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PC 001. LUNG CANCER: A CHALLENGE IN THE COVID-19 PANDEMIC

M. Cardoso Tavares, F. Fernandes, R. Natal, S. Braga, J. Ribeiro, F. Jesus, F. Silva, É. Almeida, L. Ferreira

Serviço de Pneumologia, ULS Guarda.

Introduction: The COVID-19 pandemic has been a permanent threat to public health, demonstrating a significant impact on the management of cancer patients. Studies have established a correlation between the reallocation of health services and professionals during the pandemic and the decrease in the number of new diagnoses of lung cancer, which could contribute, in the future, to diagnoses at more advanced stages.
Objectives: To assess the impact of the COVID-19 pandemic on the diagnosis of lung cancer patients in the Pulmonology Service of a tertiary hospital.
Methods: A retrospective comparative study was carried out between two groups of patients. Group 1 (G1) represents patients diagnosed with lung cancer before the COVID-19 pandemic (01/01/2018-12/31/2019) and Group 2 (G2) represents patients diagnosed with lung cancer during the COVID-19 pandemic (01/01/2020-12/31/2021). The following variables were evaluated: gender, age, smoking history, histological type, and staging.
Results: A total of 218 patients were included, 99 in G1 and 119 in G2. The mean age was 74 ± 10.29 years in G1 and 72.67 ± 11.77 years in G2 ($p < 0.05$). Regarding gender, the most frequent was male, with a prevalence of 63.6% in G1 and 74.8% in G2 ($p < 0.05$). In terms of smoking history, there was a higher incidence of smokers/ex-smokers: 71.7% in G1 and 70.6% in G2 ($p < 0.05$). Regarding the histological type, both in G1 and G2, the most frequent was Adenocarcinoma, followed by Squamous Cell Carcinoma and Small Cell Carcinoma, with a prevalence of 64%, 19.1% and 11.2%, respectively, in G1 and 46.8%, 22.3% and 17%, respectively, in G2 ($p < 0.05$). Most patients were diagnosed at stage IV in both G1 (66.7%) and G2 (60.4%) ($p < 0.05$). The second most frequent stage was stage III in both G1 (15.6%) and G2 (20.8%). Only 17.8% of patients in G1 and 16% of patients in G2 were diagnosed at early stage (I and II) ($p < 0.05$).
Conclusions: The COVID-19 pandemic, due to the overload in health services, conditioned delays in the diagnosis of cancer patients. In our Pulmonology oncology consultation, based on the statistical analysis performed, there were no statistically significant differences in the stage of lung cancer at diagnosis. We attribute this result to the fact that we ensured the normal functioning of the Pulmonology oncology sector during the COVID-19 pandemic, with no suspension or postponement of first consultations.

Keywords: *Lung cancer. COVID-19 pandemic. Adenocarcinoma.*

PC 002. REAL-WORLD CHALLENGES IN FIRST-LINE TREATMENT OF METASTATIC EGFR-MUTATED NON-SMALL CELL LUNG CANCER

I. Barreto, G. Moura Portugal, A. Machado, F. Ferro, A.S. Vilariça, D. Hasmucrai, P. Alves, C. Bárbara

Centro Hospitalar Universitário Lisboa Norte.

Introduction: The third-generation EGFR-TKI osimertinib was recently introduced as first-line treatment for patients with locally advanced or metastatic non-small cell lung cancer (NSCLC) with activating EGFR mutations.
Objectives: To characterize the clinical outcomes and mutation profile of a cohort of patients using osimertinib as monotherapy in Portugal.
Methods: This is a real-world, retrospective, single-center study (Lisbon-Portugal), including a cohort of patients diagnosed with EGFRm NSCLC between 01/2005 and 12/2021. Treatment initiation with osimertinib occurred between 11/2018 and 03/2022 (last follow-up: 06/2022). Data collected from medical/administrative records included: demographics, tumor histology, disease stage, mutations. Progression free-survival (PFS) and overall survival (OS) were evaluated. Descriptive statistics with categorical variables described as frequencies were conducted. Pearson chi-square test was used to evaluate variables' association. Survival analyses were based on Kaplan-Meier method (results reported as median with interquartile range [IQR]). Analyzes were performed in SPSS-Statistics v.24.0 (p-values below 5% considered statistically significant).
Results: Overall, 33 patients mostly women (n = 21, 63.6%), white (n = 31, 93.9%), non-smokers (n = 22, 66.7%), with a median age of 70.0 (IQR 63.0-74.0; min-max: 45.0-97.0) were included. All cases were of adenocarcinoma. Most patients presented an ECOG perfor-

mance-status of 0 (n = 18, 54.5%) and were classified with stage IVA (n = 8, 24.2%) or IVB (n = 14, 42.5%). All patients had at least one metastasis; bone (42.5%) and brain (30.3%) metastases were the most prevalent. Fourteen patients (42.4%) received no previous treatment. Simple mutations (n = 26, 78.8%), especially Exon 21-L858R and Exon 19-deletion (48.5% and 27.3%, respectively), were the most common. Around half of the population had PD-L1 < 1%; yet six (18.2%) presented score >50%. Median follow-up since osimertinib initiation was 14.9 months [IQR 9.3-22.2]; treatment duration was 12.0 months [IQR 9.2-22.8]. Most patients (90.9%) presented controlled disease, either with partial response or stable disease. One-third of the population discontinued treatment due to: disease progression (n = 7), death disease-related (n = 5) or death due toxicity (n = 1). PFS and OS were not estimated due the low number of events (means of around 28 and 30 months, respectively). Approximately 70% of patients that progressed (n = 5/7) performed further biopsy, with two of them (40.0%) presenting additional mutations. These patients were subsequently treated either with platinum-doublet chemotherapy (n = 3), platinum-doublet chemotherapy with palliative radiotherapy (n = 2), TKI with radiosurgery (n = 1). No significant differences between the overall population (n = 33) and early deaths (n = 8) were observed for most variables. However, we found a significant higher number of stage IVA disease among patients who died (p = 0.030), and a tendency of worst performance status (ECOG 1-2) (p = 0.072). None of the patients from the early death subgroup were submitted to surgery (p = 0.022).

Conclusions: This portray of a EGFRm NSCLC cohort using osimertinib as first-line approach in Portugal confirms the need of mutations assessment prior to treatment selection and biopsy recommendation in progression. Patients with poorer performance status, stage IVA and unresectable disease probably have worst prognosis, demonstrating the relevance of early treatment with EGFR-TKIs. Further analysis will be performed with longer follow-up.

Keywords: *Osimertinib. EGFR. Non-Small Cell Lung Cancer. TKI. Real-World Evidence.*

PC 003. LUNG CARCINOIDS-5 YEARS ANALYSIS IN A TERTIARY HOSPITAL

M. Cabral, A.S. Vilariça, D. Hasmucrai, F. Ferro, P. Alves

Hospital de Santa Marta, Centro Hospitalar Universitário Lisboa Central.

Lung neuroendocrine tumors represent a morphological spectrum of tumors from the well-differentiated typical carcinoid (TC), intermediate-grade atypical carcinoid (AC), and high-grade neuroendocrine carcinomas. Carcinoid tumors represent 1-2% of primary lung neoplasms. Retrospective analysis of all cases of lung carcinoid tumors followed at the Pulido Valente Day Hospital from 2017 to 2021. Fifty-one patients were included in this study, 69% female and with a mean age at diagnosis of 60.3 years. The vast majority were non-smokers (59%) or ex-smokers (29%). During the diagnostic process, 37% (n = 19) of the patients underwent imaging tests based on somatostin receptors, 8 having OCTREOSCAN, 8 having PET 68Ga-DOTANOC and 3 having both. Of those who underwent 68Ga-DOTANOC PET, most were positive for somatostin receptors (82%), of which 75% were TC. On the contrary, of those who underwent OCTREOSCAN, less than half (40%) were positive, with 63% showing AC; in one case it was not possible to differentiate them. In the case in which both exams were performed, in 2 there was positivity only on PET 68Ga-DOTANOC (one TC and one AC) and in the third case both exams were negative. The final diagnosis was TC in 28 patients, CA in 21 and in two patients it was not possible to make a histological differentiation. Stage I was the most frequent (61%). In both stage II and stage III, 8% of patients were classified. In stage IV, 18% of patients were observed, and 67% were CA. The most frequent site of metastasis was the lung, followed by bone and liver. It was not possible to confirm the stage for 3 patients. Surgery was the treatment choice for most patients (n = 40, 80%), with two also undergoing adjuvant chemotherapy (both in stage IIIA). Two patients underwent endoscopic treatment. Of the advanced stage patients, one was under 1st line QT (cisplatin and etoposide), and the other two were under 3rd line treatment (everolimus, carboplatin and etoposide). One of these patients, due to bone metastasis, was also submitted to bone RT. There were also two patients, positive for somatostatin receptors, who were taking octreotide. For three patients, the chosen attitude was surveillance. Finally, there was also one patient who died before starting treatment, from a cause unrelated to the malignant disease. From those who underwent surgery, 23 were CT and 17 were CA, and those who also underwent adjuvant chemotherapy, one was CT and the other CA. Of those who underwent endoscopic treatment or octreotide, there was one CT and one CA for each. Palliative CT was the chosen treatment for three CA. Finally, vigilance was the selected attitude for two CT and one carcinoid without differentiation. From this patient's sample, there were two deaths, none of them related to neoplastic disease. Well-differentiated neuroendocrine lung tumors differ substantially from other lung neoplasms. Most of them are diagnosed in early stages and the treatment is essentially based on the tumor surgical resection, presenting, in general, a good prognosis.

Keywords: *Neuroendocrine tumors. Carcinoid tumors.*

PC 004. SEVEN – THE LUCKY NUMBER

C. Rôlo Silvestre, D. Hasmucrai, A. Lopes Machado, F. Ferro, A.S. Vilariça, F. Félix, P. Alves

Serviço de Pneumologia, Centro Hospitalar do Oeste-Torres Vedras.

Introduction: Therapeutic advances in pulmonary oncology have changed the paradigm of lung cancer, leading the disease to chronicity. Oligoprogressive disease translates into an anatomically restricted progression, becoming an opportunity to control disseminated disease with local approaches.

Case report: A 66-year-old female, never-smoker with a performance status (PS) of 0, and no relevant past medical history. In 2015, at 59-year-old, she presented with a non-productive cough for 6 months, with no other complaints. Chest imaging showed a lesion in the right lower lobe (RLL) with bilaterally dispersed micronodules and ipsilateral enlargement of mediastinal lymph nodes. Bronchoscopy was performed and showed edema of the bronchial mucosa, without other changes. Performed biopsies revealed non-small-cell lung cancer (CK7 and TTF-1 positive) adenocarcinoma (ADC), with a negative mutational study. Computed tomography of the skull showed two lesions on the left, in the frontal and occipital regions, with vasogenic edema. We assumed the diagnosis of stage IVA (T4N2M1b) (TNM 7th edition) lung ADC. Brain stereotaxic radiosurgery was performed, and chemotherapy started with cisplatin and pemetrexed, with a partial response. She maintained pemetrexed (20 cycles) until the RLL lesion, and the number of bilateral micronodules grew. The patient started on 2nd line treatment with docetaxel (6 cycles), with an increase in the RLL lesion and new dispersed lesions. She was on nivolumab (5 cycles) (3rd line treatment) until brain progression with multiple metastases. She underwent holocranial radiotherapy (RT), 20 Gy/4 Gy/day, and started the 4th line with erlotinib (15 cycles). In 2018, she presented a progression of the RLL lesion and a new lesion in the left lower lobe (LLL). The patient started on carboplatin and vinorelbine (5th line for 3 cycles) with progression. Due to the lack of other therapeutic options, we reintroduced erlotinib (6 cycles). We performed a transthoracic biopsy for mutational study that revealed a complex epidermal growth factor receptor (EGFR) mutation with exon 19 deletion (pGlu746_Ala750del) and resistance exon 20 T790M mutation.

She started on osimertinib in 2019. In 2022, the RLL lesion increased, and the bilateral pulmonary nodules disappeared, except for the LLL lesion and station 7 adenopathy. We decided on surgical intervention with RLL lobectomy and lymph node dissection followed by SBRT of the LLL lesion, maintaining osimertinib. Thoracic surgeons performed a right posterior thoracotomy with RLL lobectomy with wide resection of the parietal pleura, and partial diaphragm resection with lymph node sampling of station 7. The procedure was uneventful, and the pathological revealed pT4N0. She is currently awaiting SBRT from the LLL lesion.
Discussion: The prognosis varies considerably between patients at the same TNM stage. We report a case with 7th years of survival in stage IV, with EGFR mutation, and receiving 7th line therapy. This case reflects the challenge in cancer patient management and the importance of a multidisciplinary approach. Despite the stage, oligoprogression allowed a radical approach to providing a better prognosis. Some factors may have contributed to the better prognosis, justifying the prolonged survival: female gender, the absence of comorbidities and no smoking habits, PS0, and the histological type.

Keywords: *Adenocarcinoma. Complex mutation. EGFR. Oligoprogression.*

PC 005. MESOTHELIOMA – REAL LIFE DATA

C. Rôlo Silvestre, D. Hasmucrai, R. Cordeiro, M. Antunes, A. Ribeiro, A. Lopes Machado, F. Ferro, A.S. Vilariça, P. Alves

Serviço de Pneumologia, Centro Hospitalar do Oeste, Torres Vedras.

Introduction: Malignant pleural mesothelioma (MPM) is a rare malignancy strongly associated with asbestos exposure.
Objectives: To analyze and characterize MPM patients followed at a Reference Center.
Methods: Retrospective and descriptive study of MPM patients from 2017 to 2021. Data were collected from clinical files.
Results: We evaluated 24 patients, most of them were male (n 15; 62.5%), with a median age of 68 (IQR 9.5). We found that 45.8% (n 11) had a performance status (PS) of 1, 37.5% (n 9) had a PS0, and 16.6% (n 4) had a PS ≥ 2. Most patients never smoked (n 14; 58.3%), and 37.5% (n 9) had known asbestos exposure. Most patients had the disease in the right hemithorax (62.5%; n 15). The median time elapsed between the first radiological manifestations and/or symptoms until diagnosis was 178 days. Most patients had mesothelioma epithelioid subtype (87.5%; n 21), 4.2% (n 1) desmoplastic/sarcomatoid, and in 8.3% (n 2) the histological subtype was not identified. From the staging analysis (TNM 8th edition), we found that most patients were in an advanced stage, namely, 37.5% (n 9) in stage IV and 4.2% in IIIA (n 1), and 12.5% (n 3) IIIB. About 37.5% (n 9) had stage IB disease, 4.2% (n 1) IA and 4.2% (n 1) stage II. Most patients started treatment (n 21; 87.5%), one patient refused, and two patients did not have the clinical condition to undergo first-line therapy. About 38.1% (n 8) of the patients underwent thoracic surgery, and 23.8% (n 5) underwent radiotherapy (RT), four patients palliative RT, and one RT as an adjuvant for surgery. 52.4% (n 11) of treated patients started 2nd line therapy. Only 14.3% (n 3) of patients underwent 3rd line therapy. There were 11 deaths. The median overall survival (OS) time was 41 months (95%CI 7.077-74.923). Patients with PS ≥ 2 had worse survival than patients with PS1 or 0, respectively, presenting 5 *vs.* 12 *vs.* 41 months (p = 0.009). Women had longer survival than men (60.78 *vs.* 21.68 months; p = 0.037). Documented exposure to asbestos is associated with a 9.6-fold increased risk of dying (OR 9.625; 95%CI 1.378-67.246; p = 0.033). There seems to be a tendency to prolong survival with multimodal therapy (surgery and chemotherapy), but without statistical significance (41 *vs.* 22 months; p = 0.328). Among patients who underwent maintenance therapy, there was no statistically significant difference in median survival time (41 *vs.* 12 months; p = 0.229). However, there seems to be a trend towards greater survival.
Conclusions: The OS presented is superior to that reported in other national and international studies, this may be related to the majority of patients having a histological subtype considered more favorable, and a PS ≤ 1. PS and sex appear to be relevant prognostic factors, as well as the absence of documented exposure.

Keywords: *Malignant pleural mesothelioma. Asbestos. Overall survival.*

PC 006. LUNG CANCER IN THE ELDERLY: A RETROSPECTIVE STUDY IN A PERIPHERAL HOSPITAL

C. Bettencourt Giesta, M. d'Almeida, S. Ferreira, J. Duarte, A. Norte, C. Lousada

Centro Hospitalar Médio Tejo.

