (range: 1-48) after diagnosis. During the follow-up, ventilation was established in 50 (71.4%) patients, almost all noninvasive ventilation (96%), within a mean time of 13.4 ± 15.6 (median-7) months of the diagnosis, with good adherence in 39 patients (55.7%), and residual events occurring in 10 patients (20%). Cough assistance was started in 52 (74.3%) patients, 15 ± 17.4 (median-9) months after diagnosis. Ventilatory support was initiated in 26 patients by functional criteria, in 17 by nocturnal hypoventilation and in 7 patients by daytime hypercapnia. There was functional improvement in 17 (34%) patients after 3-6 months of ventilatory support. This impact occurred in a patient with hypercapnia and in eight patients each, with functional compromise or nocturnal hypoventilation, as the reason for initiating ventilatory support. During the follow-up time, there was a fatal outcome in 48 patients (68.5%). Overall survival was 35.1 ± 32.4 months (median 24), and 14 (20%) patients had a survival of more than 5 years. Survival after ventilatory support was 25.8 ± 24 months, that was more evident in spinal-onset (35 ± 26.5 months) compared with bulbar-onset (17 ± 15.5 months), (p = 0.0239). We concluded that, like other series, ventilatory support has a marked impact on survival (mean 2 years), which is more evident in the spinal-onset ALS patients. Even though it is a progressive disease, we observed functional improvement with ventilatory support in a significant fraction of our cohort. Nocturnal hypoventilation determined the need for ventilatory support and we reported a functional benefit, pointing out to the effectiveness of early intervention.

Key words: *Amyotrophic lateral sclerosis. Ventilatory support. Survival. Prognosis.*

PC 069. OBESITY HYPOVENTILATION SYNDROME AND CENTRAL VENOUS THROMBOSIS: A CASE REPORT

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Introduction: Cerebral venous thrombosis (CVT) is a rare thrombotic condition that mainly affects young women during pregnancy or women who used oral contraceptives. Obstructive sleep apnea syndrome (OSAS) is a risk factor for ischemic stroke of arterial origin. However, the relationship between OSAS and CVT is not known.

Obesity is associated with venous thromboembolism (VTE), but did not prove to be an independent risk factor for CVT.
Case report: A 26-year-old female, with morbid obesity (BMI 50 Kg/m^2), but no past medical history or medication, presented in June 2018 with an one-week history of occipital headache, with valsalva maneuver and supine position worsening and right pulsatile tinnitus. On neurological examination she presented a limitation of adduction of the left eye. Fundoscopy found bilateral papilledema and intraretinal hemorrhages. A lumbar puncture revealed intracranial hypertension, with no relevant findings on cerebrospinal fluid cytochemical and microbiological analysis. Brain CT showed optic nerve sheath distension and tortuosity, but no intracraneal lesions. Blood analysis showed leukocytosis, with no other relevant findings. CT-venography revealed filling defects in superior longitudinal sinus, with cortical veins enlargement suggesting venous thrombosis. The patient was admitted at Neurology ward for further investigation and treatment of unknown etiology CVT with intracranial hypertension. Anticoagulation therapy was initiated. Initial thrombophilia screening was unremarkable. After admission, severe snoring and sleep apnea was noticed and Pulmonology intervention was requested. Blood gas analysis showed type 2 respiratory failure and respiratory acidemia. Non-invasive ventilation was initiated empirically for obesity hypoventilation syndrome with further BPAP parameters adjustment (IPAP 22, EPAP 10, RR 16 and inspiratory time 1.2 sec) under polysomnography monitoring in the sleep laboratory. After clinical and blood gas analysis improvement the patient was discharged and mantained under surveillance and further investigation by Neurology and Pulmonology.
Conclusions: The authors point out that CVT is a rare condition, especially in association with obesity hypoventilation syndrome and highlight the need of better understanding the role of sleep respiratory disorders on cerebral venous flow.

Key words: *Obesity. Hypoventilation. Thrombosis.*

PC 070. NONINVASIVE VENTILATION IN PATIENTS WITH A DO NOT INTUBATE ORDER - 2 CLINICAL CASES

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Noninvasive ventilation (NIV) is effective in the treatment of acute respiratory failure in a variety of clinical conditions, often avoiding the need of invasive ventilation. Several studies have demonstrated the benefit of non-invasive ventilation in hypercapnic respiratory failure in patients with a do not intubate order, even under conditions of severe acidemia. The authors present two clinical cases of successful use of NIV in patients with a do not intubate order hospitalized in the Non-Invasive Ventilation Unit (NIVU). The first case is of a 78-year-old man, partially dependent, with history of pulmonary tuberculosis 30 years ago and smoking habits (120 UMA). The patient was hospitalized with acute hepatitis without an identifiable cause. The clinical situation complicated with respiratory sepsis from nosocomial pneumonia with global respiratory insufficiency and severe respiratory acidosis. The patient was transferred to UVNI hemodynamically unstable, GCS 3, with hypoxemia (PO2 45 mmHg) and severe mixed acidemia (pH 6.89, PCO2 > 150 mmHg, Lact 5.7 mmol/L) - under noninvasive ventilation. Ventilatory parameters were adjusted and medical therapy was performed. There was considerable clinical improvement (GCS 15) and after 6 hours gasimetry with pH 7.32, PCO2 72 mmHg. The patient was discharged with the same functional status before hospitalization. Gasimetrically at discharge in ambient air: pH 7.47, PCO2 44 mmHg, PO2 67 mmHg. The second case is of a 78-year-old woman, partially dependet, with multiple comorbidities: COPD, obesity-hypoventilation syndrome (SOH), chronic global respiratory insufficiency (baseline PCO2 50 mmHg) under 1L OLD/min; heart failure, hypertension, dyslipidemia and vascular epilepsy due to cerebrovascular disease She went to the emergency department with exacerbation of her lung diseases due to respiratory infection. A rapid clinical worsening with deterioration of consciousness and respiratory acidemia (pH 7.32, PCO2 90mmHg) was observed. She was transferred to UVNI and initiated NIV. Significant reduction of hypercapnia with improved consciousness was observed. She was hospitalized for only 7 days and recovered her usual functional status. Gasmethically at the time of discharge under O2 at 2 L/min: pH 7.42, PCO2 52 mmHg, PO2 86 mmHg. Both patients remain stable 5 months after discharge. The existence of well-equipped non-invasive ventilation units with prepared health professionals is a great asset and, in patients with a do not intubate order, may be a vital therapeutic option with very favorable results, either in the correction of respiratory failure, even in situations of severe acidemia, either in relieving the patient's symptoms and comfort. The good response in this situation reinforces the benefit of an NIV attempt even in patients with severe hypercapnic respiratory acidosis with indication for invasive ventilation.

Key words: *Non invasive ventilation. Intubation acidemia. Hypercapnia.*

PC 071. ROLE OF NONINVASIVE VENTILATION IN SEDATION FOR INVASIVE PROCEDURES IN PATIENT WITH NEUROMUSCULAR DISEASE: A CLINICAL CASE

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Pompe disease is a rare and inherited disorder, also named Glycogen storage disease type II (one of lysossomal storage disorders), that causes muscular dystrophy and reduction of respiratory muscle strength and/or diaphragmatic paralysis, which in turn is associated with restrictive ventilatory syndrome, requiring mechanical ventilatory support. We propose to describe a clinical case of a 69 years old man, retired, diagnosed with Pompe disease in 2013 and under enzyme replacement therapy with Myozyme, candidate for upper gastrointestinal endoscopy and colonoscopy for anemia and need for sedation. Noninvasive ventilation (NIV) was required for approval by the Anesthesiology team to perform the procedure and NIV was maintained during the intervention period in both techniques. The patient was asked to take his home ventilator to the gastroenterology ward, were he was sedated. In the preanesthetic period 25 3 µg fentanyl was administered and during the intervention the anesthetic etomidate 18 mg. Some adjustment of the ventilatory parameters was needed. No side effects were reported by the patient related to the sedation, but during recovery, he referred some abdominal pain, usual after videocolonoscopy. As there is no evidence of other similar cases described, we bring this case for discussion with experts.