Introduction: Lung cancer is most commonly diagnosed in patients over the age of 65. However, we have little information about patients over 80 years, since this age group is not traditionally included in clinical trials. To better characterise this population, we carried out a retrospective analysis of patients followed up at the Centro Hospitalar do Médio Tejo.
Methods: All patients with a first consultation in Pulmonary Oncology from 1 January 2016 to 31 December 2020 were assessed. A total of 474 patients were observed. Of these, 119 were aged 80 years or older at the date of the first consultation. Only patients diagnosed with malignant lung tumours (n = 57) were analysed. Data regarding gender, age, Eastern Cooperative Oncology Group performance status (ECOG-PS), comorbidities, number of daily drugs, histology, tumour stage at diagnosis date, location of metastases if stage IV, types of treatment performed, and survival were collected.
Results: The majority of cases (n = 38; 67%) were male, with a mean age of 83.84 ± 3.47 years. The mean ECOG-PS was 1.84 ± 1.08. The most common comorbidities were cardiovascular, respiratory, and endocrinological. 14 patients had a personal history of cancer, the colon being the most frequent. 12 patients had one or no co-morbidities, the mean being 3.23 ± 1.82. Polypharmacy (≥ 5 drugs) was present in 30 patients (53%). The most common histology was adenocarcinoma (60%), followed by epidermoid carcinoma (23%). Four patients with non-small cell carcinomas had PD-L1 ≥ 50%. 16 patients had mutations, with the most frequently observed being mutations of the EGFR gene. 20 patients (16%) had early stages at diagnosis. 48% of patients presented with metastasis, 27% of which multiple distant metastasis, with bone metastasis being the most relevant. Regarding first line treatment, all patients who underwent curative therapy had an ECOG-PS 1-2. Ten patients were submitted to stereotactic thoracic radiotherapy, four patients to lobectomy, and one patient to atypical resection. Patients who were not surgical candidates and had EGFR gene mutations received afatinib (n = 6), and 8 patients with ECOG-PS 3-4 received palliative therapies. Survival was, on average, 17 months. When analysed by histological group, survival was greater in patients with typical carcinoid (62 months). Up to the date of data collection, 11 patients remained alive, with a mean survival of 44 ± 21 months.
Conclusions: With the increase in average life expectancy, it will be increasingly common to diagnose lung cancer in patients over 80 years of age. Although they are patients with multiple comorbidities and in advanced stages, treatment can have a positive impact on their survival. However, studies with larger samples are necessary to verify with greater statistical value the data presented.

Keywords: *Lung cancer. Elderly. Eastern Cooperative Oncology Group Performance Status.*

PC 007. MORPHEA ASSOCIATED WITH COMBINED THERAPY IN THE TREATMENT OF NSCLC

M. Melo Cruz, A.F. Silva, S. Raimundo, T. Gomes, A.I. Loureiro

Centro Hospitalar Trás-os-Montes e Alto Douro.

Introduction: Immune checkpoint inhibitors can cause immunorelated adverse effects, including skin toxicity in up to half of patients. Most of these effects are mild, however fatal events can occur. The lesions can be macular/papular, psoriasiform, eczematous or liquenoide. The ocorrence of scloderma-like lesions such as localized (morphea) or generalized scleroderma is less frequent. Pembrolizumab is a monoclonal antibody directed to programmed cell death protein 1 (PD-1) and is indicated in the treatment of NSCLC, melanoma, renal cell carcinoma, etc. There are some reports in the literature of scleroderma lesions in patients treated with pembrolizumab, more frequently for treatment of melanoma, but also in patients with NSCLC. Some chemotherapy drugs such as taxanes and pemetrexedo may also be associated with this type of toxicity. Treatment can include systemic corticosteroid therapy, immunosuppressive drugs and phototherapy.
Case report: Male patient, 79 years old, former smoker (smoked during 40 years, 75 pack-years). Diagnosed with lung adenocarcinoma stage IVA (T4N0M1a) in September 2021, with negative PD-L1 expression and molecular study without target mutations. He started chemotherapy (CT) with carboplatin and pemetrexed + immunotherapy with pembrolizumab, and completed only 3 cycles because of hematological toxicity with neutropenia. He had stationary disease after the 3 cycles and started maintenance therapy with pemetrexed + pembrolizumab in December 2021. In January 2022, after 2 maintenance cycles, an erythematous lesion, non-pruriginousm with violatic staining was observed at the level of the right pretibial region, with associated edema. DVT was excluded. Subsequently, vesicular lesions appeared in the same site, with maintenance of edema and erythema, and skin hardening. Dermatology observation was requested, and morphea was suspected. A skin biopsy was performed and histology revealed aspects compatible with localized scleroderma (dermis with fibrosis with loss of cutaneous appendage and adipose tissue). Methotrexate was initiated at the dosis of 7,5 mg/week, increased to 10 mg/week, in May 2022, in an attempt to avoid systemic corticosteroid therapy in high doses and the suspension of immunotherapy. There was significant improvement of the lesions. Currently the patient maintains treatment with pemetrexed + pembrolizumab, with stationary disease after 12 cycles.
Discussion: Skin toxicity is a common side effect with immunotherapy (IO), and may also occur with chemotherapy. This clinical case reports a rare form of presentation (morphea) in a patient treated with pemetrexed + pembrolizumab. It is thought that these two drugs may eventually have a synergistic effect for this type of toxicity, however experience with the combined treatment of QT+IO in the treatment of NSPC is still limited.

Keywords: *Morphea. Pembrolizumab. Pemetrexed. Non small cell lung cancer.*

PC 008. 10-YEAR SERIES OF CARCINOID TUMORS

M. Cruz, A.F. Silva, S. Raimundo, L. Nascimento, T. Gomes, A. Loureiro

Centro Hospitalar Trás-os-Montes e Alto Douro.

Introduction: Neuroendocrine tumors of the lung include carcinoid tumors (typical and atypical), small cell lung cancer (SCLC) and large cell neuroendocrine carcinoma (LCNEC). Carcinoid tumors are associated with a better prognosis and are usually not related to smoking. The incidence is low, corresponding to 1-2% of lung tumors.
Objectives: To evaluate the characteristics of patients diagnosed with lung carcinoid tumor in a Pulmonology Oncology consultation.
Methods: Retrospective, observational study that evaluated patients followed in a Pulmonology Oncology consultation, between 2012 and 2022, with the diagnosis of lung carcinoid tumor.
Results: We identified 25 patients diagnosed with carcinoid tumors between May 2012 and May 2022. The majority of the patients (52%, n = 13) were female, with a mean age of 59.3 years (minimum age 17 years and maximum age 81 years). 86% (n = 19) were non-smokers, 20% (n = 5) were ex-smokers and only 1 patient was an active smoker. The most frequently reported symptom was cough (n = 11), followed by hemoptysis (n = 6), chest pain (n = 2) and constitutional symptoms (n = 2). The diagnosis was obtained in 40% (n = 10) of the patients through bronchial biopsies by bronchoscopy, in 8 patients (32%) by transthoracic biopsy, in 5 (20%) by rigid bronchoscopy, 1 (4%) patient by lobectomy and another patient by bone biopsy. Most patients (84%, n = 21) underwent PET-68GaDOTANOC, and 71% (n = 15) had uptake only in the primary pulmonary lesion and in 19% (n = 4) there was no radiopharmaceutical uptake. Regarding the differentiation between typical and atypical, the majority (n = 15, 60%) were classified as typical carcinoid tumors. In 5 patients it was not possible to differentiate. The majority of the patients (84%, n = 21) were at an early stage at diagnosis. Of the patients who had distant metastases at diagnosis (n = 3, 12%), all had liver metastases and 2 had bone metastases. 76% (n = 19) of patients underwent thoracic surgery for treatment, 1 patient underwent palliative chemotherapy (CT), one patient radiotherapy (RT) and one patient underwent CT+RT. One patient underwent endoscopic therapy and 2 patients (8%) underwent treatment with octreotide. Three patients (12%) had disease recurrence (minimum of 8 months and maximum 5 years after lobectomy), two of the three had atypical carcinoid tumors and the other patient had typical carcinoid tumor Of these patients who relapsed, one patient underwent lobectomy + adjuvant CT, another had CT+RT and another patient started therapy with somatostatin analogue. The patient who started 1st line octreotide showed disease progression after 11 months and started therapy with lutetium-177. Only 2 patients (10%) had disease-related deaths approximately 36 months after diagnosis.
Conclusions: Lung carcinoid tumors are rare, and in our sample they were more frequent in women, non-smokers and with early stages at diagnosis, which is in agreement with what is described in the literature. Typical carcinoids were the most frequent carcinoid tumor subtype. Disease recurrence was seen in 12% of patients.

Keywords: *Carcinoid tumors. Lung cancer.*

PC 009. IMPACT OF THE COMBINATION OF NEOADJUVANT CHEMOTHERAPY AND PULMONARY REHABILITATION IN THE TREATMENT OF NON-SMALL CELL LUNG CARCINOMA – A CLINICAL CASE

J.R. Seabra Patricio, S. Mendes, F. Rodrigues, P. Alves

Pulmonology Department, Hospital de São Bernardo E.P.E., Centro Hospitalar de Setúbal.

Introduction: The treatment of lung cancer depends on several factors such as histology, tumor staging, molecular characteristics and performance status. Stage I, II, or III non-small cell lung carcinomas are usually treated with curative intent using surgery, chemotherapy (CTX), radiation therapy, or a combined modality. Randomized controlled trials (RCTs) have shown an unquestionable advantage of adjuvant CTX *versus* surgery alone, especially in stages II and III, and it is currently considered the standard treatment. Due to the positive results of adjuvant CTX, many of the RCTs with neoadjuvant CTX were stopped early, as controls with surgery alone were not ethically justified. However, in meta-analyses, the effect of neoadjuvant CTX does not appear to be inferior to that of adjuvant CTX.
Case report: Female, 58 years old, smoker (60 pack-year). No relevant personal history. Asymptomatic, having had a routine chest X-ray

that revealed a pulmonary nodule. Thoraco-abdominopelvic computed tomography scan (CT) identified a mass in the right upper lobe (RUL) measuring 44 × 49 × 51 mm that contacted the structures of the right pulmonary hilum, particularly the azygos arch, the main bronchus and the right upper lobar bronchus, with stenosis of the latter. He also had adenopathies in the right hilum and smaller in 2R, 4R and 5, with no evidence of distant metastasis. PET-CT revealed FDG uptake in the lung mass (SUVmax 16.6) and in adenopathies: Retrocaval (SUVmax 14), 2R (SUVmax 1.9) and 4R (SUVmax 2.4) - cT3N2M0 stage. Videobronchoscopy revealed enlargement of the RUL trifurcation spur and subsegmental bronchi occlusion by infiltration, with bronchial biopsies compatible with lung adenocarcinoma (ADC), PD-L1 100%, negative for target mutations. EBUS identified nodes in 2R (10 mm), 4R (4 mm), 7 (the largest with 20 mm) and tumor mass, with cytology of the punctured nodes (2R and 7) without neoplastic cells. Completed mediastinal staging with mediastinoscopy, without metastasis in 4L, 4R and 7 - pT3N0M0, stage IIb. She performed head CT scan without evidence of metastasis, and preoperative investigation with normal transthoracic echocardiogram and pulmonary function tests (PFTs): post-BD FEV1 1.83L/79%, FVC 2.62L/89%, FEV1/FVC 86%, DLCO 55% and DLCOc/VA 63%. The case was discussed in a multidisciplinary consultation, and it was decided to start pulmonary rehabilitation (PR) and neoadjuvant CTX with cisplatin/vinorelbine (3 cycles). After PR repeated PFTs: FEV1 2.03L/88%, FVC 2.99L/102%, DLCO 54%, DLCOc/VA 58%; followed by cardiorespiratory exercise test: Peak oxygen consumption of 17.3 mL/min/Kg. Pulmonary resection surgery was proposed, and right upper lobectomy with mediastinal lymph node dissection by posterolateral thoracotomy were possible (postoperatively uneventful). Pathological analysis of the anatomical specimens revealed a tumor measuring 2.1 × 2 × 2.1 cm corresponding to residual ADC, without angioinvasion, perineural or pleural invasion, R0, and 2R, 4R, 7, 9 and 10 lymph nodes groups without metastases - Stage ypT1cN0.

Discussion: In clinical practice, neoadjuvant CTX is not routinely applied in early stages, however, it maintains an important role, especially when the feasibility of surgery is a concern. With this case, the authors intend to highlight the role of neoadjuvant CTX and PR in increasing viability and decreasing surgical risk in patients with compromised lung function.

Keywords: *Neoadjuvant chemotherapy. Non-small cell lung carcinoma. Pulmonary rehabilitation.*

PC 010. LAMBERT-EATON MYASTHENIC SYNDROME AND SMALL CELL LUNG CANCER: IMPORTANCE OF ETIOLOGY AND ITS THERAPEUTIC IMPLICATIONS

A.R. Afonso, S. Raimundo, M. Mendes, S. Pipa, L. Nascimento, A. Vale, A.I. Loureiro

Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Lambert-Eaton myasthenic syndrome (LEMS) is an autoimmune disorder of the neuromuscular junction, associated with malignant tumors in 50-60% of cases and may be part of a paraneoplastic syndrome typically associated with small cell lung cancer (SCLC).

Case report: We present the case of a 53-year-old male, ex-smoker, diagnosed with stage IVB SCLC (multiple hepatic and pleural metastases) in August 2021. He underwent 3 cycles of chemotherapy with carboplatin and etoposide, in combination with atezolizumab from the 3rd cycle. Maintenance with atezolizumab was started on the 4th cycle due to hematological toxicity that led to the discontinuation of chemotherapy. In February 2022, he refers to a progressive worsening clinic with about 3 months of fatigue and proximal muscle weakness predominantly in the lower limbs, later reaching the upper limbs. Additionally with reference to dysautonomic symptoms: xerostomia, erectile dysfunction and constipation. He had preserved but slowed pupillary photomotor reflexes, symmetric proximal motor tetraparesis without amyotrophy and areflexia in the lower limbs with improvement after brief and vigorous muscle activation. The initial autoimmune, endocrine and metabolic study was negative. Electromyography revealed signs of presynaptic neuromuscular junction pathology consistent with a suspicion of LEMS. These findings, together with the positivity for anti-voltage-dependent P/Q calcium channel antibodies, allowed the diagnosis of LEMS. He started treatment with pyridostigmine and amifampridine, initially with some symptomatic improvement. Due to insufficient response after dose optimization, systemic corticosteroid therapy was required. Thoracoabdominal CT showed signs of disease progression, and de novo brain lesions were additionally observed on MRI. Despite the instituted measures and in parallel with the worsening the imagiologic findings, the patient presented a progressive deterioration of his general condition, having been proposed for 2nd-line chemotherapy, which he refused. Given the uncertainty of atezolizumab role in the onset of LEMS and progression under therapy, it was decided to permanently discontinue it. He had an unfavorable evolution and died at the end of March 2022.

Discussion: Immune checkpoint inhibitors can cause a variety of neurological effects, although LEMS is extremely rare in this context. Despite this, in this case it is difficult to distinguish whether it was an immune side effect or a paraneoplastic syndrome. Typically, LEMS symptoms are present before SCLC diagnosis (precedes LEMS recognition in only 7% of cases). On the other hand, neurological effects usually appear after a median of 5.5 cycles and are not usually so early. Disease progression was evidenced on imaging, supporting the hypothesis of paraneoplastic etiology. Furthermore, the absence of other immune side effects, namely dermatological, myocarditis or myositis, are in favor of this etiology. In general, the treatment of side effects involves suspending the drug and considering corticosteroid therapy, while in the paraneoplastic syndrome it involves controlling the underlying oncological disease, with symptomatic treatment with amifampridine and pyridostigmine. This case highlights the possibility of developing LEMS in patients with SCLC and, in this particular case, under immunotherapy, and the importance of a correct etiological determination and evaluation of the evolution of the disease for better therapeutic guidance.

Keywords: *Lambert-Eaton myasthenic syndrome. Small cell lung cancer. Atezolizumab. Immune checkpoint inhibitors. Paraneoplastic syndrome.*

PC 011. NON-SMALL CELL LUNG CANCER IN PATIENTS UNDER 50 – WHAT'S THE REALITY?

M.F. de Mesquita Argel, S. Castro, A.I. Santos, R. Lopes, A. Figueiredo, M.A. Pego, F. Barata

Centro Hospitalar Tondela-Viseu.

Introduction: Lung cancer is one of the most deadly cancers in the world. Although most lung cancers occur in patients over 50 years old, its incidence in patients under 50 years old seems to be increasing.

Objectives: In this study we aim to investigate the clinical features of primary NSCLC (non-small cell lung cancer) in patients under the age of 50.

Methods: Retrospective analysis of data from patients under 50 years old diagnosed with advanced and locally advanced NSCLC between 2013 and 2020. Clinical data, histology, Performance Status (PS), therapy and overall survival (OS) were evaluated. Statistical analysis was performed using SPSS v.28.

Results: Fifty-one patients were enrolled and had a median age of 46 years old. There were 33 men (64.7%) and 18 women (35.3%), with a ratio of 1.8:1. Most patients were current smokers (49%), 33.3% were non-smokers, and 86.3% had a PS 0-1. Patients with adenocarcinoma predominated (72.5%), 15.7% were squamous carcinoma, 5.9% pleomorphic carcinoma, 3.9% adenosquamous and 2% large cell carcinoma. The majority of patients were in stage IV (74.5%), 21.6% in stage

IIIB and 3.9% in stage IIIC. Gene analysis was conducted in 30 patients; the ALK gene translocation was present in 8 (4 men, 4 women) and the EGFR gene mutation in 6 (4 men, 2 women). The majority of patients positive for the ALK gene translocation and the EGFR gene mutation were non-smokers. PD-L1 expression was obtained in 30 patients and were positive in 18 (60%). PD-L1 was expressed in more than 50% tumour cells in 61.1% of cases. Regarding first-line therapy, 29 patients underwent chemotherapy, 9 underwent combined modality (chemotherapy and radiotherapy), 8 initiated tyrosine kinase inhibitors (TKIs), 4 initiated immunotherapy and 1 underwent chemotherapy and immunotherapy. For patients with advanced NSCLC, the longer duration of treatment was observed in those who underwent TKIs [11.9 months (SD 9.3)], followed by those who underwent immunotherapy [7.5 months (SD 9)]. The median number of therapeutic lines was 2 (range 1-8). The global overall survivall (OS) was 10.5 months (IQR 23.8).
Conclusions: Our results reflect the trend toward a higher proportion of women among lung cancer patients, with a male-to-female ratio of 1.8:1. Most of patients were smokers, except those with oncogenic driver mutations that were mostly non-smokers, which is in line with current literature. Additionally, our findings corroborate previous data reporting that adenocarcinoma is more common among younger patients. Longer duration of treatment was observed in patients with advanced NSCLC who underwent TKIs and immunotherapy, reinforcing the good response with these therapies. Although it is difficult to identify lung cancer at an early stage because there are rarely red-flag symptoms, we must strive for early detection by increasing screening rates and evaluate oncogenic driver mutations important for prognosis of lung cancer in the young.

***Keywords**: Lung cancer. Young patients. Oncogenic driver mutations.*

PC 012. AND THEN THERE WERE THREE - SQUAMOUS CELL, ADENOCARCINOMA AND SMALL CELL - MULTIPLE PRIMARY LUNG CANCERS

C. Parra, L. Nascimento, S. Raimundo, M. Conde, A. Loureiro

Pulmonology Department, Trás-os-Montes e Alto Douro Hospital Center.

Introduction: The diagnosis of synchronous and metachronous lung tumors has increased in frequency over the last few years due to the development of early detection techniques and the advancement of anti-neoplastic therapies. Patients who continue to smoke have an increased risk of developing additional cancers, namely lung cancers, compared to those who quit smoking.
Case report: Female, 74 years old, active smoker (> 150 UMA). Personal history of arterial hypertension, dyslipidemia, chronic alcoholism and COPD GOLD 2D (under LTOT since September 2020). Diagnosis of pulmonary squamous cell carcinoma in July 2017, weak positive PD-L1 expression; cT1cN2M1a - stage IVA (contralateral lung metastases) at diagnosis. She underwent systemic treatment with carboplatin and oral vinorelbine. Significant toxicity after the 1st cycle with CTCAE G3 febrile neutropenia and need for hospitalization, although being able to resume the treatment line, with dose reduction. Partial response to the 2nd cycle and stable disease after completing 4 cycles. Despite toxicity, 4 cycles were completed with partial response and clinical and imaging surveillance was started. The disease remained stable for 23 months, at which time imaging reassessment showed growth of a right lower lobe nodule; uptake on PET (SUVmax 9.9). BTT of the nodule was performed, which revealed pulmonary adenocarcinoma, without EGFR target mutations, intermediate positive PD-L1 expression; cT2N2M0 – stage IIIA at diagnosis. Sequential chemotherapy and radiotherapy was proposed and treatment of carboplatin and pemetrexed was started; 5 cycles were completed despite CTCAE G3 neutropenia. In Imaging reassessment there was evidence of progressive disease, treatment was suspended and radiotherapy was not performed. Followed immunotherapy with Nivolumab, which was maintained for 14 months with disease stability. In February 2022, progressive disease was observed again, highlighting a new RUL nodule measuring 1.5 cm, with high uptake on PET-FDG (SUVmax 6.2) and a nodule in the LUL adjacent to the aortic arch, also with high uptake (SUVmax 10.9). There was also a right paratracheal node suggestive of malignant infiltration (SUVmax 17.0). Brain MRI showed a focus of hypersignal on T2 FLAIR, associated with a punctiform focus of contrast uptake, thalamic-capsular on the right, which could correspond to a subacute ischemic lesion but without the possibility of excluding a secondary infiltrative lesion. Transthoracic lung biopsy of the new nodule was performed whose histological examination led to the diagnosis of small cell lung carcinoma. With some degree of uncertainty, it was decided to assume the contralateral nodular lung lesion as secondary to small cell carcinoma and maintain surveillance of the brain lesion, having staged disease as T1bN2M1a – stage IVA and thus having started palliative chemotherapy with carboplatin and etoposide. Again with significant hematological toxicity (CTCAE G4 neutropenia and CTCAE G4 thrombocytopenia) after the first cycle despite prophylaxis with filgrastim, and currently with a low probability of meeting the conditions to continue treatment with doublet, which is currently suspended.
Discussion: This case demonstrates the challenges associated with management of multiple lung cancers, especially the diagnosis, the distinction between progression/metastasis and the emergence of another primary tumor and the difficulty in staging and therapeutic selection.

***Keywords**: Multiple lung carcinomas. Adenocarcinoma. Squamous cell carcinoma. SCLC.*

PC 013. BLINDSPOT BEHIND PET-CT SCAN – A CASE REPORT

R. Paulinetti Camara, K. Lopes, M. Barbosa, S. Santos, J. Casanova, F. Brandão, P. Mota, C. Simão, T. Sequeira, T. Almodovar

Pulmonology Department, Instituto Português de Oncologia de Lisboa Francisco Gentil. Pulmonology Department, Hospital Nossa Senhora do Rosário-Centro Hospitalar Barreiro-Montijo.

Introduction: Lung cancer staging is essential to treat patients adequately. Early and locally advanced stages can usually be treated with surgery or chemoradiotherapy, while advanced stages are usually treated with systemic therapy. To address patients to the right therapy, besides the initial Chest-CT-Scan, physicians normally perform a whole-body or torso PET-CT-Scan and brain evaluation. Nevertheless, hidden metastasis could mislead doctors to treat patients with curative intention with no improvement on their overall survival and added adverse events. The authors present a case of a possible missed metastasis that perhaps could have been detected earlier and altered therapeutic approach ad initium.
Case report: A 70-year-old man, former smoker, with hypertension, COPD and BPH, presented with hemoptoic sputum. Chest-CT-Scan showed a mass with 60 mm in the left upper lobe (LUL) and an infracarinal lymph node. PET-FDG showed uptake in the mass (maxSUV 9.3), para-aortic lymph node (maxSUV 2.7), left hilum lymph node (maxSUV 4.2). Transthoracic biopsy revealed squamous cell carcinoma (SCC), EBUS lymph node aspiration was negative for neoplastic cells and Brain-CT showed no lesions. It was classified as cT3N0M0-StageIIB. Patient underwent neoadjuvant chemotherapy with carboplatin + vinorelbine (4 cycles) and did LUL lobectomy-pT3N0,R0,PD-L1-negative. One month after surgery, he complaint with left knee pain. Knee-MRI showed a lytic lesion with 84 × 59 × 61 mm, Chest-CT-Scan and PET-FDG showed no signs of recurrence. Knee lesion was biopsied and confirmed as a metastasis from lung SCC. Distal resection and reconstruction of the femur were performed, but 2 months later patient suffered prothesis infection and had to be urgently reoper-

ated. Pathologists found tumor relapse around the prothesis. Since it was impossible to control the infection, a supracondylar amputation of the left femur was performed. One month after the amputation, still while in the hospital, Chest-CT showed local, pleural and ganglia recurrence, so after clinical stabilization he was transferred to IPO where he remained for 2 more months. At that time patient performance status (PS) was poor due to his surgery complications. At multidisciplinary clinic it was decided he should integrate a rehabilitation program to improve his PS before considering systemic therapy. Patient was closely monitored for 8 months with 3/days/week physiotherapy and family support, after which he started carboplatin + paclitaxel + pembrolizumab, that he currently maintains.
Discussion: In lung tumors, it is extremely rare to have asymptomatic distal leg metastasis with no evidence of other metastasis neither malignant lymph nodes. Full body PET-FDG, from the top of the head to toes, is a time-consuming exam and is only performed when there are symptoms suspicious of leg metastasis Otherwise, torso imaging is performed, from the base of the skull to mid-thigh, excluding knees and the rest of the limbs. In this patient a standard PET was performed, raising the doubt whether the knee metastasis was present at the time of surgery, since knees were simply not evaluated. Another important aspect to emphasize is the poor PS he had after leg amputation. With consistent physiotherapy and family support, he managed to improve to a point where he could start systemic therapy. This reinforces the vital role of patient support in their treatment and also their own prognosis.

Keywords: *PET-CT scan. Lung cancer. Squamous cell carcinoma. Metastasis.*

PC 014. TYPICAL CARCINOID TUMOR OF THE LUNG – 177LU-DOTATATE TREATMENT IN ADVANCED PROGRESSIVE DISEASE

C. Parra, M. Conde, L. Nascimento, A. Loureiro

Pulmonology Department, Trás-os-Montes e Alto Douro Hospital Center.

Introduction: Neuroendocrine tumors are a heterogeneous group and may originate in different organs, namely the lung, gastrointestinal tract and pancreas. Pulmonary neuroendocrine tumors represent 20-30% of all neuroendocrine tumors, 1-2% of lung tumors and are divided into well-differentiated tumors classified as typical or atypical carcinoids; and poorly differentiated tumors classified into small cell lung carcinoma and large cell neuroendocrine carcinoma. Somatostatin analogues are considered an acceptable option in the treatment of lung carcinoid tumors that express somatostatin receptors. Therapy with 177Lu-DOTATATE is an effective option in gastroenteropancreatic neuroendocrine tumors with sufficient expression of somatostatin receptors after treatment with a somatostatin analogue. Although neuroendocrine lung tumors were not included in the NETTER-1 trial, limited clinical studies show promising results.
Case report: 72-year-old female. Non smoker. Personal history of bilateral borderline serous carcinoma of the ovary undergoing surgical treatment in 2016 and LID organizing pneumonia diagnosed in 2016. Diagnosis of typical lung carcinoid tumor, T3N3M1c (multiple hepatic metastases) - stage IVB in June 2020. Upon diagnosis elevated serum chromogranin (338 ng/ml); DOTANOC PET showing anomalous and increased uptake of Ga68-DOTA-TOC suggestive of a lung neuroendocrine tumor with intense abnormal overexpression of somatostatin receptors, so initial treatment with somatostatin analogue was decided. Started palliative systemic treatment with octreotide at a dose of 20 mg IM, maintained every 4 weeks. After approximately 11 months of treatment, TAP CT showed progressive disease with dimensional increase in the largest lung tumor lesion and an increase in the number and size of liver metastases. PET DOTANOC also showed bone metastasis. Complete blood count, liver and kidney biochemical parameters without changes. Serum chromogranin rising (641.8 ng/mL). Thus, treatment with lutetium 177Lu-DOTA-TATE was proposed, which the patient started in October 2021, maintaining octreotide, with good tolerance. Adverse effects include facial edema and mild nausea, amenable to symptomatic management and CTCAE G2 neutropenia. She underwent 4 cycles of Lutetium 177Lu-DOTA-TATE and is awaiting imaging reassessment 3 months after the last cycle. If there is evidence of disease progression during follow-up, there may be an indication for repeat treatment.
Discussion: Therapeutic options in advanced stage neuroendocrine lung tumors with progressive disease are limited and there are few data to guide subsequent treatments. Although approved for the treatment of gastroenteropancreatic neuroendocrine tumors, the role of 177Lu-DOTATATE in the treatment of lung carcinoid tumors is not clearly defined; however, based on current evidence it appears to be effective and safe in patients with advanced disease progression with significant expression of somatostatin receptors. Prospective studies comparing Lutetium 177Lu-DOTA-TATE with available systemic treatment alternatives are needed.

Keywords: *Lung neuroendocrine tumor. Typical carcinoid. Octreotide. Lu-177 DOTATATE.*

PC 015. EXPERIENCE WITH LORLATINIB – A NEW HOPE FOR PATIENTS WITH ALK POSITIVE NSCLC

S. Martins de Castro, M. Argel, R.S. Lopes, D. Canhoto, J. Oliveira, A. Figueiredo, A. Pêgo, F. Barata

Centro Hospitalar do Baixo Vouga.

Introduction: Nowadays, within the scope of Precision Medicine, the determination of tumor targets, responsible for its development, makes it possible to develop specific therapies aimed to those markers, allowing a better treatment and outcome in patients with NSCLC. This therapeutic option has been growing as a first line treatment in these mutated patients and the results have been very groundbreaking. The discovery of mutations and rearrangements capable of modulation by tyrosine kinase inhibitors changed the treatment paradigm of NSCLC. An example is the third-generation highly selective inhibitor of anaplastic lymphoma kinase ALK Lorlatinib.
Objectives: To evaluate the efficacy of Lorlatinib in the treatment of the patient with advanced, ALK-positive NSCLC.
Methods: Retrospective analysis of clinical data from patients with advanced-stage NSCLC and ALK rearrangement followed up in an Oncologic Pulmonary Department of HUC.
Results: 14 patients were included, with a mean age of 59 years (minimum 45, maximum 82), 64.3% (n = 9) female, 78.6% (n = 11) non-smokers, 64.3% (n = 9) with performance status of 1, and 35.7% (n = 5) of 0. By the time of the diagnosis, all of the patients (n = 14) were in stage IV of the disease. Bone and lung were the most common sites of metastasis, of those 85,7% (n = 12) had brain metastasis. Most patients, 57.1% (n = 8), completed Lorlatinib as a third line of treatment. These complied with crizotinib as a first line treatment and a second-generation of TKI (ceritinib or alectinib) as a second line. The remainder did Lorlatinib as a second line course of treatment post second-generation TKI as first line. The mean time of treatment with Lorlatinib was 29 months (minimum 5, maximum 71). As for response to therapy, we found disease control in 71.4% (n = 10) of patients and progression in 28.6% (n = 4). Almost all patients had hypercholesterolemia, some with hypertriglyceridemia controlled with therapy. Three patients had neurocognitive side effects requiring reduction or even discontinuation. Peripheral neuropathy was observed in one patient.
Conclusions: The experience of our Health Care Unit is similar to the data from other studies, highlighting the importance of Lorlatinib in the personalized treatment of ALK positive NSCLC for its robust antitumor efficacy, along with central nervous system activity.

Keywords: *ALK. Lorlatinib. NSCLC.*

PC 016. EXPERIENCE WITH OSIMERTINIB – NEW PERSPECTIVE IN THE TREATMENT OF THE EGFR-POSITIVE PATIENTS

S. Martins de Castro, M. Argel, D. Canhoto, R.S. Lopes, J. Oliveira, A. Figueiredo, A. Pêgo, F. Barata

Centro Hospitalar do Baixo Vouga.

Introduction: The World Health Organization estimates that in 2020, in Portugal, 5.284 new cases of lung cancer were diagnosed, representing the third most frequent neoplasm in the country, although the first in terms of mortality. The discovery of mutations capable of modulation by tyrosine kinase inhibitors changed the treatment paradigm of NSCLC. One example is Osimertinib, a third-generation tyrosine kinase inhibitor of the epidermal growth factor receptor (EGFR). Osimertinib is approved in Portugal for first-line treatment of patients with locally advanced or metastatic NSCLC with activating mutations (del19 and L858R substitution mutation in exon 21) of the EGFR and first- or second-line after another TKI in the patient with positive EGFR mutation T790m.
Objectives: To evaluate, in the years 2020 and 2021, the efficacy of Osimertinib in the treatment of the patient with advanced, EGFR-positive NSCLC.
Methods: Retrospective analysis of clinical data of patients with advanced, EGFR-positive NSCLC followed at the CHUC's Pulmonology Oncology Unit.
Results: 37 patients were included. In 45.9% (n = 17) Osimertinib was prescribed first line. For the rest of the patients it was used as a second-line option, and another TKI was used as first-line (Erlotinib or Afatinib). The mean age was of 70 years (minimum 51, maximum 88), 67.6% (n = 25) female, 70.3% (n = 26) non-smokers, 40.5% (n = 15) with performance status of 0, 29.7% (n = 11) with performance status of 1 and 2.7% (n = 1) of 2. At the time of diagnosis, 62.16% (n = 23) were stage IV. The remaining patients, in locally advanced stage, were excluded in a multidisciplinary meeting for chemo- and radiotherapy. Of these 37 patient's lung, bone and ganglion were the most common sites of metastasis. In 62.2% (n = 23), Osimertinib was a first-line option. In 37.8% (n = 14) it was a second-line option. In the response to therapy, overall, we found partial response in 51.4% (n = 19), stability in 37.8% (n = 14) and progression in 10.8% (n = 4) especially at the lung, bone and lymph node levels. 32% (n = 12) of the patients showed skin lesions, some of them requiring a temporary suspension of the drug, but with full regression of the lesions after this period of time and with no recurrence after the resumption of the treatment. All patients who started Osimertinib as first-line therapy in the two years under review are alive.
Conclusions: The experience of our Health Care Unit is similar to the data from other studies, highlighting the importance of Osimertinib in the personalized treatment of EGFR positive NSCLC for its impressive antitumor activity, an acceptable response and tolerable side effects.