Key words: *Pompe disease. Noninvasive ventilation. Sedation.*

PC 072. WHEN THE RADIOGRAPHY IS SILENT – CASE REPORT

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Introduction: The diagnosis of Community-Acquired Pneumonia (CAP) is based on the presence of symptoms of lower airways respiratory infection and focal signs on the clinical examination. It can be confirmed by the presence of consolidation on the chest X-ray, not due to other causes, such as acute pulmonary edema or pulmo-

nary infarction. According to the current norms of Directorate-General of Health, in view of the suspicion of CAP in outpatient, chest X-ray is not mandatory unless there are doubts in diagnosis, no response to treatment or in patients with pulmonary pathology.
Case report: We present the case of a 40-year-old man, physiotherapist, non-smoker, with a known history of bronchial asthma since the age of 12, controlled by inhalation therapy in SOS and a history of allergy to acetylsalicylic acid, metamizole and diclofenac. History of hospitalization in the previous month for correction of an inguinal hernia, without complications. The patient was observed in pulmonology medical consultation with fever (TT 38.5 ºC) with 4 days of evolution and later uncharacteristic thoracalgia at the base of the right lung, without cough, expectoration, dyspnea or nasal symptoms. At clinical examination, he was eupneic, sweaty, with peripheral oxygen saturation pO_2 95% in ambient air and at the pulmonary auscultation there were crackling fervors at the base of the right hemithorax. Blood tests without leukocytosis or neutrophilia, CRP 8.68 mg/dl. Posteroanterior and lateral chest X-ray without opacities. Abdominal ultrasound without evidence of collections. Faced with the disagreement between clinical and imaging studies, he underwent thorax CT-scan on the same day, which showed pulmonary densities with alveolar pattern in the right lower lobe, suggestive of posterior basal pneumonic condensation. He did antibiotic therapy with amoxicillin/clavulanic acid and azithromycin with clinical and analytical improvement, with disappearance of the fervors in pulmonary auscultation.
Discussion: In clinical practice, the diagnosis of CAP is based on the suggestive clinical presentation and its radiological confirmation. When the symptomatology is scarce and the classical radiology is not clear, clinical examination is essential to legitimize and reinforce the request for other exams such as thoracic CT-scan, especially to identify pneumonias of the lower lobes and particularly the posterior segments. This case reinforces the importance of clinical examination.

Key words: *Pneumonia. Radiography. Clinical Examination.*

PC 073. INVASIVE ASPERGILLOSIS IN A PATIENT WITH SOLID ORGAN CANCER

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Introduction: Invasive aspergillosis continues to be an important cause of life threatening infection in immunocompromised patients. This at-risk population is comprised of patients with prolonged neutropenia, solid organ transplant or immunosuppressive therapy.
Case report: The current case discusses a 78-year-old man with a 10 kg weight loss within 7 months and observation of cough and dysphonia for 4 months. Ten years earlier, he had been diagnosed with colorectal adenocarcinoma (T3N1M0) and treated with neoadjuvant chemotherapy, resection, and adjuvant chemotherapy and radiotherapy. He ended his follow-up care plan 5 years earlier. He also had type 2 diabetes, arterial hypertension, dyslipidemia. He was HIV negative, nonsmoker and had no history of corticosteroids treatment. Patient performance status was 0 and at physical examination he had decreased breath sounds at left upper chest. The WBC (6.9×10^9/L) and neutrophil (4.17×10^9/L) counts were also normal. A laryngoscopy and computed tomography scan (CT) of the neck revealed left vocal cord paralysis. Both chest X-ray and thoracic abdominal pelvic CT revealed an extensive thoracic lesion (with 12 cm of bigger axis) at the upper left lobe with invasion of the lingula. This lesion also contacted the mediastinum (the aortic arch, the recurrent laryngeal nerve) and the left superior lobar artery. The CT also showed multiple bilateral lung nodules, an hepatic lesion and an adrenal lesion. The colonoscopy didn't show any alteration suggestive of rectal cancer recidive. A bronchoscopy and a CT guided lung biopsy were performed. Microscopic examination of the bronchoscopy biopsy showed chronic inflammatory infiltrate and masses of necrosis inflammation with hyaline fungal hyphae with dichotomous branching and septations, compatible with *Aspergillus* species. Histological result of CT guided lung biopsy showed malignant cells of colorectal adenocarcinoma. A 3 month course of Voriconazole was initiated. The chemotherapy was delayed. Two months after, he was admitted with the diagnosis of nosocomial pneumonia and respiratory failure. He died in the hospital.
Discussion: This case highlights an invasive aspergillosis (IA) in a patient in which the only immunosuppressive condition was a solid metastatic tumor. To our knowledge this is a rare condition. It also reports an exuberant pulmonary recurrence of colon cancer. On the other hand, the decision about when to proceed with chemotherapy following the diagnosis of aspergillosis should involve a multidisciplinary team. These decisions must consider the risk of progressive aspergillosis vs the risk of death from the underlying malignancy if this treatment is delayed.

Key words: *Invasive aspergillosis. Cancer.*

PC 074. CLINICAL AND ANALYTICAL PREDICTORS IN THE DIAGNOSIS AND TREATMENT OF VIRAL RESPIRATORY INFECTIONS

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Introduction: Respiratory viruses are etiology of more than 60% of acute lower respiratory tract infections. Despite the safety and efficacy of neuraminidase inhibitors in Influenza infections, antibiotic therapy is often used empirically and exclusively. A high level of clinical suspicion is required for the diagnosis and treatment of viral respiratory infections.
Objectives: Understand the discriminative power of respiratory symptoms, analytical parameters and pneumonic infiltrates to affirm viral respiratory infection and empirically start neuraminidase inhibitor.
Methods: Cross-sectional study including patients who were hospitalized in the first semester of 2018 due to pneumonia, acute tracheobronchitis or acute exacerbation of COPD/asthma/asthma-COPD overlap/bronchiectasis (N = 55) in the Pneumology Department of a University Hospital Centre. In those patients, molecular biology of respiratory viruses was performed from a pharyngeal swab. The computer program IBM® SPSS Statistics® was used to calculate prevalence of baseline characteristics of the patients, perform chi-square and Fisher tests and make ROC curves to calculate analytical cutoffs which could be potentially diagnostic of viral infections. A significance (alpha) equal to 0.05 was considered.
Results: The respiratory viruses' swab was positive in 34.5% (n = 19) of the patients, from which 8 patients had positivity for Influenza A or B. As a whole, a male predominance (65.5%, n = 36) and a median age of 74 years were observed; the most prevalent respiratory comorbidities were COPD (50.9%, n = 28) and bronchiectasis (52.7%, n = 29); the prevalence of anti-flu vaccination in the last 12 months was equal to 18.2% (n = 10). Regarding demographic characteristics and respiratory comorbidities, no significant differences were identified between patients with positive and negative swabs ($p > 0.05$). Fever (68.4%, n = 13, p = 0.037), cough (94.7%, n = 18, p = 0.029), headaches (15.8%, n = 3, p = 0.037) and sputum (84.2%, n = 16, p = 0.021) were significantly more prevalent in patients with positive swab. The presence of 'influenza-like illness' criteria was significantly more prevalent in patients with positive swab (57.9%. n = 11, p = 0.016). The presence of pneumonic infiltrates on chest radiography was significantly less frequent in patients with positive swab (15.8%, n = 3, p = 0.021). The neutrophil/lymphocyte ratio is signifi-

cantly discriminative (p = 0.042) to predict swab positivity/negativity. The analytical parameters with the highest discriminative power to distinguish between presence and absence of influenza infection were absolute blood counts of leukocytes and neutrophils - we obtained cut-off values of < 11,160/uL leukocytes (AUC = 0.731, p = 0.038, sensitivity = 87.5%, specificity = 63%) and < 8,710/uL neutrophils (AUC = 0.721, p = 0.047, sensitivity = 87.5%, specificity = 65.2%) for diagnosis of flu (A or B). Metapneumovirus (9.1%, n = 5), influenza A (7.3%, n = 4) and influenza B (7.3%, n = 4) were the most frequently found viruses. In the 19 patients with positive swab, there was a significant relationship between the empirical prescription of neuraminidase inhibitor and influenza virus isolation (p = 0.041). Bacterial overinfection was assumed in 84.2% (n = 16) of patients with positive swab, and there was no significant difference in antibiotic use/duration. Hospitalization times were similar in both groups.
Conclusions: According to our analysis, the symptoms fever, cough and/or headaches, the absence of pneumonic infiltrates and leucocyte and neutrophil counts are more consistent data favoring the presence of viral etiology for lower respiratory infection and the decision to empirically start neuraminidase inhibitor. Serum lymphopenia and lymphocyte/monocyte ratio, which are described in the literature, did not show adequate discriminative power; the high prevalence of bacterial overinfection might have contributed to these results.