Keywords: *EGFR. Osimertinib. NSCLC.*

PC 017. ANTIFIBROTICS FOR THE TREATMENT OF INTERSTITIAL LUNG DISEASE RELATED TO SYSTEMIC RHEUMATIC DISEASES – THE EXPERIENCE OF ONE CENTRE

A.C. Duarte, A. Cordeiro, M. Lopes, J. Soares, M.J. Santos

Rheumatology department, Hospital Garcia de Orta.

Introduction: Antifibrotics (pirfenidone and nintedanib) were initially approved for the treatment of idiopathic pulmonary fibrosis (IPF). Due to the pathophysiological similarities between IPF and interstitial lung disease (ILD) secondary to systemic rheumatic diseases (SRD), particularly with usual interstitial pneumonia pattern (UIP), they have been increasingly used in the treatment of SRD-ILD. This work describes the experience of a tertiary centre in the use of antifibrotics in SRD-ILD, with emphasis on tolerance and effectiveness.
Methods: Retrospective analysis of all patients with SRD-ILD under antifibrotics followed in our Rheumatology clinic and previously discussed in a multidisciplinary ILD clinic, with Pulmonology. Sociodemographic data, SRD diagnosis and its current medication, major comorbidities, imaging/histopathological pattern of ILD and results of pulmonary function tests (PFTs) at baseline and follow-up were collected.
Results: From July 2016 to July 2022, 16 patients were treated with antifibrotics. Of these, 11 (68.8%) were female, with median age at the last visit of 67.5 years. Seven (43.8%) patients had rheumatoid arthritis (RA; all positive for rheumatoid factor and anti-cyclic citrullinated peptide antibodies), 6 (37.5%) systemic sclerosis (SSc; 5 with limited cutaneous form and 1 with diffuse cutaneous form; all positive for antinuclear antibodies and 2 positive for anti-Scl-70 antibodies), 2 (12.5%) primary Sjögren's syndrome (pSS) and 1 (6.2%) dermatomyositis (DM). Ten (62.5%) patients had UIP pattern, 5 (31.2%) had fibrotic non-specific interstitial pneumonia (NSIP) and 1 had desquamative interstitial pneumonia, with the description of honeycombing in chest computed tomography. The median duration of antifibrotic treatment was 13 months (minimum 1; maximum 51). Pirfenidone was initially prescribed to 8 (57.1%) patients. Two patients had gastrointestinal (GI) intolerance that did not resolve with dose reduction or symptomatic therapy, one of whom switched to nintedanib and the other chose to withhold antifibrotic treatment. Three of the 8 patients initially treated with nintedanib required a dose reduction (to 100 mg bid) due to GI intolerance. However, in one patient, complaints persisted, and due to imaging and functional progression, she was switched to pirfenidone. All RA patients were under concomitant immunosuppression to control their joint disease, and in 2 of them the choice of biologic (rituximab and abatacept) was influenced by the presence of ILD. Two SSc patients were on mycophenolate mofetil and the DM patient and 1 pSS patient were on rituximab. Two SSc patients died, one from lung cancer progression and the other from severe partial respiratory failure, with chest X-ray showing new diffuse pulmonary opacities.
Conclusions: The experience of our centre reinforces the potential use of antifibrotics for slowing ILD progression in patients with SRD-ILD. Besides these drugs can be used in association with immunosuppression. Our choice of antifibrotic often takes into consideration GI complaints, frequent in this class of drugs, as well as the concomitant use of oral anticoagulants, although there is no formal contraindication for its association.

Keywords: *Interstitial lung disease. Systemic rheumatic diseases. Antifibrotics.*

PC 018. WHO ARE THE PATIENTS ON ANTIFIBROTICS IN THE INTERSTITIAL LUNG CONSULTATION?

F. Guimarães, J. Canadas, M. Cunha, N. Marçal, P. Rosa

Hospital Vila Franca de Xira.

Introduction: Antifibrotics have shown benefit in slowing the progression of idiopathic pulmonary fibrosis (IPF). Recent evidence has shown that they have a similar effect in progressive pulmonary fibrosis (PPF), leading to a change in the pattern of patients under these therapeutics.
Objectives: Characterization of the population of patients on antifibrotics followed in the interstitial consultation during the last 5 years.
Methods: Retrospective study of patients on antifibrotics, from August 2017 to August 2022 at the interstitial lung consultation in a level II hospital. Statistical analysis with Microsoft Excel of the following variables: gender, age, smoking status and history, diagnoses, instituted antifibrotic, adverse effects, weight loss in the first year, exacerbations and mortality.

Results: Sample of 28 patients, with a mean age of 68.79 years and a predominance of males (n = 18, 64.3%). Most patients were smokers, 2 patients (7.1%) were still smokers and 16 patients (57.1%) were ex-smokers. The most frequent diagnosis is IPF (n = 18, 64.3%) and the remaining patients have PPF (n = 10, 35.7%), with the following diagnoses: fibrotic NSIP (n = 3, 10.7%), hypersensitivity pneumonitis (n = 3, 10.7%), unclassifiable interstitial lung disease (n = 2, 7.1%), NSIP secondary to systemic sclerosis (n = 1, 3.6%) and undifferentiated connective tissue disease (n = 1, 3.6%). The median period on antifibrotic was 1 year and 4 months. Nintedanib was the most used antifibrotic (n = 20, 71.4%). Four of the patients on nintedanib had taken pirfenidone before but had to switch due to phototoxicity (n = 3; 10.7%) and gastrointestinal disorders (n = 1, 3.6%) and 2 patients (7.1%) suspended nintedanib due to adverse effects and refused to switch to pirfenidone. Out of the patients on pirfenidone (n = 8; 28.6%), one was previously on nintedanib and was suspended due to diarrhea. In consultations subsequent to the initiation of antifibrotics, 10 patients (35.7%) reported adverse effects, the most common being diarrhea (n = 8, 28.5%). Nintedanib had adverse effects in 40% of patients on this therapy (n = 8), while pirfenidone had adverse effects in 25% (n = 2). Out of the patients on antifibrotic for more than one year (n = 17; 60,7%), 35,3% (n = 6) had significant weight loss (>10% of baseline weight). Exacerbations were frequent, leading to hospitalization in 11 patients (39.3%), 2 of these (7.1%) were admitted to the intensive care unit. The overall mortality of patients on antifibrotics is 21.4% (n = 6), with an average of 7.5 months of antifibrotic treatment.
Conclusions: The possibility of using antifibrotics also in PPF is a revolution, allowing more patients to be treated. Adverse effects are frequent, leading to a change in the therapeutic strategy in 25% of patients. These are effective drugs but with a management that requires in-depth surveillance. Opening the door to more diseases will bring new challenges.

Keywords: *Nintedanib. Pirfenidona. Pulmonary fibrosis.*

PC 019. CLASSIFICATION CRITERIA FOR OSA SEVERITY AND ITS IMPACT ON TREATMENT

M. Cabral, M. Brandao, F. Carriço, D. Rodrigues, M. van Zeller, M. Drummond

Hospital de Santa Marta, Centro Hospitalar Universitário Lisboa Central.

Introduction: The current classification of obstructive sleep apnea syndrome (OSA) is based solely on the Apnea-Hypopnea Index (AHI) and does not take into account the heterogeneity of patients with OSA. The Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) suggests classifying the severity of this syndrome considering 5 objective parameters: AHI, nocturnal peripheral saturation time < 90% (T < 90%), Epworth sleep scale (ESS), Body Mass (BMI) and comorbidities associated with OSA, namely, arterial hypertension (HTA), dyslipidemia, type 2 diabetes mellitus (DM2), cerebrovascular and coronary disease, and atrial fibrillation (AF).
Objectives: To classify the severity of OSA according to the criteria proposed by SEPAR and compare the severity according to the classification used.
Methods: Retrospective analysis of patients who underwent level I and II polysomnography (PSG) from January to December 2021 at Centro Hospital Universitário de São João.
Results: A total of 207 patients were evaluated, half of which were female, with a mean age of 54.0 years. Of these, 50% had a diagnosis of hypertension, 37.7% of dyslipidemia, 16.9% of DM2, 9.2% of cerebrovascular disease, 6.8% of coronary disease and 4.3% of AF. Most patients were obese (44.9%) or overweight (37.7%). The mean ESS score, obtained on the day of the first consultation (pre-treatment), was 9.9/24. Almost half (41.1%) had a score ≥ 11. Most patients underwent level 1 PSG (84.5%) and the remaining level 2. The exam revealed mild OSA in 113 patients, moderate in 59 and severe in 35. The average T < 90% was 2.34% of the total registration time, with 27 patients having a time below 90% equal to or greater than 20%. The treatment essentially proposed was APAP (66.5%), followed by positional conditioning (11.4%) and weight loss (7.2%). Other less frequent treatments were CPAP (3.6%), BiPAP (1%), mandibular advancement devices (3.1%), ORL surgery (1%) and behavioral measures (6.2%). Taking into account OSA severity criteria suggested by SEPAR, each patient was assigned a grade based on the highest score obtained from these criteria. In case of a tie, it was decided to classify according to the value of greater severity. The degree of severity obtained only through the AHI was then compared with the AHI and the other criteria mentioned above, and we concluded that there was a change in the classification in 81.6% of the patients. In all of them, the degree of severity increased, in 90 patients there was an increase of 1 level, in 64 patients of 2 levels, and in 15 patients there was even an increase of 3 levels in the classification of OSA severity.
Conclusions: In conclusion, the inclusion of new criteria in OSA classification significantly alters the severity of this syndrome, always increasing the severity classification degree. The importance of the accuracy of this categorization is highlighted, since it may have an impact on the type of treatment proposed, so it is essential that the most relevant criteria and predictors of poor prognosis are studied.

Keywords: *Obstructive sleep apnea. Apnea hypopnea index.*

PC 020. STUDY OF A LOCAL COHORT OF PATIENTS WITH SARCOIDOSIS - EPIDEMIOLOGY, CLINIC AND LONGITUDINAL EVOLUTION

C. Cascais Costa, J. Coutinho Costa, A. Mendes, V. Fernandes, L. Andrade, P. Gonçalo Ferreira

Centro Hospitalar Baixo Vouga.

Introduction: Sarcoidosis is a multisystem granulomatous disease of unknown etiology that can affect any organ with predominant involvement of the lymphatic system and lungs.
Objectives: To investigate the epidemiological, clinical and behavioral characteristics of a cohort of patients with sarcoidosis, diagnosed in a dedicated interstitial pathology appointment of a district hospital. Analysis of the subgroup of patients with fibrotic sarcoidosis, regarding the tendency of progressive fibrotic behavior refractory to anti-inflammatory therapy, based on the recently proposed progression criteria.
Methods: Retrospective study of a cohort of patients diagnosed with sarcoidosis between 2017 and 2021. A distinction was made between cases with less than 2 years of evolution since diagnosis ("acute sarcoidosis") and cases with a longer evolution ("chronic sarcoidosis").
Results: 73 patients with sarcoidosis were identified. Approximately 17.8% of the cases were acute sarcoidosis. In this subgroup of patients, the overall mean age was 44.4 ± 9.9 years, with a predominance of 53.8% females and a clinical presentation compatible with Lofgren's syndrome in 46.3% of the cases. About 92.3% of patients had a Scadding stage I or II at diagnosis. Approximately 76.9% of the patients underwent bronchoalveolar lavage (BAL) and had a mean lymphocytosis of 33.2 ± 14.9% and a mean CD4/CD8 ratio of 8.91 ± 14.05. The mean dosage at diagnosis of Angiotensin Converting Enzyme (ACE) was 60.9 ± 25.2 and the last one was 47.3 ± 18.4. At diagnosis, 84.6% had pulmonary function within the expected normal range. In this subgroup of patients, 38.5% remained under surveillance with complete remission. Of those pharmacologically treated, 46.2% were treated with inhaled corticosteroids, 15.4% with systemic corticosteroids, 23% with hydroxychloroquine and 7.6% with mycophenolate mofetil. Regard-

ing chronic sarcoidosis, 60 patients were identified, 51.7% female and with a mean age of 51.7 ± 15.1 years. In this subgroup, the definitive diagnosis involved the use of biopsy in 40% of the cases. In the last evaluation, Scadding stage 0 was observed in 48.3%, stage I in 15%, stage II in 16.7%, stage III in 5% and stage IV in 15%. The mean ACE at diagnosis and at the last assessment was 83.03 ± 48.31 and 58.23 ± 26.55, respectively. The mean soluble IL2 receptor assay was 1,569 pg/ml (N 458-1,997 pg/ml). The mean lymphocytosis in BAL was 37.40 ± 22.18%, with a CD4/CD8 ratio of 5.3 ± 5.79. The respiratory functional study revealed a mean FVC at diagnosis of 93.8% ± 22.6 and 92.5% ± 13.3% at the last evaluation, while the mean DLCO at diagnosis was 74.9% ± 17.3% and 75.8% ± 19.1% in the last assessment. Regarding the current treatment, 32% are under surveillance only, 31.7% are under prednisolone, 11.7% with hydroxychloroquine, 16.7% with methotrexate, 1.7% with leflunomide, 1.7% with azathioprine, 1.7% infliximab and 3.3% with nintedanib. Of the global cohort of stage IV chronic sarcoidosis, 22.2% demonstrated criteria of progressive fibrotic disease in the previous 24 months.
Conclusions: The data presented illustrate the heterogeneity in the biological behavior trend and severity of sarcoidosis.

Keywords: *Sarcoidosis. Granulomatous disease. Progressive fibrotic disease.*

PC 021. FUNCTIONAL IMPAIRMENT IN PEOPLE WITH INTERSTITIAL LUNG DISEASES: IS ONE MEASURE ENOUGH?

C. Dias, A. Machado, C. Paixão, M.A. Mendes, P.G. Ferreira, A. Marques

Lab3R-Respiratory Research and Rehabilitation Laboratory, School of Health Sciences, University of Aveiro (ESSUA). iBiMED-Institute of Biomedicine, Department of Medical Sciences, University of Aveiro.

Introduction: Interstitial lung diseases (ILD) comprehend a large group of lung diseases that include disease settings associated with sustained progression and leading to respiratory failure, decreased functional status and premature death. Functional status can be defined as an individual's ability to perform normal daily activities required to meet basic needs, fulfill usual roles and maintain health and well-being. It includes functional capacity, i.e., an individual's maximum capacity to perform daily life activities in a standardized environment; and functional performance, i.e., the activities people actually do during the course of their daily life. Decreased functional status is the most frequent reported impact by people with ILD and is associated with increased dependence on others, exacerbations and hospital admissions. Yet, little is known how functional status is impaired in people with ILD.
Objectives: To explore functional impairments in people with ILD.
Methods: A cross-sectional study was conducted with people with ILD. Age, sex, body mass index (BMI) and lung function were collected. Functional capacity was assessed with the 1-minute sit-to-stand test (1-minSTS), the 6-minute walk test (6MWT) and quadriceps maximum voluntary contraction (QMVC). Functional performance was assessed with the London Chest Activities of Daily Living (LCADL). Participants' functional capacity was classified as impaired if the 1-minSTS, 6MWT and/or QMVC values were below 70% of predicted. Participants' functional performance was considered impaired if above the cut-off point of 28% of the LCADL. Descriptive statistics were performed.
Results: In total, 156 people with ILD (65 ± 13 years; 51.9% female; BMI 28.7 ± 6.1 kg/m^2; FVC 79.2 ± 20.1%predicted; DLCO 55.4 ± 21.2%predicted) participated. ILD diagnosis included fibrosis hypersensitivity pneumonitis (43%), idiopathic pulmonary fibrosis (24%), connective tissue disease-associated ILD (14%), dust-related (1%) and others (17%). Functional capacity was impaired in 55.3%, 23.8% and 41.8% of the sample assessed with the 1-minSTS, 6MWT and QMVC, respectively. Functional performance was impaired in 48.5% of people with ILD.
Conclusions: A large proportion of people with ILD show impairments in functional status, i.e., in capacity, in performance or in both. Lack of impairment in one measure does not rule out functional status impairment. Patient-centered and comprehensive assessment of functional status seems vital to guide individually tailored interventions and improve this meaningful domain for the daily life of ILD patients.