Key words: *Lower respiratory tract infection. Respiratory viruses. Influenza viruses. Neuraminidase inhibitor. Influenza-like illness.*

PC 075. A CASE OF ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS

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Introduction: Allergic bronchopulmonary aspergillosis consists in a complex hypersensitivity reaction in response to colonization of the airways with *Aspergillus* and occours almost exclusively in patients with asthma or cystic fibrosis.
Case report: There is a case of a female patient, age 51, account manager, non smoker. No non-respiratory diseases at the date, known family history of atopy. Dyspnea episodes since her 20s, being necessary inhalation therapy. Purulent sputum since 2014. She has been followed in another hospital considering the diagnosis of allergic bronchopulmonary aspergillosis in 2015. Imagiologically presenting bilateral bronchiectasis with inflammatory fillings and mucoid impaction. Analytically peripheral eosinophilia (2,840); total IgE count > 2,000; IgG and IgE + for *Aspergillus fumigatus* and *niger;* galactomannan antigen + in the bronchial mucus. Under Itraconazol for 6 months with clinical and radiological improvements. In December 2017 reappearance of purulent sputum and fever. Chest CT revealed multilobar bronchiectasis, some of which varicosal, with inflammatory infiltrates, mucoid impaction and centrilobular nodules. She then restarted the itraconazol treatment. Referenced to a Pneumology consult at Centro Hospitalar de Setúbal in april 2018. Clinically better still under itraconazol. From the lab works she had no eosinophilia, total IgE count > 5,000, IgG and IgE + for *Aspergillus fumigatus* and *niger*. Chest CT showed resolution of the left superior lobe's bronchiectasis filling in; worsening of the infiltrates at the right superior lobe's bronchiectasis with consolidation; in the medium lobe a worsening of the inflamatory changes with more expression of the centrilobular micronodules and larger filling of the bronchiectasis. She was then submitted to a bronchofibroscopy that showed evidence of bronchial occlusion of the B2R by a bleeding perly lesion. Bronchial washing: bacteriological examination – mixed culture; negative direct mycobacteriological examination (culture under course); positive PCR for *Mycobacterium tuberculosis complex*; negative mycological examination; positive galactomannan antigen; negative cytology for neoplasic cells. The rigid bronchoscopy revealed necrotic tissue in the posterior apical segment of the right superior lobe and mucoid secretions in the remaining bronchial three. Bronchial biopsy: active chronic inflamatory process and fibrinogranulocitary exudate. Bronchial secretions: *Pseudomonas aeruginosa*; negative mycological examination; negative direct mycobacteriological examination (culture under course); negative cytology for neoplasic cells. Due to positive PCR for *Mycobacterium tuberculosis complex* in the bronchial washing of the first endoscopical examination the patient was referenced to the Centro de Diagnóstico Pneumológico de Setúbal, starting antibacillus therapy in june 2018. Later, the microbiological results of the bronchial mucus by rigid bronchofibroscopy isolated *Pseudomonas aeruginosa*. The patient was hospitalized to undergo proper antibiotic therapy.
Discussion: The present clinical case reflects the complexity of the polymicrobial infections in patients with large bronchiectasis and the importance of the endoscopic techniques as susbsidiary examinations in their diagnosis.

Key words: *Allergic bronchopulmonary aspergillosis. Tuberculosis.* Pseudomonas aeruginosa.

PC 076. CHRONIC EMPYEMA TO NOCARDIA AND ACTINOMYCES WITH BRONCHOPLEURAL AND CUTANEOUS FISTULATION

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Introduction: *Empyema necessitatis* is a rare clinical entity, sometimes related to tuberculous or *Actynomyces* infection. Broncopleural and pleural-cutaneous fistula is also a rare clinical presentation, which involves difficulty in its management, as we demonstrate trough this clinical case.
Case report: Fifty-three year old male, former smoker, on treatment with imatinib for chronic myeloid leukemia, in stable phase. Followed in Pulmonology department for TB sequelae with an associated severe obstructive ventilatory alteration. In December 2016, symptoms of respiratory infection and spontaneous cutaneous purulent drainage started. Subsequent studies revealed a fistula from chronic empyema. Partial response to antibiotics (piperacilin-tazobactam followed by imipenem and vancomycin) was observed, however he remained with abundant spontaneous cutaneous purulent drainage. Shortly after, the patient was diagnosed with chronic aspergillosis and started voriconazol with good tolerability. He was evaluated by Thoracic Surgery, who performed a thoracostomy to help drainage. A small chest tube was inserted in order to maintain stoma patency. Bronchofibroscopy revealed broncho-pleural fistula on the left superior lobar bronchus. At the same time, the patient presented with a swollen cervical cyst that was excised and microbiology culture identified *Actynomyces* and *Corynebacterium*. Sputum microbiology revealed *Scedosporium*. The patient was discharged after 50 days, maintaining daily thoracic purulent drainage. He remained without fever or acute recurrent infections, however with limited functional capacity and difficulty in speaking due to persistent air leak through the bronchopleural and pleuro-cutaneous fistula. In December/2017 the patient presented with astenia, weight loss, cough, fever and with acute hypoxemic respiratory failure. Chest CT scan showed hydropneumothorax and marked parenchymal destruction in the left lung and loculated pleural effusion ipsilaterally; also maintained a cavity in the upper right lobe with less intra-cavitary material. He patient was treated with piperacillin-tazobactam for 21 days, with good clinical and analytical response. Multiple samples were collected from spu-

tum, thoracostomy drainage, in aerobic and anaerobic cultures. A pleural biopsy was performed via bronchoscopy (through the broncho-pleural fistula). *Nocardia* was isolated in thoracostomy purulent fluid culture and bronchoalveolar lavage. *Actinomyces* (previously isolated) and *Nocardia* infection were assumed, started treatment with Imipenem and trimethoprim/sulfamethoxazole (TMP-SMX) iv, with progressive reduction on thoracic purulent drainage. After the first 3 weeks of therapy, an endobronchial valve was placed for the treatment of bronchopleural fistula to reduce air leak and facilitate left cavity sterilization. The patient became less symptomatic after the procedure –more able to speak and fully breathe. He was discharged with indication to continue long-term treatment with oral TMP-SMX and amoxicillin-clavulanate.
Discussion: This case reveals the difficult management of chronic empyema *necessitatis*, particularly in association with bronchopleural fistula, with the possible involvement of multiple microbiological agents. The multiple TB sequelae with lung architectural distortion, together with chronic immunosuppressive hematologic disease were the possible causes to this rare presentation.

***Key words**: Infection. Empyema. Bronchopleural fistula. Pleuralcutaneous fistula.*

PC 077. A VERY UNUSUAL CASE OF CHEST PAIN AND HEMOPTYSIS IN A YOUNG MAN

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Case report: A 29-year-old male, born in India and living in Portugal for the past 15 years, previously healthy, presented in the emergency room (ER) with cough, mucopurulent sputum, mild hemoptysis, pleuritic pain referred to the right lower chest, mild dyspnea, fever, night sweating and weight loss. Blood tests presented with elevated inflammatory parameters. The chest X-ray showed a right lower lobe consolidation. The physician prescribed a course of amoxicillin clavulanic acid and azithromycin to treat empirically pneumonia and the patient was discharged. He did not get better and two weeks after he went back to the ER with identical, but worsening, symptomatology. The patient had no regular medications, presented a heavy alcohol use, was a light smoker and would occasionally smoke hashish. Six months prior to presentation, he reported having right shoulder pain, resorting to the ER five times and was always treated for musculoskeletal pathology. The patient had been in India ten months before. At presentation he had a temperature of 38.7ºC, heart rate of 110/min and oximetry was 93% on room air. Physical exam revealed diminished right lung sounds and a liver margin 5cm below the costal arch. The rest of the exam was unremarkable. Laboratory tests revealed anemia, elevated inflammatory parameters and alkaline phosphatase (ALP) (hemoglobin 91 g/L, leukocytes 21.8 K/uL, neutrophils 76%, C-reactive protein 298 mg/L, ALP 182 U/L). The chest X-ray had now a near-complete opacification of the right hemithorax and a air-fluid level visible at the apex. A thoracentesis was performed which reveled a brown purulent pleural fluid likened to "anchovy paste". A computed tomography scan exposed a hepatic abscess in continuity with the diaphragm and right lung.Combining all aspects there was high suspicion of a amebiac liver abscess complicated by pleuropulmonary infection by *Entamoeba histolytica. T*he diagnosis was confirmed by serology. Hepatic drainage was placed for thirty-six days and the pleuropulmonary drainage for fifty-nine days. He was treated with a forty-eight-day course of metronidazole (1,000 mg, 8/8 hours) which was discontinued because an iatrogenic effect was suspected once the patient showed signs of peripheral neuropathy. A luminal agent, paromomycin (750 mg 8/8 hours) was recommended for seven days. The patient had a slow but complete recovery.
Discussion: Pulmonary manifestations of this disease are rare especially in areas with low rates of amebic infections such as Europe. In developed countries amebiasis in generally seen in migrants and travelers. Manifestations can confound physicians and a differential diagnosis with other infectious or malignant diseases can arise. Furthermore, a therapeutic approach in more severe cases is less acknowledged and is in need of a more comprehensive approach.

***Key words**: Amebiac liver abscess. Pleuropulmonary infection.* Entamoeba histolytica.

PC 078. FEMALE NATURE – LADY WINDERMERE SYNDROME

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Introduction: Reich and Johnson first used the term "Lady Windermere syndrome" in 1992. This condition is characterized by the association of bronchiectasis in the lingula or middle lobe of the right lung and *Mycobacterium avium complex* (MAC) infection. This syndrome occurs predominantly in elderly thin women who have no underlying lung disease and no smoking history. This can be also associated with kyphoscoliosis, *pectus excavatum* and mitral valve prolapse.
Case report: A 74-year-old woman, non-smoker, house keeper, went to the emergency department because of abundant hemoptysis for 2 days ago, with no other complaints. From the previous history, there was reference to weight loss, asthenia, and recurrent episodes of mucopurulent sputum, sometimes hemoptoic, for 5 years, that led to several cycles of antibiotic therapy coinciding with the time when cylindrical bronchiectasis was diagnosed on the lingula. At the physical examination, she was hemodynamically stable, with no fever and a peripheral oxygen saturation of 98% while breathing room air. The patient was thin and inspiratory squeaks were audible on pulmonary auscultation. The analytical study and the chest X-ray did not present alterations. The persistence of clinical symptoms determined her hospitalization in the Pulmonology Department. The last thoracic CT showed micronodulation with tree-in-bud morphology, as well as areas of ground glass opacities in the lingular region, in addition to the previous documented bronchiectasis. The bronchoscopy showed active hemorrhage on the lingular bronchus. The bacilloscopy of bronchoalveolar lavage and bronchial washing was positive and *Mycobacterium avium* was identified on the cultures. She starts antimycobacterial therapy with clarithromycin, ethambutol and rifampicin and since then she remains asymptomatic.
Discussion: The authors aim to emphasize the insidious nature of MAC infection, since symptoms may be present for months or, as in this case, years until their diagnosis. The recognition of "Lady Windermere Syndrome" as a distinct phenotype of MAC infection allows the early diagnosis and treatment of this condition, avoiding the degradation of the general condition of the patient, the consumption of health resources and eventual associated complications.