Keywords: *ILD. Functional status. Functional capacity. Functional performance.*

PC 022. ABILITY TO IDENTIFY RISK OF FALLS OF THE BRIEF-BESTEST IN PATIENTS WITH INTERSTITIAL LUNG DISEASE

C. Paixão, A.S. Grave, P.G. Ferreira, M.A. Mendes, F. Teixeira Lopes, J. Coutinho Costa, D. Brooks, A. Marques

Lab3R-Respiratory Research and Rehabilitation Laboratory, School of Health Sciences (ESSUA) and Department of Medical Sciences of University of Aveiro.

Falls are one of the major causes of morbidity, healthcare utilisation and mortality, worldwide. Deficits in balance have been associated with an increased risk of falls in people with chronic obstructive pulmonary disease, who fall 3-5 times more than their healthy age-matched peers. Much less is yet known about the balance of individuals with interstitial lung disease (ILD) which are a highly disabling group of chronic respiratory diseases. The Brief-Balance Evaluation Systems Test (Brief-BESTest) is a comprehensive balance measure, which provides important information for tailoring balance training, however, its ability to identify risk of falls in people with ILD is still unknown. Thus, the aim of this study was to determine the discriminative ability of the Brief-BESTest in identifying people with ILD with high/low predicted risk of falls. A retrospective cross-sectional study was conducted with people with ILD. At inclusion, people with ILD had to be clinically stable (i.e., no history of acute cardiac condition, acute ILD exacerbation or other respiratory complications) in the previous month. A definition of falls (an unexpected event when you find yourself unintentionally on the ground, floor or lower level) was provided to participants. History of falls was investigated by asking participants two standardised questions: (1) "Have you had any falls in the last 12 months?" and, if yes, (2) "How many times did you fall down in the last 12 months?". Balance was assessed with the Brief-BESTest. Differences between people who suffered a fall and those who did not, in the previous year, were explored with independent t-tests. A receiver operating characteristics (ROC) curve analysis was used to assess the ability of the Brief-BESTest to differentiate between people with ILD with (≥ 1) and without (0) history of falls. The area under the curve (AUC), sensitivity, specificity and accuracy were also calculated. The optimal cut-off point was identified by the highest Youden index. Sixty-seven people with ILD (66 ± 12 years old; 38 [56.7%] female; FVC 80.8 ± 18.8%predicted; DLCO 56.8 ± 22.2% predicted) were included in the analysis. From these, 20 (29.9%) had, at least, 1 fall in the previous year. People who suffered falls were older (63 ± 10 *vs.* 72 ± 13 years, p = 0.015), had a worst DLCO (60.8 ± 21.3 *vs.* 46.8 ± 21.9% predicted, p = 0.032) and balance (Brief-BESTest 17.8 ± 5.2 *vs.* 13.5 ± 6.4 points, p = 0.012) at baseline than those who had not fallen in the previous year. A cut-off point in the Brief-BESTest of 15.5 points for risk of falls (AUC = 0.71; 95%CI 0.56-0.85; 65% sensitivity; 75% specificity; accuracy = 0.71) was found in people with ILD. The Brief-BESTest is a simple and comprehensive balance test able to discriminate patients with ILD with risk of falls. A cut-off of 15.5

points in the Brief-BESTest may be helpful to easily identify those at risk of falling, and implement tailored interventions to improve balance.

Keywords: *ILD. Brief-Bestest. Falls. Roc.*

PC 023. ABILITY OF THE CHESTER STEP TEST TO DETECT FUNCTIONAL IMPAIRMENT AND MORTALITY RISK IN PATIENTS WITH INTERSTITIAL LUNG DISEASE

C. Paixão, A. Alves, A.S. Grave, P.G. Ferreira, F. Teixeira Lopes, M.A. Mendes, J. Coutinho Costa, D. Brooks, A. Marques

Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), iBiMED-Institute of Biomedicine and Department of Medical Sciences of University of Aveiro.

People with interstitial lung disease (ILD) often experience disabling symptoms, which impairs their functional capacity, further accelerating disease progression. The 6-minute walk test (6MWT) has been the most widely used field test to assess functional capacity and to discriminate the mortality risk in people with ILD. Nevertheless, its application across settings (e.g., patients' homes) is often limited due to the need of a 30 m corridor. Alternatives to assess functional capacity in these settings have been emerging, such as the 1-minute sit-to-stand test (1-minSTS) and the Chester step test (CST). However, the first does not allow exercise prescription. The CST is a simple and low-cost field test, which enables exercise prescription and requires minimal physical space to assess functional capacity. Its suitability to be used as a first-line screening tool to detect functional capacity impairment and mortality risk in people with ILD is however unknown. Thus, the aim of this study was to determine the discriminative ability of the CST in distinguishing people with ILD with or without functional impairment and low or higher risk of mortality. A retrospective cross-sectional study was conducted with stable (i.e., no history of acute cardiac events, acute exacerbations or other respiratory complications in the previous month) people with ILD. The following measures were collected: CST, 6MWT and 1-minSTS. A receiver operating characteristics (ROC) curve analysis was performed and area under the curve (AUC), sensitivity, specificity and accuracy were calculated. We determined a threshold for the CST to identify: i) functional impairment, based on published cut-offs of the percentage predicted of the 1-minSTS and the 6MWT (both 70% predicted); and, ii) mortality, based on different established cut-offs of the 6MWT (250, 330 and 350 m). The optimal cut-off points were identified by the highest Youden index. Eighty-three people with ILD (65 ± 14 years old; 45 [54.2%] female; FVC 77.7 ± 17.9%predicted; DLCO 50.3 ± 20.7% predicted) were included in the analysis. The cut-off points of the 1-minSTS (AUC = 0.73; 95%CI 0.63-0.84; 81% sensitivity; 65% specificity; accuracy = 0.72) and 6MWT (AUC = 0.91; 95%CI 0.82-0.99; 88% sensitivity; 83% specificity; accuracy = 0.86) identified a cut-off of 40.5 steps in CST to detect functional impairment in people with ILD. All cut-offs of the 6MWT identified a cut-off of 36 steps on the CST (6MWT < 250m: AUC = 0.89; 95% CI 0.80-0.97; 86% sensitivity; 80% specificity; accuracy = 0.80; 6MWT < 330m: AUC = 0.97; 95%CI 0.93-1; 96% sensitivity; 81% specificity; accuracy = 0.90; 6MWT < 350m: AUC = 0.93; 95%CI 0.86-1; 98% sensitivity; 70% specificity; accuracy = 0.90) to detect increased risk of mortality. Healthcare professionals may now use cut-offs of 40.5 and 36 steps in the CST to accurately detect people with ILD with functional impairment and/or at increased risk of mortality, respectively, which may contribute to the implementation of tailored and preventive interventions to improve functional capacity and reduce the risk of mortality in this population.

Keywords: *ILD. Chester Step Test. Functional impairment. Mortality. Roc.*

PC 024. UNVEILING COMMON MOLECULAR PATHWAYS LINKED TO ILDS WITH PROGRESSIVE FIBROSING PHENOTYPE

R.F. Santos, P. Caetano Mota, O. Sokhatska, C. Gouveia Cardoso, D. Coelho, N. Melo, A. Terras Alexandre, A. Carvalho, J.M. Pereira, S. Guimarães, C. Souto Moura, M. Soares, L. Delgado, A. Morais, M. Saraiva, H. Novais-Bastos

i3S Porto.

Progressive fibrosing ILDs (PF-ILDs) comprise a heterogeneous group of lung disorders associated with high morbidity and mortality, that exhibit a continuous worsening phenotype despite standard treatment. Our knowledge on the molecular determinants underlying this relentless fibroproliferative behavior and acute exacerbations are still scarce and call for fundamental studies. PF-ILDs are multifactorial conditions, which involve complex interactions between host genetics and different environmental triggers, shaping the immune milieu that ultimately drives the fibrotic cascade in a susceptible patient. Most research has been focused on idiopathic pulmonary fibrosis (IPF) and has unveiled both genomic variants of risk and specific transcriptional signatures associated with accelerated clinical courses. A previous work from our group revealed that the variant MUC5B rs35705950 T allele is associated with pulmonary fibrosis in both IPF and non-IPF cases in a Portuguese cohort, when compared with healthy controls, highlighting the hypothesis that PF-ILDs may share fibroproliferative common pathways. Herein, taking advantage of our extensive ILD patients' cohort, we observed that the cellular distribution in bronchoalveolar lavage (BAL) are comparable between IPF and fibrotic hypersensitivity pneumonitis (HP) patients. Interestingly, stratifying the fibrotic HP patients according to the MUC5B rs35705950 genotype we observed an increase in the proportion of macrophages in BAL fluid in individuals carrying the minor allele together with a slight decrease in neutrophils, eosinophils, and lymphocytes in the same patients. Additionally, soluble biomarkers are being quantified by bead-based immunoassays both in serum and in BAL collected at baseline and during acute exacerbations. Our results showed high levels of pro-inflammatory and tissue damaged-associated cytokines in patients with worst clinical outcomes. Further studies, such as the correlation of the transcriptional profiles and the host respiratory microbiome analysis, are ongoing. With this methodology, we expect to gain deeper insight into PF-ILDs common pathways, with potential use in early stratification of disease risk and paving the way for new targeted therapies.

Keywords: *Progressive fibrosing ILDS. Genetic variants. Biomarkers.*

PC 025. PLEURAL EFFUSION: AN UNUSUAL PRESENTATION OF SARCOIDOSIS

L. Balanco, P. Gonçalo Ferreira

Centro Hospitalar e Universitário de Coimbra.

Introduction: Sarcoidosis is a systemic granulomatous disease of unknown etiology that involves predominantly the lungs and mediastinal lymph nodes. Although other organs are frequently affected, sarcoid pleural involvement is relatively uncommon. Here, we describe a case of sarcoidosis presenting with pleural effusion and pachypleuritis.

Case report: A 24-year-old male was admitted to the hospital with dyspnea, fever and left pleural effusion. The patient had been well until 4 weeks before this evaluation, when dry cough and dyspnea emerged. Four days before hospital admission, cough and dyspnea worsened and fever developed. Physical examination was noticeable for low grade fever, tachycardia and muffled breath sounds on left lower lung field. Thoracic ultrasonography confirmed moderate volume nonseptated pleural effusion (PE). Thoracentesis revealed

exudative PE with lymphocytosis (98%) and elevated adenosine deaminase (138 U/L). Mycobacteriological examination was negative on sputum, pleural fluid and bronchoalveolar lavage fluid. Chest computed tomography (CT) showed linear subpleural parenchymal bands in the left lower lung, nodular pleural thickening and small volume PE. The patient was treated empirically for community acquired pneumonia/parapneumonic effusion by the first attending physician. He was discharged home clinically stable and referred to thoracic surgery. A positron emission tomography (PET)-CT performed three months after discharge detected hypermetabolic micronodules in the upper right lobe, a lingular mass and left pachypleuritis. Additionally, PET-CT showed hypermetabolic mediastinal lymph nodes and an abnormal uptake also in the liver. One month later, the patient underwent pleural decortication and excisional biopsy of the lingular node. Histopathological analysis established the diagnosis of sarcoidosis. In a follow-up visit 2 years later, the patient remained asymptomatic, although reevaluation by PET-CT showed active disease. The patient was started on systemic prednisolone. MRI reevaluation confirmed decreased size of the nodular pleural thickening.
Discussion: Definitive diagnosis of pleural sarcoidosis is often challenging. Despite the low incidence, it is important to take sarcoid pleural disease into consideration when making a differential diagnosis of pleural effusion, particularly in young individuals without comorbidities and with a high pleural fluid lymphocytosis and ADA. Exclusion of tuberculosis is fundamental for an accurate diagnosis. In active pleural disease systemic treatment is key to prevent pachypleuritis.

***Keywords**: Pleural effusion. Sarcoidosis. Corticotherapy.*

PC 026. PULMONARY FIBROSIS AFTER SARS-CoV-2 INFECTION IN A PATIENT WITH PULMONARY ALVEOLAR PROTEINOSIS

A. Fernandes, S. Costa-Martins, A. Terras Alexandre, H. Bastos, A. Carvalho, P. Mota, N. Melo, J.M. Pereira, A. Morais

Algarve University Hospital Center.

Case report: 58-year-old male, businessman (management), non-smoker, without associated pathologies. Followed for 8 years at the Diffuse Pulmonary Diseases appointment for primary Pulmonary Alveolar Proteinosis (PAP). After diagnosis and due to complaints of exertional dyspnea, respiratory functional changes, namely impairment of diffusing capacity (DLCO-47.1%) and hypoxia (paO2-65 mmHg), 6 min walk test with desaturation (SpO2 92% to 85%, 478m), besides the imagology extension, the patient was submitted to whole lung lavage (11L on the right, 9L on the left lung), which had a good evolution, becoming asymptomatic, with respiratory functional improvement (paO2-74.6 mmHg) and with a significant decrease in radiological opacities. In 2018, he was included in the clinical trial MOL-PAP-002 (IMPALA) and started daily nebulizing molgramostim (300 mg in alternate weeks), maintaining clinical and functional respiratory stabilization, in addition to reduction of the pulmonary opacities. Given the good response, the patient maintained this therapy until now. In Nov/2021, the patient was admitted to the ICU for partial respiratory failure secondary to SARS-CoV-2 pneumonia, requiring Helmet-CPAP for 72 hours and corticosteroid therapy. When discharged, the patient needed home oxygen therapy for approximately 1 month. After this episode and despite the initial recovery, the patient did not recover the previous clinical status, maintaining dyspnea (mMRC 3-4) and frequent dry cough, even after approximately 2 months of corticosteroid therapy. Chest CT showed new alterations, namely with reticulation and presence of traction bronchiectasis, which was associated to respiratory functional deterioration, with restriction (FVC 55.9%), and severe impairment in diffusing capacity (DLCO 35%). There was a continuous clinical worsening, with respiratory failure. In a subsequent imaging reassessment, due to the presence of some ground-glass images concomitantly with areas of fibrosis and because these changes may relate to alveolar proteinosis, whole lung lavage was performed, however, without clinical improvement. Given the unfavorable evolution, the patient was oriented for lung transplantation.
Discussion: This case aims to illustrate the development of a progressive fibrotic disease after SARS-CoV-2 infection in a patient with PAP without any sign of fibrosis prior to this occurrence. This event supports the hypothesis that the emergence of progressive fibrotic diseases following an episode of COVID-19 is possible, namely in patients with underlying conditions that may constitute a risk factor for this.

***Keywords**: Pulmonary alveolar proteinosis. SARS-CoV-2. Pulmonary fibrosis.*

PC 027. OUTCOMES COMPARISON BETWEEN IMMUNOSUPPRESSIVE TREATMENTS IN CHRONIC HYPERSENSITIVITY PNEUMONITIS

S.C. Pimenta Dias, A.L. Fernandes, I. Neves

Hospital Pedro Hispano, Unidade Local de Saúde de Matosinhos.

Introduction: Immunosuppressive therapy (IS) is often used in chronic hypersensitivity pneumonitis (cHP), with corticosteroids (CCT) as first-line therapy. However, steroid-sparing agents (SSA) such as azathioprine (AZA) or mycophenolate mofetil (MMF) may be effective therapeutic options associated with fewer adverse effects.
Objectives: To compare the clinical outcomes between different IS therapies used in cHP.
Methods: Retrospective analysis of cHP patients followed between 2015 and 2021 in the diffuse lung disease consultation, comparing the clinical and functional outcomes of different IS.
Results: We analysed 43 patients with cHP (mean age 68.7 ± 9.5 years, 67.4% women) who remained with the same treatment for at least 12 months [CCT = 18 (41.9%), MMF = 12 (27.9%), AZA = 13 (30.2%)]. Imaging presence of fibrosis was seen in 83.7% of patients (CCT = 61.1%). When comparing patients on CCT alone with those on SSA, the initial dose of prednisolone (or equivalent) was significantly lower in the SSA group (CCT = 34.9 ± 13.8 *vs.* SSA = 17.6 ± 12.5; $p < 0.05$). After one year, there was a prednisolone dose reduction significant in both groups ($p < 0.05$). Considering lung function, it improved in both groups with the institution of therapy, although not significantly, and there were no differences in pulmonary function between the different IS. Ten patients (23.3%) had disease progression after 1 year of treatment, according to the criteria of the INBUILD trial, with a higher proportion of patients in the CCT group (33.3%) when compared to the SSA group (16.0%), although without significant differences ($p > 0.05$). Treatment responders (those with decline in FVC < 10% at 12 months) had higher percentage of lymphocytosis on BAL (35.2 ± 25.0 *vs.* 18.0 ± 12.8; $p = 0.020$) and %predicted FVC at 12 months (90.0 ± 21.2 *vs.* 71.8 ± 25.1; $p = 0.044$) than non-responders.Regarding predictive factors of mortality, a logistic regression adjusted for confounders was applied, and only the predicted %FVC after 12 months of treatment showed a significant impact on the probability of death, where for each percentage point increase in %predicted FVC, the probability of death decreased by 9.4% (OR: 0.906; 95%CI 0.836-0.982; $p = 0.017$).
Conclusions: In patients under SSA, the doses of CCT initially used were significantly lower. Disease progression occurred in a higher proportion of patients in the CCT group, although these differences were not statistically significant. There were no differences in lung function or mortality between the two groups.