***Key words**: Bronchiectasis.* Mycobacterium avium *complex.*

PC 079. CLINICAL FEATURES OF LUNG ABSCESSES - EXPERIENCE OF A PULMONOLOGY DEPARTMENT

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Introduction: Lung abscesses (LA) are necrotic collections of the lung parenchyma, originated by the action of microbial agents.

They are mostly related to the aspiration phenomenon and the anaerobic bacteria of the oropharyngeal flora have a predominant pathogenic role.
Objectives: Clinical characterization of diagnostic and therapeutic interventions as well as prognosis of hospitalized patients with LA in a pulmonology department.
Methods: Retrospective analysis of the medical records of hospitalized patients with LA between 2000 and 2017 in a pulmonology department. Cases of necrotizing pneumonias, cavitated tumors, tuberculosis or cavitations secondary to pulmonary infarction were excluded from the analysis.
Results: We studied a population of 39 hospitalized patients with LA, with a mean age of 57.6 (± 15.1) years. Thirty-three of these patients were male. In 27 patients the LA was classified as primary. In 30 patients the LA was classified as acute (duration < 6 weeks). The most common presentation was compatible with acute respiratory infection (productive cough and fever less than 15 days old) in 28 patients, and the median duration of pre-hospitalization symptoms was 14 days. Alcoholism was the most frequent primary risk factor, and immunosuppression was the major secondary one. Comorbidities were identified in 29 patients, respiratory pathologies were the most frequent, present in 33% of patients. The most common LA locations were the upper lobe of the right lung (12 subjects) and the lower lobe of the left lung (11 subjects). At least one microbial etiologic agent was identified in 9 subjects. Only 1 had anaerobic bacteria isolation. There were 21 initial antibiotic therapy schemes, and there was need of antibiotic alteration in 24 subjects. Surgical therapy was required in 4 patients. There were complications in 11 patients and 3 died. The mean duration of hospitalization was 21.6 (± 11.1) days.
Conclusions: Although relatively uncommon, LAs are responsible for considerable morbidity and mortality, making early diagnosis and treatment important. Contrary to that described in the literature, microbiological identifications were predominantly of aerobic bacterial agents, possibly due to the inherent characteristics of anaerobic agents, which make their isolation difficult.

Key words: *Lung abscess. Aspiration pneumonia. Lung infections.*

PC 080. PNEUMOCOCCAL PNEUMONIA AT AN HOSPITAL CENTRE – A ONE-YEAR EXPERIENCE

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Introduction: *Streptococcus pneumoniae* is one of the most prevalent etiologic agents of community-acquired pneumonia. This is a very frequent disease in the Portuguese population which causes a substantial amount of hospital admissions per year. It is also a major cause of death and loss of quality of life in high risk individuals.
Objectives: To evaluate all patients from a Portuguese hospital centre with community-acquired pneumococcal pneumonia during 2017.
Methods: Retrospective study conducted among all patients from a Portuguese hospital centre with community-acquired pneumococcal pneumonia during 2017. Data were collected by reviewing medical records. Data on serotyping were provided by a specialized laboratory. Descriptive statistical analysis was conducted to evaluate the sample using SPSS Statistics v23® and Microsoft Excel 2013®.
Results: Total sample of 54 patients. Mean sample age was 69.5 years, 59.3% were males and 56.6% were current or former smokers (mean pack years 65.5). The most prevalent comorbidities were chronic obstructive pulmonary disease (38.9%), heart failure (25.9%) and chronic kidney disease (22.2%). 20.4% of patients received antipneumococcal vaccination, mainly pneumococcal polysaccharide conjugate vaccine (13-valent). 31.5% received *Influenza* vaccine. The most frequent symptoms were cough (68.5%), dyspnea (64.8%), sputum (53.7%, mainly purulent) and fever (51.9%). Mean symptom duration was 4.4 days. The most frequent radiologic pattern was lobar consolidation (48.1%). Mean serum leukocyte count was 14,900/µL and mean C-reactive protein level was 24.9 mg/dL. Mean serum pH was 7.4, mean pO2/FiO2 ratio was 247.1 and mean serum lactate level was 2.6 mmol/L. 44.4% of patients presented with invasive pneumococcal disease (IPD). 18.5% of patients were admitted to the intensive care unit (mean APACHE-II score 23, mean SAPS-II score 46). 22.2% required mechanical ventilation, 14.8% developed septic shock, 3.7% required renal replacement therapy and 5.6% developed empyema. In 94.4% of patients bacteria were isolated from body fluids. In 35.3% of these patients the bacterial serotype was obtained, with serotype 8 being the most prevalent. Only 2 patients had pneumococcal pneumonia caused by a serotype included in their vaccine. The most used definitive antibiotic therapy was penicillin (40%) and amoxicillin-clavulanate (24.0%). Mean empiric and definitive antibiotic therapy duration was 14.5 days. The mortality rate of the sample was 16.7%.
Conclusions: Despite the bias associated with a retrospective study and the low number of bacterial serotypes obtained, these data show that vaccination is crucial to the prevention of the most severe forms of pneumococcal pneumonia. The high prevalence of IPD and low vaccination rates of the sample show that enforcing this preventive strategy is of utmost importance.

Key words: *Pneumonia.* Streptococcus pneumoniae.

PC 081. AN UNUSUAL CASE OF PULMONARY ASPERGILLOSIS

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Introduction: *Aspergillus*-related pulmonary disease ranges from a hypersensitivity response to infectious, acute or chronic forms, comprising aspergilloma *per se*, cavitary disease, fibrosing disease, and invasive disease. The main determinants for the development of disease in their different forms are the severity of the immunological status and underlying lung disease.
Case report: Authors presents a clinical case of pulmonar aspergillosis with an important destruction of pulmonary architecture. The patient is a 30-year-old female from Guinea, with a history of previous pulmonary tuberculosis, who presented with complaints of dyspnea and hemoptyses. Thoracic radiography revealed an important deviation of the mediastinal structures and of the tree to the right hemithorax, associated with a hypotransparency of the homolateral apex with Monod's Sign. A thoracic tomography showed a marked structural structure, presence of several cavities, some with a mycetoma structure, the greatest at the apex, conditioning almost total destruction of the right lung. The endoscopic aspects reveal the endobronchial involvement of documented lesions, exhibiting at the anterior segment of the right superior right lobe a mycetoma. The complementary study revealed positive determination of galactomannan on blood and and on bronchoalveolar lavage, positive pdetermination of precipitins to *Aspergillus fumigatus*, favored the diagnosis of fungal infection by this agent. The patient was treated with voriconazole and right pneumonectomy, which resulted in pathology with the diagnosis of invasive pulmonar aspergilosis. As an intercurrence, there was an episode of right jugular thrombosis, suggesting the hypothesis of suppurative thrombophlebitis (Lemiérre syndrome?). Chronic cavitary aspergillosis, as well as its progression in the fibrosing form, frequently in immunocompetent patients with the great pulmonary control function, as in the presented case. Invasive disease is uncommon in patients without established immunosuppression status. The authors highlight the

exuberance of the documented pulmonary and endobronchial aspects, the diagnostic classification challenge and the extension of the lesions conditioning antifungal therapy with pneumectomy.