***Keywords**: Hypersensitivity pneumonitis. Immunosuppression. Interstitial lung disease.*

PC 028. RETROSPECTIVE ANALYSIS OF CRITICAL ILLNESS DURING A PANDEMIC SURGE: SPECIFICITY OF THE COVID-19 POPULATION

M.I. Pereira, E. Fragoso, C. Lopes, P. Azevedo

Serviço de Pneumologia, Hospital Prof. Doutor Fernando Fonseca, EPE.

Introduction: There have been reported significant differences between critically ill COVID-19 patients and the usual non-COVID patients admitted in Intensive Care Units (ICU).
Objectives: To perform a comparative analysis between critically ill non-COVID-19 and COVID-19 patients in an Intensive Care Unit.
Methods: Retrospective cohort study. Study period before COVID-19 pandemic: patients discharged between July and December 2020 (n = 219). Study period during COVID-19 pandemic: patients discharged between January and March 2021 and between July and September 2021 (n = 97). The analysed parameters were: age; sex; type of ICU admission (medical *vs*. surgical); severity (APACHE II); average length of stay; syndromatic diagnosis; type and duration of ventilatory support; rate of nosocomial infection; global incidence of nosocomial infection per 1000 days of hospitalization; incidence of ventilator-associated pneumonia and CVC-related primary bacteremia; mortality. European Centre of Disease Prevention and Control (ECDC) diagnostic criteria were used for the analysis of nosocomial infection incidence both globally and by infection subtypes. The statistical analysis was performed using IBM® SPSS® v28. For group comparison, the authors applied t Student test or U Mann-Whitney test for continuous variables and Chi-square test or Fisher exact test for categorical variables (as appropriate). A p-value < 0.05 was considered statistically significant.
Results: The diagnosis of COVID-19 was associated with significant differences in the length of stay, rate of invasive mechanical ventilation (IMV) and high flow nasal oxygen therapy and duration of IMV. APACHE II was similar between groups as well as demographic variables. Barotrauma and nosocomial infections incidence (namely ventilator-associated pneumonia incidence) were higher among COVID-19 patients.
Conclusions: COVID-19 critically ill patients experienced longer ICU length of stay, increased need for invasive ventilatory support and high flow oxygen therapy, longer duration of IMV and higher mortality. Clinical severity evaluated by APACHE II did not justify these differences. The percentage of ARDS and acute kidney failure was significantly higher in the COVID-19 cohort. The incidence of barotrauma and nosocomial infection, namely ventilator-associated pneumonia, was higher in COVID-19 patients, in line with previously published reports. Such features of this population of critically ill patients mean more complex interventions and higher workload and thus imply a reflection upon resource management in health care units.

***Keywords**: Critically ill patient. COVID-19.*

PC 029. CHRONIC ACTIVE SARS-COV2 INFECTION IN A PATIENT WITH HYPOGAMMAGLOBULINEMIA AND GRANULOMATOSIS WITH POLYANGIITIS UNDER RITUXIMAB

I. Marques Macedo, S. Salgado, S. Silva, T. Marques, P. Esteves, L. Ferreira, C. Bárbara

Serviço de Pneumologia, Hospital Pulido Valente, Centro Hospitalar Lisboa Norte, EPE.

Introduction: Rituximab is an anti-CD20 monoclonal antibody that causes a rapid and profound depletion of B lymphocytes. Several cases of chronic SARS-CoV-2-active infections, which tend to be severe and possibly fatal, in patients undergoing therapy with rituximab have already been described in the medical literature. Also, hypogammaglobuliemia has been associated as a risk factor for severe and/or persistent infections with SARS-CoV-2. The authors describe a case of persistent SARS-CoV-2 infection in a patient with hypogammaglobulinemia and granulomatous polyangiitis under rituximab, treated with intravenous immunoglobulin.
Case report: Female, 50 years old, non-smoker, with complete anti-SARS-CoV-2 immunization and a relevant personal history of treated pulmonary tuberculosis, hypogammaglobulinemia with no need for replacement therapy to date, and granulomatous polyangiitis in the localized pulmonary form on rituximab (last administration in September 2021). In February 2022, she had a mild symptomatic SARS-CoV-2 infection, with spontaneous improvement on the 3rd day of clinical evolution. Eleven days later she had a reappearance of fever, cough and myalgias. Thoracic computed tomography (CT) revealed consolidations and multilobar ground-glass opacities. She completed two courses of oral empiric antibiotic therapy and a course of intravenous broad spectrum antibiotic for a presumptive bacterial superinfection, without symptomatic improvement. There was no isolation of bacterial, viral or fungal agent. The search for anti-SARS-CoV-2 antibodies was negative, and a new search by reverse transcription polymerase chain reaction (RT-PCR) for SARS-CoV-2 in nasopharyngeal exudate was repeated and was positive, with the cycle threshold (Ct) value of 25 (less than initial values). Immunoglobulin assays confirmed the existence of hypogammaglobulinemia (IgG 276 mg/dl, IgA 29 mg/dl, IgM 7 mg/dl). Although the viral RNA for SARS-CoV-2 was not detectable in the serum, a persistent SARS-CoV-2 infection was admitted and treatment with intravenous immunoglobulin (IVIg) was started in April to attempt viral eradication, associated with prednisolone and enoxaparin according to the MATH+ protocol and 5 days of remdesivir therapy. The patient presented clinical improvement with sustained apyrexia and cough cessation, and the reassessment thoracic CT in May showed disappearance of the condensation image and a clear decrease in ground-glass densification. Ct values progressively rose to 36. RT-PCR for SARS-CoV-2 was negative for the first time after two cycles of IVIg.
Discussion: This case corroborates the findings found in the medical literature of cases of persistent active SARS-CoV-2 infections in patients under therapy with rituximab and/or hypogammaglobulinemia, with IVIg replacement therapy being an essential therapeutic weapon for viral eradication.

***Keywords**: SARS-CoV-2. Chronic active infection. Hypogammaglobulinemia. Granulomatosis with polyangiitis. Rituximab. Anti-CD20.*

PC 030. IMPACT OF RITUXIMAB THERAPY DURING THE SARS-CoV-2 PANDEMIC

R. Correia D. Neves, P. Martins D. Santos, T. Sales Marques, V. Areias, H. Ramos, U. Brito

Pulmonology Department, Faro Hospital, Algarve University Hospital Center.

Introduction: The pandemic caused by the SARS-CoV-2 virus had a high impact worldwide. After the 10th day, individuals infected with the SARS-CoV-2 virus have a decrease in their infectious capacity. However, in immunocompromised individuals, the Infectivity Viral Period (IVP) is extended, and the disease may relapse. Rituximab is a chimeric monoclonal antibody directed against the cell surface protein CD20, found primarily on B Lymphocytes (BL). After taking this drug, there is a decrease in the population of BL, compromising humoral immunity, which is essential in controlling infection by the SARS-CoV-2 virus.
Case report: 71-year-old male, Caucasian, non-smoking, grade 2 follicular lymphoma diagnosed in 2015 under maintenance therapy with rituximab since 2016, last dose on 05/04/2022. Full COVID-19 vaccination. At the beginning of May, he reports that symptoms like with mMRC 3 dyspnea, dry cough, fever, anorexia, myalgias and headache had started, as SARS-CoV-2 was detected in a RT-PCR test

on 05/14/2022, having progressive improvement of symptoms. On 06/27/2022, he went to the Emergency Department for presenting a similar clinical picture for 1 week. Objective examination proved SpO2 of 86% (FiO2 21%), polypneic, sweating. Pulmonary auscultation showed globally diminished vesicular murmur and crackles in the left base. Gasometrically with partial respiratory failure. Analytically, pancytopenia with lymphopenia and elevated C-reactive protein (CRP) was found. Chest radiograph with bilateral reticular pattern. CT angiography with signs of pulmonary thromboembolism in a segmental branch of the left lower lobe and presence of extensive areas of bilateral parenchymal condensation. COVIDT on 06/29/2022 positive. Negative blood cultures. Medicated with dexamethasone, piperacycline-tazobactam and enoxaparin, as patient demonstrated gradual improvement. On 7/12/2022 COVIDT remained positive with a number of replication cycles < 25. On 07/15/2022, he was discharged for home care. On 07/21/2022, he was readmitted due to worsening symptoms, with persistent fever. Objective examination showed tympanic temperature 38.4ºC, SpO2 of 96% (O2 1.5 L/min.). Pulmonary auscultation proved globally diminished breath sounds and bi-basal crackles. Analytically, there was worsening of pancytopenia with lymphopenia, elevation of CRP again and decreased IgG. Chest radiograph showed worsening of the bilateral reticular pattern. Chest CT with organizing pneumonia pattern. Negative blood cultures. Medicated with meropenem, levofloxacin, immunoglobulin and methylprednisolone, as patient demonstrated improvement. COVIDT on 08/01/2022 remains positive with a number of replication cycles < 25. He was discharged, medicated with prednisolone in a weaning regimen, apixaban and long-term oxygen therapy. Indication was given to maintain respiratory isolation. Awaiting Pulmonology and Hematology appointment.
Discussion: Immunocompromised individuals with full COVID-19 vaccination can develop severe disease. Some individuals infected with the SARS-CoV-2 virus may show a prolongation of the IVP, namely those with BL depletion, in which an IVP greater than 100 days is described. Guidelines issued by the CDC recommend an isolation period of up to 20 days for immunocompromised patients. Thus, the emergence of cases with prolonged IVP leads to the need to review respiratory isolation guidelines, not only in the community but also at the hospital level, since these individuals pose risks to both other patients and health professionals.

Keywords: *SARS-CoV-2. Rituximab. Immunosuppression. Viral infectivity period.*

PC 031. PERSISTENT SYMPTOMS AND PULMONARY FUNCTION ASSESSMENT IN POST-COVID-19 PATIENTS, FOLLOWED UP IN AN OUTPATIENT PULMONOLOGY CLINIC, IN LUANDA, ANGOLA

M. Lopes Teixeira Arrais, W. Dias, M. Silva, C.S. Sebastião

Department of Pulmonology, Military Hospital, Luanda, Angola. Centro de Investigação em Saúde de Angola - CISA, Caxito, Bengo, Angola.

Introduction: The variable extent of lesions and impairment of pulmonary function in COVID-19 survivors (especially in severe disease), and the unknown course of such abnormalities, highlight the need to monitor the course of the disease in survivors, as these symptoms interfere with the quality of life of these patients.
Objectives: To assess patients' clinical evolution and pulmonary function after the acute phase of COVID-19.
Methods: A cross-sectional, retrospective study was carried out, with patients followed up in an outpatient Pulmonology clinic at the Military Hospital from October 2020 to November 2021. Patients aged ≥ 18 years, with confirmed COVID-19, in the period from June 2020 to March 2021, classified as moderate or severe during the acute phase of the disease were included. Data were obtained through consultation of clinical records, and by face-to-face interviews, 90 days (± 10) after epidemiological discharge. All patients underwent chest tomography and pulmonary function tests (spirometry, body plethysmography, and six-minute walk test) 90 days (± 20) after epidemiological discharge. Statistical analysis was performed in SPSS v28. Descriptive data were expressed as frequencies and percentages. We performed independent sample t-tests to estimate differences from continuous data and chi-square tests for categorical data. $p < 0.05$ was considered statistically significant.
Results: Of the 137 patients selected, only 43 completed the study, 56% were women, mean age of 53.7 ± 11.2 years. During the acute phase of COVID-19, 72% had moderate and 28% had severe disease. We found no significant differences between these groups and gender and age. Thirty-six (84%) patients had at least one comorbidity, the most frequent (58%) being arterial hypertension and other cardiovascular diseases. At 90 days after epidemiological discharge, 91% remained symptomatic, the most frequent symptoms being tiredness (67%), dyspnea (44%), cough (37%), and chest pain (37%), and 70% of these had abnormal chest tomography. We also found no significant differences between these variables and the patient groups. Twenty (47%) patients had abnormal pulmonary function tests, however, we did not observe significant differences between the patients' groups and the ventilatory parameters, while in the six-minute walk test, the distance covered in meters was significantly lower in the severe group patients (569 ± 77.8 *versus* 494 ± 80.7; $p = 0.008$), oxygen desaturation ≥ 4% (13 *versus* 50%; $p = 0.010$) and dyspnea score on the Borg scale at the end of the test ≥ 4 (3 *versus* 50%; $p < 0.001$) were observed mostly in severe patients. We highlight as an important limitation the fact that less than 25% of the patients had the measurement of carbon monoxide diffusing capacity (DLCO), due to technical limitations, and it was not possible to include this crucial parameter in our analysis.
Conclusions: A considerable number of patients were symptomatic, with abnormal chest tomography and pulmonary function tests, 90 days after epidemiological discharge. Our results highlight the importance of follow-up, especially for severe patients, after the acute phase of COVID-19.

Keywords: *Post-COVID-19. Angola. Persistent symptoms. Pulmonary function.*

PC 032. OMICRON BA.5 – 5 DAYS OF ISOLATION DURING HOSPITAL ADMISSION: IS IT ENOUGH?

C. Saraiva, D. Faria, M. Domingos, D. Louro

Centro Hospitalar e Universitário do Algarve-Unidade de Portimão.

Lineage BA.5 of Omicron SARS-CoV-2 variant had a significant increase since May 2022, becoming dominant (96%). To our knowledge, there are no data concerning infectious period of BA.5 being this important to determine isolation measurements. Rapid antigen detection tests (RADTs) have a high sensitivity to detect patients with high viral load (in transmission period), to certificate its end and correlate with reverse transcriptase-polymerase chain reaction (RT PCR) cycle threshold (Ct), to confirm or exclude transmittable disease. Studies suggest a viral clearance period of 5.35 days for Omicron BA.1 and BA.24, however, they have limitations and do not address BA.5. The authors evaluated if patients remained positive 5 days after the beginning of symptoms (D5) or according to Direção Geral da Saúde (by severity) days to isolation. An analysis was conducted of hospitalized patients, with confirmed diagnosis of COVID-19, since variant BA.5 had become dominant. It were included patients with serial RADTs after D5 or posteriorly 2 or 3 days apart, until a negative test was obtained or patient were discharged, to evaluate transmissibility after D5. 72 patients were included, 37 (51.4%) male and 35 (48.6%) female, with an average age of 77.72 ± 14.25 years (minimum 18 e maximum 99 years). The global average of positive test days (asymptomatic patients) or days after the

beginning of symptoms was of 14.24 ± 5.32 days (minimum 5 and maximum 33 days), similar according to severity groups. Considering the 7 severe patients with cure, 6 had negative RADTs prior to 20 days. Regarding vaccination: 55 patients (76.4%) had primary complete vaccination, 41 (56.9%) first booster dose and 3 patients second booster dose. Since primary vaccination until development of COVID-19 passed 12.87 ± 2.80 months; since first booster dose until COVID-19 6.79 ± 1.40 and since second booster dose 1.50 ± 0.71 months. None of the patients had previous COVID-19. Regarding comorbidities, 13.9 had AF, 56.9% HBP, 23.6% diabetes, 13.9% neoplasm, 16.7% immunosuppression, 12.5% chronic renal failure (CRF), 26.4% ischemic stroke and 25.0% heart failure. Primary vaccination reduced severity of disease and AF, diabetes, neoplasm, immunosuppression, CRF and ischemic stroke conditioned more severe disease. Vaccination did not reduce the number of days to cure, but neoplasm, immunosuppression and ischemic stroke increased those days. The authors conclude that almost every patient (98.6%) remain positive at D5 and far beyond that time. Primary vaccination protected more against severe disease and of having COVID-19 longer than booster doses. RADTs also made possible to shorten isolation period in severe patients.