Key words: Aspergillus. *Pulmonary aspergillosis. Tuberculosis.*

PC 082. PULMONARY DISEASE TO ATYPICAL MYCOBACTERIA: A 7-YEAR CASE ANALYSIS IN HOSPITAL PROF. DOUTOR FERNANDO FONSECA, EPE (HFF)

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Introduction: Atypical mycobacteria (AMBT) are rare agents of lung disease. Despite a predominance of disease in immunocompromised patients, it affects patients with or without previous lung disease. In this analysis we propose to make a demographic, epidemiological and clinical review of the cases of AMBT in HFF from 2011-2017.
Methods: We conducted a retrospective study including adults with at least one positive isolation in a cultural exam for AMBT from 2011-2017 in HFF. After excluding the extra-pulmonary cases, we analysed the following aspects: age, race, tobacco consumption, immunosuppression, previous lung disease, clinical presentation, time to medical attendance and to diagnosis, methods of diagnosis, lung CT-scan patterns, bronchoscopy findings and decision to start treatment. We used the criteria on the 2017 British Thorax Society (BTS) guidelines for AMBT disease.
Results: From the 27 patients included initially, only 24 had positive isolation in sputum, bronchic secretions (SB) or broncho-alveolar lavage (LBA). The mean age was 56,5, with a male (54%) and white (70%) predominance. 33% consumed tobacco. 8 different species were isolated with a preference for the slow growing AMBT of the *avium* complex (50%), followed by *M. gordonae* (21%), 2 cases of *M. chelonae* e *M. fortuitum*, respectively, among others. From the 24 patients, 62% were immunocompromised, with HIV (21%), haematological cancer (17%), lung cancer (12.5%) and diabetes (17%). 62% had previous lung disease, specifically: bronchiectasis (21%), COPD (17%), history of tuberculosis (4%), asthma (8%) and lung cancer (12.5%). 17% had no lung or immunosuppressive disease. Two of those had gastro-oesophageal reflux disease. The most referred symptom was productive cough (79%), 21% with haemoptysis, followed by consumptive symptoms (58%), fever (33%) and night sweats (17%). The mean time until medical attendance was 2.8 months and 5.6 months to diagnosis. In 29% of patients the cultural diagnosis was obtained from two samples of sputum, in 21% in only one sample and in 50% in the SB/BAL. 66% of the patients went through bronchoscopy. 62.5% of those had bronchorrhea and there was a high rate of diagnosis through the cultural exams of SB/BAL (75%). From the 79% in which we had access to the lung CT-scan, 68% presented with bronchiectatic-nodular pattern vs fibrocavitary (21%) vs nonspecific findings (11%). According to the BTS *guidelines*, 79% fulfilled criteria to lung disease to AMBT, whereas 53% where confirmed to have started treatment (the rest had requested hospital leave, were followed in another center, *e.g.)*. 21% did not meet criteria for lung disease, though one patient started therapy with clinical improvement.
Conclusions: Similarly to other series, AMBT caused mainly lung disease. It was as frequent in immunocompromised patients as it was in patients with previous lung disease. The bronchiectatic-nodular pattern, usually associated with infection to *avium* complex, occurred in 53% of the cases by different species. Despite not meeting disease criteria, one patient started therapy with clinical improvement.

Key words: *Atypical mycobacteria. Case analysis. Atypical mycobacteria case analysis.*

PC 083. INVASIVE PULMONARY ASPERGILLOSIS WITH PLEURAL EMPYEMA – A RARELY SEEN PRESENTATION OF DISEASE TO *ASPERGILLUS* SPP

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Introduction: The fungi belonging to *Aspergillus genera* can cause lung disease, being *A. fumigatus* the species most frequently involved. The disease can present itself in different ways such as allergic broncho-pulmonary aspergillosis, *Aspergilomas* or invasive pulmonary aspergillosis (IPA). The latter is a severe form of lung disease that involves mostly immunocompromised patients. The following is a clinical case that depicts a rare form of IPA with pleural empyema in an immunocompromised patient.
Case report: A 34 years old, male, non-smoking, Caucasian patient with a stage IV type B2/B3 thymoma. Followed since 2007 in Oncology, he was first submitted to thymectomy with adjuvant radiotherapy (RT) and chemotherapy (CHT), needing multiple surgical resections for local recurrence. In 2017 he restarted CHT after the disease progressed, only to stop months later in July in the setting of a febrile neutropenia. Since he expressed PD-L1 in 80% he started pembrolizumab, which he underwent until September, when a myocarditis, pneumonitis and hepatitis, forced him to stop therapy and start oral prednisolone (80 mg/day). In 4/04/2018 while he was reducing dosage of prednisolone, he started with productive cough, with purulent putrid sputum, accompanied by pleuritic right chest pain, asthenia and intermittent fever, mostly at the end of the day. At the initial evaluation he presented a elevation of leucocytes (12,500/uL) and C-reactive protein (4.6 mg/dL). The chest radiography shown right upper lobe (RUL) atelectasis with a air/fluid level next to the small cisure. He began firstly amoxicillin/clavulanate, followed by levofloxacin with no clinical improvement and rise of the inflammatory markers, such as leucocytosis (18,800/uL), C-reactive protein (10.6 mg/dL) e sedimentation velocity (64 mm/h). Multiple samples of sputum were also collected for direct and cultural exams, with no diagnosis. He was admitted in the hospital by 4/05 and started piperacillin/tazobactam. By 8/05 he underwent a Lung CT-scan which found pleural irregular thickening, with air/fluid level suggestive of empyema with RUL atelectasis with air bronchogram. He needed to escalate therapy to meropnem with clindamycin and undertook thoracic drainage, draining a purulent pleural effusion, that was sent to microbiological exams. By 16/5 he started therapy with voriconazole after a species of A. fumigatus was isolated in the pleural effusion. A Lung CT-scan was repeated by 28/5 showing an equally sized empyema now with consolidation of the middle lobe and right lower lobe. At the 22th day of therapy he developed hepatotoxicity needing to replace voriconazole for lipossomic b amphotericin. Globally he completed 6 weeks of anti-fungal therapy, with clinical and laboratorial improvement.
Discussion: In the setting of an immunocompromised patient presenting with fever and productive cough resistant to broad-spectrum antibiotics, it is fundamental to make an early the differential diagnosis with IPA. Only then it's possible to avoid the late diagnosis of a potentially severe disease. This patient presented the rare particularity of an IPA with pleural empyema, that would even allow the diagnosis by cultural exam of the pleural effusion.

Key words: *Invasive pulmonary aspergillosis. Pleural empyema. Pleural empyema caused by* Aspergillus. A. fumigatus.

PC 084. *MYCOBACTERIUM KANSASII* INFECTION: THE UNUSUAL SUSPECT FOR THE USUAL SYMPTOMS

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Introduction: Despite *Mycobacterium tuberculosis* being the most important mycobacteria in a public health perspective, other my-

cobacteria are gradually being identified (there are already more than 150 different species identified). They are opportunistic agents with multiple factors contributing to its pathogenicity. The isolation of a non-tuberculous mycobacteria in a non-sterile sample doesn't necessarily mean disease. Clinical, microbiological and imagiologic criteria have to be present.

Case report: Sixty-four year-old male, former smoker of 50 packs/year. Arterial hypertension and peripheral arterial disease. Followed in the Pulmonology department since 2015 for COPD GOLD B, with predominant emphysema. Lung tests with moderate obstructive syndrome, with hyperinflation TLC = 6.60 L (98%); RV = 3.32L (144%); FVC = 3.17L (77%); FEV1 = 1.93L (59%); Tiffeneau index = 61). CT scan of 2015: centribolular emphysema, fibrotic scarring changes with apical predominance and bilateral. He was treated with LAMA-LABA, with moderate improvement and symptomatic control (although maintaining dyspnea mMRC2). In a routine evaluation in October 2017, he presented with worsening of dyspnea, cough and with increase in quantity and purulence of daily sputum. He had already been treated by the Family Physician with Azithromycin and short-term corticosteroids, without improvement of symptoms. He also complained of progressive anorexia and asthenia which led to him stopping to walk unaided. CT scan revealed pleural-parenchymal apical left thickening, aggravated from the previous study and with a more nodular pattern, with a central necrosis cavity with about 10 mm new 7 mm nodule in the superior segment of the right inferior lobe. Sputum microbiological analysis without any bacteriological, mycological or mycobacteriological finding. CT guided pulmonary biopsy (January 2018) revealed fibrotic tissue with fibroblast proliferation and anthracotic pigment; focally with epithelioid granulomas with necrosis area and polymorphonuclear neutrophils. PAS coloration and Zielh-Nielsen were negative in the histologic fragment. PCR for *Mycobacterium tuberculosis* was also negative. Give the high suspicion, new sputum collections were performed (February 2018) with direct examination revealing rare acid-alcohol-resistant bacilli. Cultural exam revealed *Mycobacterium kansasii* and therefore he started empirical treatment for non-tuberculous mycobacteriosis.

Discussion: This case demonstrates the necessity to take into account all possible differential diagnosis and that not always the most suspicious is actually the culprit. Given the symptoms of the patient, risk factors, lung nodule, the most probable diagnosis would be lung cancer. However histology ruled out that diagnosis. On the other hand, it is also important to recognize the low sensibility of direct and culture tests for tuberculosis in lung biopsy tissue, as well as of the molecular tests (acid nucleic amplification or resistance molecular tests, only validated for respiratory samples) – a negative test does not rule out mycobacterial infection. Therefore, it is import that when there is high clinical suspicion, one must persist in collecting microbiological samples (sputum or bronchoalveolar lavage) in order to make the right diagnosis and begin targeted treatment.

Key words: *Infection. Non-tuberculous mycobacteria. Pulmonary nodule.* Mycobacterium kansassi.

PC 085. PULMONARY ABSCESS PRESENTING WITH NEUROLOGIC SYMPTOMS: CASE REPORT

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Introduction: Brain abscess is a serious and life-threatening clinical entity. It is usually the result of haematogenous seeding from a distant infection, most commonly an intrapulmonary abscess. Pyogenic infection of brain parenchyma begins with a localized area of inflammation referred to as cerebritis, which can develop and transform into an abscess. The diagnosis is not always straightforward and in many cases its aetiology cannot be identified.

Case report: We present the case of a 47-year-old male patient, with a medical history of hypertension and smoking and no known intravenous drug consumption, who presented in the emergency department with visual disturbances (pelopsia) and ataxic gait. Head-computed tomography (CT) showed a dubious left pontic hypodensity and a parasagittal parietal hypodensity of probable acute ischaemic nature. He was admitted with a suspected diagnosis of ischaemic stroke. During hospitalization the patient developed a sudden pleuritic pain and antipyretic-refractory fever. A chest radiograph revealed right pulmonary infiltrates. Thorax-CT scan showed areas of parenchymal consolidation with air bronchogram in relation to bronchopneumonia. Transoesophageal echocardiography was performed and excluded endocarditis as a possible source of septic embolisation. HIV testing was negative. Empiric antibiotic therapy with vancomycin and piperacillin/tazobactam was started after blood culture sample collection. Due to clinical worsening with severe respiratory failure, the patient was transferred to the Intensive Care Unit (ICU). A transoesophageal echocardiography was repeated and continued to show no signs of endocarditis. Blood cultures revealed a methicillin susceptible *Staphylococcus aureus* (MSSA) strain and an antibiotic switch to flucloxacillin was made. Thorax-CT scan reevaluation showed cavitated bilateral pneumonia with gas bubbles inside, compatible with abscess formation. A control head-CT scan was not revealing of the nature of the lesions. Magnetic resonance imaging of the brain showed most likely internal left parietal brain abscess. After neurosurgical consultation, the patient underwent stereotactic, left temporal craniotomy, with drainage and resection of the abscess. Brain tissue culture showed the same previously isolated MSSA strain. There was a subsequent improvement in the patient's clinical situation.

Discussion: This is a rare case of a middle aged immunocompetent patient with no initial respiratory symptoms, who presented with plain neurologic manifestations due to dissemination of *Staphylococcus aureus* infection from a pulmonary abscess. Brain abscess is associated with a high mortality, but timely and appropriate treatment may enable a full recovery without significant neurologic damage.

Key words: *Pulmonar abscess. Ischaemic stroke. Cerebral abscess.*

PC 086. A CASE OF HYPOGAMMAGLOBULINEMIA: RESPIRATORY COMPLICATIONS

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Hypogammaglobulinemia may be associated with several primary immunodeficiencies (PID). Common variable immunodeficiency (CVID) is the most common form of PID resulting from a predominantly antibody production defect in children or adults and affects about 1 in 25,000 individuals. Patients with CVID have defects in B-cell differentiation, with consequent hypogammaglobulinemia due to impaired immunoglobulin production. Hypogammaglobulinaemia may also have a secondary cause, to drugs (e.g.: glucocorticoid, rituximab), malignancy or other systemic diseases that may cause medullar suppression or protein loss, such as nephrotic syndrome, extensive burns or enteropathy. Age of clinical onset of CVID is variable, diagnosed more frequently in the 3rd and 4th decades of life. The clinical manifestations of CVID are multisystemic, including infectious and non-infectious complications as autoim-

mune diseases, lymphoid proliferation (frequently granulomatous) and malignancy disorders. CVIDs complications affect predominately in the digestive and respiratory tract. Pulmonary disease is an important cause of death and is present in about 1/3 of patients before diagnosis. The authors present a case of a 19-year-old patient. In childhood presented autoimmune bicytopenia (anemia and thrombocytopenia) and Evans Syndrome was diagnosed. Treatment relied on corticosteroid therapy for long periods and required 2 pulses of rituximab. At age 15, hypogammaglobulinemia was documented, evolving with a clinical picture of sinusitis, recurrent pneumonias, fatigue and weight loss. He started replacement therapy with intravenous immunoglobulin G. During the clinical investigation, Rhizopus was isolated in bronchoalveolar lavage and posaconazole was initiated. Despite therapy, progressive deterioration of CO diffusion and imaging progression of ground-glass multifocal infiltrates and areas of consolidation with air bronchogram, as well as multiple adenopathies, were observed. A surgical lung biopsy was performed, and BALT (Bronchus-associated lymphoid tissue) hyperplasia with follicular bronchiolitis was identified. Inhaled and subsequently systemic corticosteroid therapy was initiated and IgG replacement therapy and posaconazole were maintained. Follicular bronchiolitis is associated with the presence of infiltrates of inflammatory cells involving the bronchioles. It arises in the context of rheumatological diseases, acquired or primary immunodeficiencies (as CVID) or hypersensitivity pneumonitis. Clinical picture may include cough and progressive dyspnea. Image usually presents with small centrilobular and peribronchial nodules and areas of ground glass appearance. This case illustrates the complex spectrum of infectious and noninfectious complications associated with immunodeficiency with hypogammaglobulinemia. Noninfectious complications often require, apparently paradoxical, immunosuppressive therapies. The case presented motivates further reflections on differential diagnosis of hypogammaglobulinemia and on the importance of the basal immunologic evaluation of patients who are candidates for immunosuppressive therapy.

Key words: *Hypogammaglobulinemia. Commom variable immunodeficiency. Follicular bronchiolitis.*

PC 087. SEPTIC SHOCK IN COMMUNITY-ACQUIRED PNEUMONIA AND HEALTH CARE-ASSOCIATED PNEUMONIA

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Introduction: The septic shock is a multiorgan dysfunction resulting from a dysregulated response to an infection, characterized by the need for aminergic support. Pneumonia can be divided into Community Acquired Pneumonia (CAP), when acquired out of health units, or Health Care-Associated Pneumonia (HCAP), when it occurs in any patient who has been hospitalized for at least 2 days in the previous 90 days, resides in a long-term care institution or has received any endovenous treatment in the previous 30 days. Several studies have shown that the HCAP is usually associated with greater severity, higher mortality rate, longer hospitalization and more resistant microorganisms.
Objectives: To evaluate patients admitted at an Intensive Care Unit (ICU) of a districtal hospital with septic shock secondary to CAP and HCAP, and to analyze if the type of pneumonia is related to the mortality and severity of the clinical picture.
Methods: Retrospective study of patients admitted to the ICU with the diagnosis of septic shock due to pneumonia, from 01/01/2017 to 03/31/2018. Two groups were created: G1: patients with septic shock secondary to CAP; G2: patients with septic shock secondary to HCAP. Demographic variables, APACHE II, SAPS, SOFA, average length of hospitalization, mortality, need for continuous renal replacement technique (CRRT), need for invasive mechanical ventilation (IMV) and time of IMV were evaluated.
Results: G1: n = 18 (45%); G2: n = 22 (55%). 40 patients were included. Mean age (years): 64.39 ± 17.73 (G1) vs 79.00 ± 11.67 (G2), $p < 0.05$. APACHE II: 24.67 ± 8.42 (G1) vs 25.91 ± 8.84 (G2), $p > 0.05$. SAPS: 54.22 ± 16.30 (G1) vs 59.73 ± 21.18 (G2), $p > 0.05$. SOFA: 9.89 ± 3.04 (G1) vs 9.41 ± 3.75 (G2), $p > 0.05$. Average length of hospitalization (days): 15.61 ± 20.32 (G1) vs 10.00 ± 7.68 (G2), $p > 0.05$. Mortality: 4 (22.2%) (G1) vs 8 (36.4%) (G2), $p > 0.05$. Need of CRRT: 8 (44.4%) (G1) vs 4 (18.18%) (G2), $p > 0.05$. Need of IMV: 12 (66.6%) (G1) vs 18 (81.8%) (G2), $p > 0.05$. Duration of IMV (days): 10.61 ± 21.01 (G1) vs 4.5 ± 4.29 (G2), $p > 0.05$.
Conclusions: Although the small size of the sample could influence the results, it was found that patients with septic shock caused by CAP or HCAP did not have significant differences in relation to the studied variables, except for age, as CAP occurs in younger patients. In the sample studied, we found that in patients with septic shock secondary to pneumonia, the outcome appears to be more related to the host than to the type of pneumonia. Although this does not translate into statistically significant results, there seems to be a tendency for patients with CAP to present a higher average length of hospitalization and to need a larger number of IMV days.