***Keywords**: Rapid antigen detection tests (RADTS). Reverse transcriptase-polymerase chain reaction (RT PCR). COVID-19. Omicron BA.5. Isolation.*

PC 033. COVID19 - IT'S NOT WHAT IT LOOKS LIKE

M.M. Carvalho, S. Raimundo, A.R. Afonso, R. Rodrigues, A. Loureiro

Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Pericardial effusion can have different etiologies, from acute pericarditis to several systemic pathologies. Its clinical presentation varies according to the fluid volume, and can lead to cardiac tamponade and constrictive pericarditis in more severe cases.
Case report: Female patient, 43 years old. No relevant personal history. Non-smoking. She developed asthenia, anorexia and weight loss (7 kg). Due to left chest pain and orthopnea, she went to the emergency department where she performed a SARS-CoV-2 test, which was positive and an echocardiogram that showed "swimming heart, pericardial effusion of large volume, circumferential, with heterogeneous distribution; flattening of the IV septum with breathing". Patient admitted to the intensive care unit with the diagnosis of pre-tamponade pericardial effusion. She performed a chest CT scan that showed, in addition to the pericardial effusion, "accentuation and thickening of the peribronchovascular interstitium, scattered bilateral infiltrates, and some thickening of the bronchial walls. There seems to be a pattern of lymphangitis. There is also pleural effusion on the left." Assumed COVID19 infection with possible bacterial superinfection, having started corticotherapy and empirical antibiotic therapy. It was realized a pericardiocentesis, diagnostic and therapeutic, guided by CT, with drainage of 900 cc of cloudy brownish fluid – exudate with predominance of mononuclear cells, without isolations. Regarding the remaining etiological study: negative autoimmunity, negative viral serologies, tumor markers without significant changes. TEP was excluded through Angiography. Therefore, it was assumed pericardial effusion secondary to SARS-CoV-2 infection. After discharge, the patient returns to the ER for maintenance of symptoms. A chest CT was repeated, showing no significant improvement in relation to previous exams. Bronchofibroscopy (normal) and diagnostic thoracentesis were ordered. The pathological anatomy of the pleural fluid showed pleural involvement by pulmonary adenocarcinoma. After staging, patient was diagnosed with lung adenocarcinoma stage IVB (T4N3M1c), ALK positive. She started treatment with alectinib with a good response and marked improvement in imaging.
Discussion: During the COVID19 pandemic, there was an overload of the health national service and its professionals, with several unknowns regarding the disease and its evolution. This case alerts us to the importance of maintaining a systematic approach to patients, ensuring that other pathologies are taken into account and that their diagnosis is not neglected.

***Keywords**: COVID-19. Lung cancer. Alectinib.*

PC 034. POST COVID-19 RESPIRATORY FUNCTION ASSESSMENT

A. Neves Cardoso, R. Jerónimo, S. Carreira, M. Fradinho, S. Tello Furtado

Hospital da Luz, Setúbal.

Introduction: Since COVID-19 is a recent pathology, little is known about the evolution of lung function over time in patients who had this disease. This work aims to evaluate respiratory function through two functional tests performed at different times, after COVID-19. Only patients who had performed two respiratory functional tests and who had some ventilatory or Carbon Monoxide (CO) diffusion alteration in the initial study (period between January 2021 and July 2022) were selected.
Results: 28 patients were included, 19 female and 9 male, with a mean age of 45.8 years (maximum 72 and minimum 16). Five had known chronic respiratory disease prior to COVID-19 (4 asthma and 1 COPD). Of the 28 patients, 5 required hospitalization in the acute phase of COVID-19. The exams were, on average, 6.6 months apart (maximum 12 months and minimum 1 month). Regarding the patients with altered ventilatory pattern in the initial examination (13 patients), 7 had obstruction and 6 had restriction. It should be noted that, of these 13 patients, 5 had previously chronic respiratory disease. In the subsequent evaluation, 6 maintained obstructive and 4 restrictive ventilatory alterations. Regarding the CO diffusion study, 18 patients had CO diffusion impairment in the initial study and underwent a subsequent one. In the second study, 13 maintained a decrease in CO diffusion.
Conclusions: Although this study included a small number of patients, it was found that 72.2% of patients maintained, in the subsequent study, an alteration of the CO diffusion. In a later work, it will be pertinent to better characterize this population. It will also be relevant to ascertain whether the time between the two respiratory functional tests has implications for the results obtained.

***Keywords**: COVID-19. Lung function.*

PC 035. THE IMPORTANCE OF THE 1-MINUTE SIT-TO-STAND TEST IN THE POST-COVID MEDICAL CONSULTATION

M. Barbosa, K. Lopes, A. Ribeiro, J. Diogo, R. Camara, T. Felgueiras, M. Pires, G. Vicente, M.J. Simões

Serviço de Pneumologia, Centro Hospitalar Barreiro-Montijo.

Introduction: The 1-Minute Sit-To-Stand (1-minSTS) test is used for a simple and easy assessment of functional capacity during exercise, measuring the strength and resistance to exertion of the lower limbs, which is directly related to the patient's ability to perform daily activities. This test allows an objective assessment of symptoms and limiting factors of exercise. In the current literature there are reference values in a healthy adult population, however, the real impact of this assessment in post-COVID patients is still unknown.
Objectives: Assessment of functional exercise capacity using the 1-minSTS test in post-COVID patients.
Methods: Evaluation of the 1-minSTS test at the first post-COVID Pulmonology appointment at Centro Hospitalar Barreiro-Montijo. Study carried out from July 2021 to June 2022.

Results: Eighty-five patients were analyzed, about half (n = 43) were female, with a mean age of 55 ± 15 years. Regarding comorbidities: current or previous smoking (44%) with a mean smoking history of 30 UMA, previous lung disease (n = 25; 29%) and cardiovascular disease (n = 8.9%), with a mean BMI of 29 ± 4 kg/m^2 and Functional Comorbidity Index of 1.05 ± 1.12. Classification of COVID-19 severity: mild (n = 29; 34%), moderate requiring hospitalization until low-flow oxygen therapy (n = 29; 34%), severe requiring non-invasive ventilation (n = 21; 25%) with CPAP as the first choice in 76%, and very severe requiring hospitalization in ICU and invasive mechanical ventilation (n = 6; 7%). The evaluation took place an average of 4.6 months after SARS-CoV-2 infection. 42% of patients had at least one dose of SARS-CoV-2 vaccine prior to infection. In the global assessment of the group, comparing the pre and post-COVID-19 period, there was a significant increase in the mMRC score (0.32 ± 0.58 *vs.* 1.14 ± 1.01, p < 0.01). Three patients did not undergo 1-minSTS due to refusal and six due to medical indication (five due to hypertension and one patient due to osteoarticular disease). From the evaluation of the 76 patients who performed 1min-STS: 87% of the patients had a lower than expected number of repetitions (lower than the p50 value of the general population), 17% had desaturation (SpO2 drop ≥ 4%) and 8% had an exaggerated chronotropic response (≥ 75% of the estimated maximum heart rate). Patients who presented desaturation or exaggerated chronotropic response in the 1-minSTS test had a mean age (53.39 *vs.* 57.35 ± 14.2, p = 0.18) and Functional Comorbidity Index (1.18 ± 1.28 *vs.* 1 ± 1.05, p = 0.29) similar to patients with no desaturation or exaggerated chronotropic response. The presence of desaturation or exaggerated chronotropic response was positively related to a higher post-COVID mMRC score, t(76) = 1.93, p = 0.03. There was no significant effect of COVID-19 severity (p = 0.23), previous vaccination to infection (p = 0.48), presence of a history of lung disease (p = 0.16) or heart disease (p = 0.21).
Conclusions: In the first post-COVID Pulmonology consultation, there was a clinical worsening and limitation of functional capacity during exercise evaluated by 1-minSTS. In this sample, desaturation or exaggerated chronotropic response in the 1-minSTS test was only significantly related to a higher post-COVID mMRC dyspnea score.

***Keywords**: COVID. Sit-To-Stand Test. Post-COVID. Dyspnea.*

PC 036. COVID-19 - 273 DAYS

H. Rodrigues, A.C. Varandas, M. Serrado, L. Ferreira, S. Braz, C. Bárbara

Centro Hospitalar Universitário de Lisboa Norte.

Introduction: The duration of viable Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) shedding in immunocompromised patients is still unknown.
Case report: Here we describe an approximately 9-month case of SARS-CoV-2 infection in an immunocompromised individual. A 78-years old woman with refractory diffuse large B cell lymphoma (DLBCL) treated with Rituximab and Bendamustin. After completing a full 4-cycle regimen, the patient started experiencing progressive symptoms of fatigue and exertional dyspnea. She had also been receiving continuous prophylactic treatment with acyclovir and cotrimoxazole. Concurrently, a PET-scan follow-up evaluation after 3-months of chemotherapy conclusion documented complete remission but evidenced bronchocentric pulmonary ground-glass infiltrates in the thoracic CT images, suggesting a potential drug induced interstitial lung disease. Additional investigation conducted to a simultaneous COVID-19 diagnosis by SARS-CoV-2 reverse transcriptase-polymerase-chain-reaction (RT-PCR) assay of a nasopharyngeal swab specimen. The patient was admitted to an isolation ward with mild disease. Given the favorable evolution with oral prednisolone, attending a concomitant drug-induced pneumonia diagnosis, she was discharged 8 days later. Concerning symptom relapse during steroids withdrawal, resultant investigation documented persistence of positive SARS-CoV-2 RT-PCR assay in NF swab at day 91 after first the positive result. The patient was re-admitted in an airborne-isolation ward regarding infective viral shedding with low cycle threshold (Ct) values (Ct 17), serum viral detection and undetectable anti-SARS-CoV-2 antibody levels. Additionally, it was documented persistent ground glass densifications and severe fibrotic aggravation with traction bronchiectasis, with no signs of organizing pneumonia. Assessment of the immunological status revealed severe acquired hypogammaglobulinemia and a low CD4+Tcell count of 60/μl. Bronchoscopy was performed with BAL isolation of *Pneumocystis jirovecci* despite prophylaxis, and transbronchial biopsies documenting unspecific inflammatory response. The patient was treated with Cotrimoxazol, and afterwards with Remdesivir for 10 days, along with intravenous immunoglobulin. Even though several lung injury mechanisms were present, such as drug-induced pneumonia, Pneumocystosis and persistent infectious and replicative SARS-CoV-2 infection, the treatment resulted in progressive clinical and radiologic recovery. Nonetheless, viral shedding persisted up until 273 days after initial infection, resulting in inward and ambulatory isolation and a major public-health constraint.
Discussion: According to recent literature, this case represents one of the longest COVID-19 infectious viral shedding to date.

***Keywords**: COVID-19. Viral shedding. Hypogammaglobulinemia. Imunosupression. Pneumocystosys. Remdesivir.*

PC 037. PORTUGUESE COHORT WITH ALPHA-1-ANTITRYPSIN DEFICIENCY UNDER AUGMENTATION THERAPY: SZ, NULL AND RARE GENOTYPES

G. Santos, A. Ribeiro, D. Amorim, A.M. Mestre, J. Barata, M.J. Silva, C. Sousa, A. Veloso, M.J. Canotilho, M. Pereira, B. Conde, E. Magalhães, C. Santos, R. Boaventura, C. Guimarães, M. Lopes, M. Sucena

Hospital Garcia de Orta.

Introduction: Alpha-1-antitrypsin deficiency (AATD) is an under diagnosed disease. Augmentation therapy (AT) has demonstrated a disease-modifying effect in PiZZ however in PiSZ and rarer mutations clinical practice and treatment options have been extrapolated.
Objectives and methods: We aim to evaluate a Portuguese cohort with AATD under AT with PiSZ and conjugated null, rare and Z allele (PiNRZ) genotypes. PiM were excluded. We present a multicenter (13 hospitals) and retrospective study, including ≥ 18 years-old patients (pts) with PiSZ and PiNRZ.
Results: Twenty-three pts were included: 11 PiSZ and 12 PiNRZ. Mean AAT level: PiSZ 45.91 mg/dL; PiNRZ 19.95 mg/dL. Average age at diagnosis was 52.7 years old, with a higher prevalence of males (n = 13, 56.5%). Smoking history was present in 47.8% (n = 11). Lung features were lung emphysema (n = 23), bronchiectasis (n = 10), septal thickening (n = 8) or pulmonary fibrosis (n = 4); Four pts had mild liver disease. Main respiratory complaint was breathlessness (mMRC 1-2). Recurrent pneumothorax was initial manifestation in 1 pt. Baseline mean%FEV1 and DLCO: 41.2% and 42.8% in PiSZ; 58.8% and 59.8% in PiNRZ, respectively. Mean follow-up was 22.4 months (m) in PiSZ and 25.9 m in PiNRZ. No significant decline was noticed (p > 0.05) during follow-up. AT regimes were 78.3% weekly (60 mg/kg) ou bimonthly (120 mg/kg) in 21.7%.
Conclusions: Our data demonstrates a high variability of AATD pts on AT, not only concerning genotypes but also clinical and radiology manifestations, with functional stability. AT seems to have a similar impact as described in PiZZ pts. The absence of a national database hindering the collection of data and the limited number of pts were important limitations.

***Keywords:** Alpha-1-antitrypsin. Augmentation therapy. Rare ganotypes.*

PC 038. CUT-OFF POINTS OF THE 1-MINUTE SIT-TO-STAND TEST TO DETECT FUNCTIONAL IMPAIRMENT AND MORTALITY RISK IN PEOPLE WITH COPD

C. Dias, A. Machado, M.A. Mendes, D. Ferreira, V. Martins, P. Simão, A. Marques

Lab3R-Respiratory Research and Rehabilitation Laboratory, School of Health Sciences, University of Aveiro (ESSUA). iBiMED-Institute of Biomedicine, Department of Medical Sciences, University of Aveiro.

Introduction: Functional status is a key outcome in people with chronic obstructive pulmonary disease (COPD) and can be defined as an individual's ability to perform normal daily activities required to meet basic needs, fulfill usual roles, and maintain health and well-being. The 1-minute sit-to-stand test (1-min STS) is a well-established measure to assess functional status in people with COPD that can be used in different settings (e.g., office, clinic, hospital, home) with limited resources (i.e., a chair and a stopwatch). This test is a strong predictor of exacerbations, hospitalizations and mortality in people with COPD. Yet, cut-off points to determine functional impairment with the 1-min STS in people with COPD are lacking for use in clinical practice. Recently, our group established a cut-off (19.5 repetitions) for increased mortality risk, however, it still lacks external validation.
Objectives: To explore the predictive ability of the 1-min STS to detect functional impairment and the validity of the previously established cut-off for increased risk of mortality in people with COPD.
Methods: A cross-sectional study was conducted with people with COPD. Age, sex, body mass index (BMI), lung function, the 1-min STS and the five-repetitions sit-to-stand tests were collected. We used two cut-offs for the five-repetitions sit-to-stand test known to be associated with low functional performance (12.1 seconds) and increased risk of mortality (15.98 seconds) in people with COPD. Receiver operating characteristics analysis (ROC) was performed and the area under the curve (AUC), sensitivity, specificity, and accuracy were calculated. The optimal cut-off points were identified by the highest Younden index.
Results: In total, 302 people with COPD (67.5 ± 10.4 years; 79.1% male; BMI 26.7 ± 4.6 kg/m^2; FEV1 55.2 ± 20.4%predicted) participated. Cut-off points in the 1-min STS of 23.5 repetitions for low functional performance (AUC = 0.92; 95%CI 0.89-0.95; 96.4% sensitivity; 80.9% specificity; accuracy = 0.84) and 18.5 repetitions for increased risk of mortality (AUC = 0.97; 95%CI 0.94-0.987; 95.5% sensitivity; 88.6% specificity; accuracy = 0.89) were found in people with COPD.
Conclusions: The 1-min STS showed an outstanding discriminative ability and excellent accuracy in determining low functional performance and increased risk of mortality in people with COPD. A cut-off of 23.5 repetitions can be used to identify people with functional impairment. The cut-off point found for increased risk of mortality is similar to the previously published using the 6-minute walk test as an anchor, reinforcing the validity of this cut-off. These cut-offs support healthcare professionals in tailoring an appropriate management plan for this treatable trait and might possibly contribute to the implementation of timely preventive or palliative strategies.

Keywords: *COPD. Functional status. Prediction. Mortality.*

PC 039. FEV1/FVC: THE FIXED RATIO VS THE LOWER LIMIT OF NORMAL

M. Cavaco, C. Cardoso, L. Monteiro, L. Mateus, A. Nunes, R. Cordeiro, C. Rôlo Silvestre, P. Raimundo, A. Domingos

Centro Hospitalar do Oeste.