Key words: *Septic shock. CAP. HCAP. Continuous renal replacement technique. Invasive mechanical ventilation.*

PC 088. ENDOSCOPIC PRESENTATION OF *MYCOBACTERIUM SIMIAE*

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Introduction: In recent decades there has been an increase in the prevalence of atypical mycobacteria, because of the emergence of HIV infection and the appearance of new diagnostic methods. *Mycobacterium simiae*, first described in 1965 in *Rhesus* monkeys, is a rarely pathogen to humans. This case presents a singular endobronchial expression in a patient with mycobacteriosis disseminated by *M. simiae*.
Case report: A 30-year-old, black man, from Guinea-Bissau, with previous diagnosis of pulmonary tuberculosis in 2007 and HIV 1 in 2016, evacuated to Portugal in 2017 due to a clinical picture of fever, weight loss and generalized lymphadenopathy. After investigation, was assumed the diagnosis of disseminated mycobacteriosis by *M. simiae* with pulmonary, lymph node, cutaneous and intestinal involvement (*M. simiae* isolated in feces and bronchial secretions). It was initiated therapeuthic with clarithromycin, cotrimoxazole and levofloxacin with gradual improvement. Two months later, levofofloxacin was interrupted due to seizures attributed to this antibiotic, and ethambutol and rifampicin were added. There was an unfavorable evolution to the clinical picture with distension and abdominal pain, diarrhea, anorexia and weight loss. The thoracoabdomino-pelvic tomography revealed evidence of peritonitis, hepatic microabcesses and multiple adenopathies. The presence of small pulmonary nodules in both lung bases motivated videofibroscopy that revealed a black tunnelled lesion in the left main bronchus. The bronchial secretions revealed the presence of acid-fast bacilli (BAAR), whose molecular study was negative for *M. tuberculosis*. Biopsy of the bronchial lesion revealed the presence of an active chronic inflammatory process, with small abscesses, histiocytic cells with abundant anthracotic pigment and BAAR. In the point of view of HIV infection, the patient had LTCD4 + 85 cells/uL,

viral load 50 copies/mL under tenofovir/emticitabine and evavirenz. Because of the hypothesis of suboptimal therapy for mycobacteriosis disseminated to M. simiae with presumable malabsorption syndrome, therapy was changed to intravenous with azithromycin, amikacin, linezolide and cotrimoxazole. There was a favorable clinical response and the patient was discharged under azithromycin, levofloxacin, cotrimoxazole and linezolide. The therapy was subsequently adjusted for moxifloxacin, clarithromycin and rifampicin following knowledge of sensitivity testing. He maintained cotrimoxazole in prophylactic dose because of a low LTCD4 + count. Four months after hospital discharge endoscopic control was performed, and complete resolution of the lesion described above was documented.
Discussion: *M. simiae* infection in humans is rare and constitutes important clinical and therapeutic challenges. There are no concrete recommendations for treatment, but the literature suggests scheme including a macrolide, a quinolone, and cotrimoxazole. In the case presented, the degree of immunosuppression associated to the need of discontinue quinolone and probable malabsorption syndrome were the main determinants for the progression of the disease. It was also verified at endobronchial level a caseous lesion. The institution of a new therapeutic scheme, initially intravenous, including quinolone showed clinical benefit, with endobronchial reflex with total resolution of the lesion described, without unfavorable evolution such as stenosis or fistulization.

Key words: Mycobacterium simiae. *Caseum*.

PC 089. THE FLU: AN UNDERESTIMATED DISEASE

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Introduction: Influenza virus infects approximately 10 to 15% of the adult population annually. Most clinical conditions are mild and self-limiting. However, there are high-risk groups (elderly, children up to 5 years of age, pregnant women, chronic and immunocompromised patients) who, when infected, are more likely to develop severe forms of illness and may require hospitalization.
Objectives: Characterization of influenza cases identified in a respiratory isolation unit under the contingency plan of the influenza season 2017-2018.
Methods: Retrospective study of hospitalized patients from January to March, 2018, with laboratory confirmation of Influenza virus infection.
Results: A total of 122 cases were identified. The mean age was 75.5 years, 82.8% were older than 65 years and 67.2% (n = 82) were female. The mean duration of hospitalization was 9.5 days. 96.7% of the patients had chronic diseases: 33.6% congestive heart failure, 29.5% diabetes mellitus, 19% COPD, 11.4% asthma, 13.1% obesity and 9.8% immunosuppression. In 98% (n = 120) there was indication to take the anti-influenza vaccine but only 33.3% (n = 40) of these patients were vaccinated. Influenza B virus was identified in 61.5% (n = 75), Influenza A in 37.7% (n = 46), and one case with Influenza A and B. 23.9% (n = 11) of influenza A cases were subtype H1 and 58.7% (n = 27) subtype H3. Characterization of Influenza B lineages was not performed. The mean age of patients with Influenza B was higher than that of Influenza A patients (78.3 vs 72.15 years). In Influenza A there was a higher age of cases with H3 subtype compared to H1 (80.2 vs 65.1 years). The main reasons for hospitalization were the exacerbation of chronic disease (53.2%; n = 65) and pneumonia secondary to influenza infection (35%; n = 43). Of the patients with pneumonia, there were 26 cases with Influenza B and 17 with Influenza A (4 cases H1, 8 cases H3). The two patients without vaccination criteria were hospitalized for pneumonia with pleural effusion and severe ionic alterations. The most frequent isolated bacterial agent was Streptococcus pneumoniae (n = 6) identified by urinary antigen. All patients were treated with oseltamivir and 79.5% (n = 97) of the cases received concomitant antibiotic therapy. In 30.3% (n = 37) of the patients there was a need to use systemic corticosteroids due to the underlying pathology. In-hospital mortality was 3.8% (n = 4). Furthermore, all cases had vaccination criteria that were not performed. Influenza B was identified in 3 patients and Influenza A (H3) in one patient. The causes of death were: acute myocardial infarction (n = 2), severe hypoxemic pneumonia (n = 1), and exacerbation of COPD (n = 1).
Conclusions: In the 2017-2018 season, Influenza B virus was responsible for approximately two thirds of hospitalizations. Chronic disease exacerbation and pneumonia were the main reasons for hospitalization. Almost all hospitalized patients had vaccination criteria, which was only performed in one third of the cases. All patients received oseltamivir. The mean hospital stay was 9.5 days and the in-hospital mortality was 3.8%. All deceased patients had a vaccination recommendation that was not performed.

Key words: *Flu. Influenza virus. Respiratory infections.*

PC 090. INVASIVE PNEUMOCOCCAL DISEASE: 4 YEARS IN AN INTERNAL MEDICINE DEPARTMENT

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Introduction: Invasive pneumococcal disease (IPD) is defined as an infection with the detection of *Streptococcus pneumoniae* (*S. pneumoniae*) from a normally sterile site, such as blood, cerebrospinal fluid (CSF) and ascitic fluid. It is an important cause of morbidity, mortality and the main cause of preventable death by vaccination. Patients over 65 years old, immunocompromised patients, and with underlying medical conditions have an increased risk of developing IPD.
Objectives: To characterize all the patients with IPD admitted to an Internal Medicine Department (IMD).
Methods: Descriptive retrospective analysis of the patients admitted to the IMD with IPD, from January 2014 to December 2017. The following variables were analyzed: age, gender, presence of risk factors for IPD, isolation site of *S. pneumoniae*, diagnosis, annual distribution, pneumococcal vaccination status, antibiotic resistance, early complications and mortality.
Results: We included 72 patients (55.6% male), with a mean age of 67.81 years. Most patients (58.3%) were over 65 years old. The highest number of cases (41.6%) was observed in 2015. The main diagnosis was pneumonia with bacteriemia (50%). In 91.7% of cases, *S. pneumoniae* was isolated in blood cultures, and antibiotic resistance rate was 16.7%. Most patients (52.2%) had a negative detection of *S. pneumoniae* urine antigen. All the patients had an identifiable risk factor for IPD, but prior pneumococcal vaccination was only recorded in 1.4%. Most patients with pneumonia (42.19%) scored a CURB-65 of 4. There were 18 fatal cases and the most common early complication was severe respiratory insufficiency requiring invasive mechanical ventilation and hospitalization in the Intensive Care Unit.
Conclusions: In this study, we described a significant population of patients with IPD, with prevalence of at least one risk factor for IPD and low incidence of antibiotic resistance. Elderly patients have an increased risk of IPD and therefore constitute a target group for vaccination. It is imperative to promote pneumococcal vaccination, as well as the creation of targeted interventions, such as bundles, to prevent and decrease IPD.

Key words: *Pneumococcal vaccination. Invasive pneumococcal disease. Pneumococcal pneumonia.*

PC 091. EVALUATION OF CD8+ RESPONSE IN QUANTIFERON-TB GOLD PLUS AS A MARKER OF RECENT INFECTION

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Diagnosis and treatment of latent Tuberculosis (TB) infection (LTBI) is an essential measure for the elimination of TB. QuantiFERON-TB Gold Plus (QTF-Plus) is a new Interferon-γ release assay that includes a new antigen tube (TB2), which elicits both CD4+ and CD8+ T-cell responses. The aim of the study was to evaluate CD8+ T-cell response as a potential marker of recent TB infection. We retrospectively studied 1165 patients who were screened for LTBI in an outpatient TB clinic. Patients were divided according to history of recent exposure to TB. CD8+ T-cell activity was measured as the difference between both QTF-Plus tubes (TB2-TB1) and two cut-offs (> 0.35 IU/mL and > 0.60 IU/mL) were analyzed in relation with exposure to TB. CD8+ T-cell activity was significantly higher in the group with a recent exposure to TB, for both tested cut-offs, OR 1.81 (95%CI 1.21-2.73) for > 0.35 IU/mL and OR 1.80 (95%CI 1.14-2.84) for > 0.60 IU/mL. In patients with recent exposure, CD8+ T-cell activity also showed a significant association with positive sputum smear of the index case and with greater exposure time, indicating a higher rate of recent LTBI in those with higher exposure to TB. CD8+ T-cell activity as measured with TB2-TB1 shows a significant association with recent exposure to TB specially in those with markers of higher exposure and can thus be an important tool in identifying patients with recent LTBI, who would benefit most from preventive therapy.

Key words: *Tuberculosis. IGRA. Tuberculosis latent infection.*

PC 092. EXTRAPULMONARY TUBERCULOSIS: RISK FACTORS, DISEASE FORMS AND TIME UNTIL DIAGNOSIS AND TREATMENT

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Introduction: Extrapulmonary tuberculosis (ETB) is rarely addressed, since it is not a transmissible form of the disease. However, it contributes significantly to tuberculosis (TB) morbidity and can cause complications and lifelong sequelae.
Objectives: To identify the most frequent forms of the disease, the time until the first appointment, diagnosis and treatment. The secondary endpoint was to identify the risk factors in the study population.
Methods: Observational, descriptive and transversal study of ETB cases reported to TBCA, from January 2014 to December 2016. We evaluated demographic data, comorbidities, forms of the disease and time between initial symptoms and first appointment, diagnosis and treatment.
Results: Of a total of 197 patients with ETB (mean age: 46.6 years; male predominance of 55.3%) 46.7% were immigrants, predominantly from African countries (92.4%) and 34.8% arrived in Portugal only 6 months before diagnosis. Regarding risk factors, 32.5% were immunosuppressed (46.9% with HIV), 4.6% had alcoholic habits and 3.0% drug abuse. The most common form of ETB was ganglionar (33%), followed by pleural (19.3%), vertebral (10.7%), ocular (8.1%), disseminated (7.6%), genitourinary (5.6%), peritoneal/gastrointestinal (4.6%), osteoarticular (3.0%), cutaneous (2.5%), meningeal (2.5%), pericardial (2%) and middle ear (1%). The diagnosis was confirmed in 81.7% of the cases. Time from the beginning of the symptoms until first appointment was on average 37 days; until the diagnosis was on average 66 ± 92 days (min 2; max 480 days), being higher in cutaneous (mean: 226 days), pericardial (mean: 88 days) and ocular (mean: 86 days) TB. The time until treatment was 79 days. Treatment was successfully completed in 85.3% of the patients. Mortality rate was 2%.
Conclusions: It is important to detect groups at higher risk of ETB, in order to have a higher clinical suspicion, perform a rapid diagnosis, allowing a quick start of therapy, and therefore prevent complications and longterm sequelae.

Key words: *Extrapulmonary tuberculosis. Risk factors. Time until diagnosis.*

PC 093. GENITOURINARY TUBERCULOSIS A 6-YEAR RETROSPECTIVE STUDY

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Introduction: In Portugal in the last 10 years the incidence of tuberculosis has decreased. Genitourinary Tuberculosis (GUTB) is a rare entity in developed countries. In the EU,
Objectives: Assess and characterize patients with GUTB in Lisbon's regional area.
Methods: Retrospective analysis (2012-2017) of national TB registry forms and clinical records of patients with exclusively GUTB treated in Lisbon's TB Centre.
Results: From a total of 574 patients with extrapulmonary TB, 37 (6.4%) had GUTB which was the third most frequent form of infection. Mean age was 59 ± 15 years, with a male preponderance of 2.1:1. 48.6% were current or former smokers, 24.3% had previous history of TB and 18.1% were HIV positive. Diagnosis was established 5 ± 5 months after symptoms. 62.1% and 27% presented only local or only systemic symptoms, respectively. Kidney and testicular TB accounted equally for the most frequent sites of disease totalling nearly half of the cases. TB diagnosis was confirmed in 91.9% of the cases mostly through mycobacterial cultural analysis of urine samples. Regarding drug susceptibility testing, 10.8% had either mono or poly-drug resistance. One patient had MDR-TB. In 40.5% of the patients urological/gynaecological surgical interventions were required for diagnosis or treatment purposes. Mean treatment length was 8.1 ± 4 months during which 2 patients died.
Conclusions: GUTB diagnosis requires a high level of suspicion due to the scarcity of cases and vague initial presentation. Persistent lower urinary symptoms should not go unnoticed and alert to the possibility of GUTB, since this form of TB was associated with a high treatment burden, that included an increased length of treatment and invasive interventional procedures.

Key words: *Tuberculosis. Genitourinary.*

PC 094. THE MAIN BARRIERS IN SMOKING CESSATION IN COPD PATIENTS – QUALITATIVE STUDY

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Introduction: Chronic obstructive pulmonary disease (COPD) is currently one of the most widespread chronic lung diseases and a growing cause of suffering and mortality worldwide with profound economic and social impact. Smoking cessation is the most important way to improve prognosis. The aim of the study was to describe the main barriers of smoking cessation experienced by individuals with COPD who are unable to stop smoking.
Methods: The data were analyzed using qualitative content analysis obtained using a semi-structured interview of a random sample of pa-

tients followed at a Pneumology consultation. The participants were selected according to the following inclusion criteria: ≥ 45 years of age; currently smoking, clinical history of COPD documented by pulmonary functional tests and to be cognitively able to participate in an interview.
Results: Thirty patients (19 male) with a mean age of 59.3 years (minimum 45, maximum 83 years) were included. It was found that most patients had begun smoking when they were 14 to 20 years old. The smoking average of "pack years" was 43.2. Twenty-four patients (80%) reported to receive information about the relation tobacco/disease at the first time of COPD diagnosis. Twelve patients (40%) tried to quit smoking before diagnosis, (seven without help and no medication, three with nicotine replacement therapy (NRT), and two with varenicline) and fifth patients (50%) attempted to stop smoking after diagnosis (eight without help and without medication, four with varenicline, one with NRT and one with auriculotherapy). Eight patients (26.7%) had previous attempts, before and after diagnosis. Of the total number of patients who tried to quit smoking, six used specialist help. It was found that the main reason for not being able to quit smoking was anxiety. The main reasons for maintaining smoking habits were the pleasure of smoking, the need to combat stress and addiction. To the question "What would help you stop smoking?" twelve patients said they needed motivation, seven need medication and eleven patients responded they did not know. Ten patients would like to have specialized consultation to assist and guide smoking cessation, seven would like to have economic help to buy medication, five patients responded that they didn´t need help.
Conclusions: For the success of smoking cessation, it is critical to understand the difficulties and the main barriers in patients with COPD, in order to guide them to the most appropriate smoking cessation programs. Thus, more qualitative studies are needed to characterize this population.

Key words: *Chronic obstructive pulmonary disease (COPD). Smoking cessation. barriers.*

PC 095. PROFILE OF PATIENTS MOTIVATED FOR SMOKING CESSATION: 6-YEAR RETROSPECTIVE ANALYSIS OF AN INTENSIVE CESSATION PROGRAM

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Introduction: There are numerous validated strategies for reducing the smoking population. It is important to identify which factors related to the patient may contribute to his motivation to quit smoking.
Objectives: Identify the characteristics of patients motivated for smoking cessation and whether the motivational levels are related to the success of a smoking cessation program in a central hospital.
Methods: Retrospective study with analysis medical processes of patients who attended a smoking cessation program of a central hospital between 2012 and 2017. The processes were analyzed to collect data on demographic characteristics, educational level, age of smoking initiation (≥ 18 years old or < 18 years), age of reference to smoking cessation program (≥ 40 years old or < 40 years), nicotine dependence (Fagerström Test), mood disorders (hospital anxiety and depression scale - HADS), attendance to medical appointments (> 1 or ≤ 1), success in quit smoking, presence of respiratory or cardiovascular disease, and previous attempts to quit smoking. The sample was divided into two groups: motivated patients (with a maximum score in the Richmond test) and not motivated for smoking cessation. For the statistical analysis we used SPSS statistics IBM v.25 and Microsoft Excel 2013.
Results: The sample consisted of 724 patients with a mean age of 51.5 years, 51.8% men (n = 375). The most motivated patients to stop smoking - about 7% (n = 53), had a high level of education (40% of motivated patients with high education vs 23% of unmotivated patients, $p < 0.01$); a higher frequency of consultations (70% of motivated patients attended more than 1 consultation vs 55% of unmotivated patients - $p < 0.05$); previous attempts to quit smoking (94% motivated patients with previous cessation attempts vs 75% unmotivated patients - $p < 0.01$) and greater success in smoking cessation (38% of motivated patients quit smoking vs 17% motivated - $p < 0.01$). In this population variables such as the age of smoking initiation, age of reference, nicotine dependence, anxiety and depression levels, and the presence of respiratory or cardiovascular diseases weren't statistically significant and did not appear to influence the motivation to stop smoking.
Conclusions: In this retrospective study we confirmed that patients with higher motivational levels referred to the smoking cessation program had a greater success in cessation. However, the vast majority of patients were not motivated for cessation when referenced to the program, suggesting that it is important to invest in health professionals training to raise awareness of the importance of referral at an appropriate time. On the other hand, less motivated patients may benefit from a multidisciplinary and more intensive approach in order to be successful in smoking cessation.

Key words: *Tobacco. Motivation. Cessation.*