Introduction: Pulmonary function tests (PFT) play an essential role in the diagnosis and follow-up of obstructive pulmonary diseases (OPD). Airflow obstruction (AO) is defined as a reduction of forced expiratory volume in the first second (FEV1) to forced vital capacity (FVC) ratio, but the best cut off value remains uncertain. The two most commonly used criteria are the fixed ratio (FR: < 0.7) and the lower limit of normal (LLN: < 5th percentile) according to Global Lung Function Initiative 2012 equations. Lung function varies with age, height, sex and ethnicity. While using the FR can lead to underdiagnosis in younger individuals and overdiagnosis in older individuals, the use of LLN can be more complex to apply in daily practice. This ongoing debate has led to the proposal of alternate means of defining AO, including MEF/FVC, FEV1/FEV6 and FEV3/FVC ratios. The use of indirect measurements of AO, such as signs of small airway obstruction (SAO), hyperinflation and airway resistance may also contribute to earlier identify OPD.
Objectives: To evaluate the clinical and functional profile of patients with discrepant criteria for AO (FR *vs.* LLN).
Methods: Retrospective observational study of patients who performed PFT during an 18 months period (from 01/2021 to 06/2022). The patients who only filled the criteria of AO by FR or LLN were selected and their demographic, clinical, spirometry and plethysmography data were collected.
Results: Of the 2,045 PFR analyzed, 90 patients (4.4% - all Caucasian) had discordance of AO defining criteria. AO was only identified according to LLN in 47 individuals and to FR in 43 individuals. Considering patients with FEV1/FVC > 0,7 but below the LLN, 97.8% (46/47) of these exams were performed due to clinical suspicion of OPD (n = 46 Asthma). The mean value of FEV1/FVC was 73.0% (SD: 2.3%) and it was on average 2.2% lower than the LLN. The patients' mean height was 161 cm (SD: 12.8 cm) and average age was 19.3 years (SD: 9.0), with 21 patients < 18 years. Other changes in spirometry were found in 89.4% (42/47) of patients (n = 42 SAO, n = 13 low FEV1). Changes in plethysmography were found in 57.4% (27/47) of patients (n = 13 hyperinflation, n = 22 high airway resistance). Regarding patients with FEV1/FVC < 0.7 but above the LLN, 53.4% (23/43) of these exams were performed due to clinical suspicion of OPD (n = 12 DPOC, n = 11 Asthma). The FEV1/FVC was on average 3.2% higher than the LLN, with a mean value of 62.8% (SD: 2.4%). The patients had average height of 166.2 cm (SD: 10.9 cm) and mean age of 72.1 years (SD: 8.7). 41.8% (18/43) of patients had other changes in spirometry (n = 14 SAO, n = 17 low FEV1) and 60.5% (26/43) of patients had changes in plethysmography (n = 9 hyperinflation, n = 26 high airway resistance).
Conclusions: The discrepancies between AO criteria using LLN or FR should be interpreted taking into consideration the demographic and clinical characteristics of the study population, and it is important to adopt an individualized approach in these cases. In this study, discordances occurred mainly at extreme age groups. Thus, it is necessary to investigate alternative definitions of obstruction that optimize diagnosis in these subgroups.

Keywords: *Obstructive pulmonary disease. Airway obstruction. FEV1/FVC. Pulmonary function tests.*

PC 040. ALPHA-1-ANTITRYPSIN DEFICIENCY IN A PULMONOLOGY APPOINTMENT

J. Canadas, F. Guimarães, M. Cunha, N. Marçal, C. Pissarra, P. Rosa

Vila Franca de Xira Hospital.

Introduction: Alpha-1-antitrypsin deficiency (AATD) is an autosomal codominant inherited condition that results from a mutation in the SERPINA1 gene. There are currently about 120 described alleles, in which alpha-1-antitrypsin variants are classified from A to Z. Normal alleles are present in 85-90% of individuals and are

classified as MM genotype, while the most prevalent deficient alleles are designated as S and Z. AATD is one of the most prevalent genetic disorders in humans and the most diagnosed in adults, yet it remains an underdiagnosed condition. The majority (90%) of patients with AATD have the ZZ genotype, the form associated with disease development. The main clinical manifestations involve the lungs and liver and, less frequently, the skin. In the lung, AATD predisposes to early development of pulmonary emphysema, and severe AATD may also lead to the development of bronchiectasis. b

Objectives: Characterization of the AATD patient population and understanding of underlying complications and indications for treatment.

Methods: Retrospective study of patients seen in the pulmonology appointment at the Vila Franca de Xira Hospital with AATD. Statistical analysis with Microsoft Excel 2016® of the following variables: gender, age, weight, height and body mass index (BMI), smoking habits, forced expiratory volume in 1st second (FEV1), pulmonary complications and treatment.

Results: Sample of 26 patients, with a mean age of 57.6 years old and female predominance (n = 15; 57.7%), with a mean weight of 71.9 kg, with the majority (n = 10; 38.5%) presenting a normal BMI. Regarding smoking habits, only 4 patients (15.4%) were active smokers, 10 (38.5%) were former smokers, and 12 (46.2%) had never smoked. As for the respiratory functional study, the mean FEV1 of this population is 96.5%, with most (n = 22; 84.6%) presenting an FEV1 > 70% in the first evaluation, with the remaining 4 patients (15.4%) with FEV1 30-70%. In terms of diagnosis, 11 patients (42.3%) had AATD ≤ 57 and, qualitatively, there was a predominance of the MS phenotype in 11 patients (42.3%), followed by SZ (n = 5; 19.2%) and MS (n = 4; 15.4%). As for pulmonary complications, 11 patients (42.3%) have pulmonary emphysema, of which 5 patients (45.5%) have chronic obstructive pulmonary disease and 4 patients (36.4%) have bronchiectasis. No patient is on alpha-1-antitrypsin replacement therapy.

Conclusions: This sample of patients, although small, shows us a significant patient population with pulmonary pathology, with a mean age in the fifth decade of life. In the quantitative assessment, 42.3% of patients have an AATD ≤ 57, but only a minority, about 15.7%, have an FEV1 < 70%. In the qualitative assessment there is a predominance of the MS phenotype. Currently none of the patients present eligibility criteria for treatment. It is important to maintain a clinical and functional respiratory follow-up, avoiding smoking and possible extrapulmonary complications.

Keywords: *Alpha-1-antitrypsin. FEV1.*

PC 041. ARE INDOOR AND OUTDOOR OPPORTUNITIES FOR PHYSICAL ACTIVITY RELATED TO ACTIVE BEHAVIOURS IN PATIENTS WITH COPD?

N. Hipólito, S. Flora, J. Gordo, S. Pimenta, N. Morais, C.G. Silva, J. Ribeiro, F. Silva, A. Oliveira, M. Brites-Pereira, B.P. Carreira, L. Andrade, V. Martins, F. Rodrigues, D. Brooks, C. Burtin, A. Marques, J. Cruz

NH-Center for Innovative Care and Health Technology (ciTechCare), Polytechnic of Leiria.

Introduction: Persistent respiratory symptoms at rest and during exertion (e.g., dyspnea, fatigue) play a role on the low physical activity (PA) levels found in people with chronic obstructive pulmonary disease (COPD), but other factors may also be involved. Environmental factors have been shown to impact PA levels in other patient populations, but evidence regarding people with COPD is still scarce. Investigations have been focused mostly on outdoor factors, such as air pollution or population density, disregarding the patients' perception of their surroundings, both indoor and outdoor milieus.

Objectives: This study explored the relationship between self-reported indoor and outdoor physical environmental opportunities for PA and actual PA levels in patients with COPD.

Methods: Patients with COPD completed the Physical Activity Neighbourhood Environment Survey (PANES; total score 0-6, higher scores indicating a more supportive PA environment; 11 subscales: Residential Density, Land Use Mix, Access to Transportation, Infrastructure for Pedestrians, Infrastructure for Bicycles, Recreation Facilities, Street Connectivity, Security – Crimes, Security – Traffic, Security – Pedestrians, Aesthetics) and questions regarding their indoor and outdoor home environment (car ownership; having a dog, corridor, elevator, stairs and/or exercise equipment). An accelerometer was used for 7 days to assess daily PA: steps (steps/day); time in moderate and vigorous PA (MVPA; min/day); total PA (TPA; light PA+MVPA; min/day). Mann-Whitney-U and Spearman's correlations (ρ) tests were conducted.

Results: Ninety-four patients [78 males (83%), 67 ± 8 years, 48 ± 19 FEV1% predicted] participated in this study. PANES total score (n = 75) was 3 [1;4] (median [Q1;Q3]). Forty-three patients had a dog (13 walked it regularly); 63 had stairs, 12 had an elevator, 71 had a corridor, 45 had exercise equipment (stationary bicycle, n = 21) and 84 owned a car. Participants performed 4,428 [2,761;6,886] steps/day, 19 [9;41] min/day of MVPA and 144 [103;208] min/day of TPA. Patients walking the dog presented a significantly higher daily step count (4,895 [2,644;7,780] *vs.* 4,422 [2,850;6,775] steps/day, p = 0.01) and time in TPA (154 [100;256] *vs.* 144 [103;177] min/day, p =.03) than those not walking the dog. No other significant differences were observed in the indoor and outdoor home environment ($p > 0.05$). No significant correlations were found between any of the PANES subscales and the different PA outcomes ($-0.210 \leq \rho \leq 0.181$, $p > 0.05$).

Conclusions: A minimal influence of neighbourhood environmental factors on PA levels of patients with COPD was found in this observational study. Findings support previous research, as walking the dog impacted patients' daily step counts. Longitudinal research is needed to more definitely evaluate potential environmental opportunities to promote PA in people with COPD.

Keywords: *COPD. Physical activity. Physiotherapy. Environmental factors.*

PC 042. NIVO SCORE APPLICATION AS A MORTALITY PREDICTOR IN ACUTE COPD EXACERBATIONS WITH ACIDAEMIA

L. Roseta, M. Castro, A.C. Ferreira, E. Silva, T. Shiang, M. Vanzeller, C. Ribeiro

Pulmonology Department, Centro Hospitalar Vila Nova de Gaia/Espinho (CHVNG/E).

Introduction: The Noninvasive Ventilation Outcomes (NIVO) score is a clinical prediction tool of mortality in acute (acidaemic) exacerbations of chronic obstructive lung disease (AECOPD), requiring non-invasive ventilation (NIV). Ranging up to 9 points, it stratifies in-hospital and 90-day mortality. Until today no other study has demonstrated its use in the Portuguese population.

Objectives: To compare NIVO's score predictions with observed in-hospital and 90 days mortality.

Methods: Retrospective cohort of patients admitted in CHVNG/E with AECOPD, with acidaemia, treated with NIV, between January 2019 and March 2022. Re-admissions of the same patient within 3 months were excluded. Each subject was stratified into risk groups according to NIVO Score. Mortality data was collected. The Binomial test with the Clopper-Pearson's 95% confidence interval was used to compare expected with observed frequencies.

Results: A total of 130 cases were included. Table number 1 portrays the results.
Conclusions: Observed mortality in our center did not differ, from a statistical standpoint, from NIVO's score prediction, highlighting its value in clinical practice.

Keywords: *NIVO Score. Non-invasive ventilation. Acute chronic lung disease exacerbation. Acidaemia.*

PC 043. TOGETHER IN PIZZ GENOTYPE, SEPARATED BY THE PATHOGENY: THE DIFFERENT MANIFESTATIONS OF ALPHA-1-ANTITRYPSIN DEFICIENCY IN BROTHERS

A. Trindade, M. Barbosa, J. Portela, M. Alves, C. Santos, F. Rodrigues

Hospital Prof. Doutor Fernando Fonseca, Amadora.

Introduction: Alpha-1-antitrypsin (AAT) deficiency is a genetic disturbance inherited as a codominant autosomal condition, caused by mutations in SERPINA1 gene. One of the most frequent pathogenic alleles, the allele Z, is associated with dysfunction and reduction of AAT serum levels, which is related to an increased risk of emphysema and liver dysfunction. The authors present two brothers with genotype PiZZ and a distinct disease profile: a male patient with extensive emphysema and severe ventilatory compromise, without liver disease; and his brother with hepatic cirrhosis and moderate ventilatory obstruction, but without emphysema in the thoracic CT with lung densitometry, whose AAT levels normalized after liver transplant.
Case reports: A 49-year-old Caucasian male patient, the index case, a former smoker of 25 packs-year, was diagnosed in 2009 with AAT deficiency after an investigation of his chronic obstructive pulmonary disease. He had pulmonary emphysema with a centrilobular pattern in the upper lobes and a panlobular pattern in the lower lobes. He had PiZZ genotype, AAT levels < 30 mg/dL, FEV1 39% and FEV1/FVC 37% post bronchodilatation, so treatment with Prolastin® was initiated. During the follow-up, hepatic steatosis was identified, without evidence of liver dysfunction, but the pulmonary disease progressed: 500 mL of FEV1 were lost in 5 years, he had multiple respiratory intercurrences and was put on long-term oxygen therapy. He is in the lung transplant waiting list since September 2019. He is under augmentation therapy, integrated in a pulmonary rehabilitation program and despite his tiredness complaints during efforts, he maintains his autonomy in daily life activities. In 2009, his 40-year-old brother, a social smoker, without previous history of asthma, initiated monitoring in the Pulmonology Department due to AAT deficiency, genotype PiZZ and AAT levels < 20 mg/dL. He complained about dyspnoea doing medium efforts. The investigation revealed emphysema absence in the thoracic CT with lung densitometry and normal carbon monoxide diffusion capacity. However, moderate bronchial and bronchiolar obstruction was identified, with no response to inhaled bronchodilator administration. An abdominal ultrasound showed liver cirrhosis. Due to a decline of 120 mL in FEV1 in five months, confirmed six months later, augmentation therapy was initiated. During follow-up, he presented worsening hepatic dysfunction, developing splenomegaly, portal hypertension, esophageal varices, and pancytopenia. Respiratory symptoms and function remained stable under Prolastin® and triple bronchodilator therapy. In 2017, he was submitted to a liver transplant, after which AAT levels normalized, and augmentation therapy was suspended. A third brother refused AAT deficiency investigation and died prematurely due to respiratory failure.
Discussion: AAT deficiency is a genetic condition that predisposes individuals to different degrees of hepatic and pulmonary disease, even in direct family members. In the follow-up of these two brothers, one was identified as having a severe respiratory decline even under augmentation therapy. The other one had stability of the moderate respiratory compromise and resolution of the severe hepatic disease after liver transplant.

Keywords: *Alpha-1-antitrypsin deficiency. Emphysema. COPD.*

PC 044. 1-YEAR EXACERBATIONS AND MORTALITY RISK ACCORDING TO EXACERBATION HISTORY AT CHRONIC OBSTRUCTIVE PULMONARY DISEASE DIAGNOSIS

P. Simão, A.L. Fernandes, C. Ponte, D. Santos, M. Bibi, C. Jácome, M. Pardal, E. Carvalho, H. Martinho, F. Bernardo, T. Taveira-Gomes

Pulmonology Department, Pedro Hispano Hospital, Unidade Local de Saúde de Matosinhos.

Introduction: Management strategies to prevent exacerbations in chronic obstructive pulmonary disease (COPD) are challenging and involve early targeting of individuals who are at high risk of future exacerbations. However, limited data exist on the prognostic value of exacerbations in patients with COPD.
Objectives: Estimate 1-year risk of future exacerbations, all-cause mortality and cardiovascular (CV) death in COPD patients, according to the exacerbation profile at diagnosis, in a real-world clinical setting.
Methods: Retrospective, observational, longitudinal study that used secondary data from Unidade Local de Saúde de Matosinhos. First COPD diagnosis in the population aged ≥ 40 years between Jan 2013 and Dec 2018 was defined as index date. Moderate exacerbations (ModEx) were defined as COPD-related office/outpatient visit with a prescription for respiratory antibiotics and/or oral corticosteroids, and severe exacerbations (SevEx) were defined as hospitalization or emergency room visits. Patients were grouped into one exacerbation category based on 12-month history prior to index: 0 exacerbations (A), 1 ModEx (B), 2 or more ModEx (C); 1 SevEx (D) and 2 or more exacerbations, but at least 1 SevEx (E). Risk of a first exacerbation and death during 12 months of follow-up was determined at 95% confidence interval (CI) for each category (category A as reference).
Results: A total of 5,696 COPD patients were included. The majority were male (68%) with a median age of 68 [IQR 18] years, and 25% were current smokers. At index, the distribution of patients along exacerbation categories were: 36.4% in category A, 16.1% in category B, 7.1% in category C, 34.4% in category D and 6.1% in category E. Respiratory - and cardiovascular comorbidities had an increasing trend across categories. ICS with LABA or LAMA was the most frequent treatment option across all cohorts. Triple combination therapy was more frequently prescribed in patients from cohorts C and E. Adjusted hazard ratio (HR) of ModEx at one-year was highest for category C (HR = 1.98; CI 1.72-2.28), followed by categories D, E and B. After index, the median time to the next ModEx was 56 days for patients from category D, and 74-87 days for categories B, C and E. Regarding SevEx, 1-year risk increased from category B (HR = 1.67; CI 1.42-1.96) to E (HR = 3.17; CI 2.63-3.83). Median time for patients to experience a next SevEx after index was 93 days for category E and 105-112 days for the remaining categories. Adjusted HR of 1-year all-cause mortality was highest for category D (HR = 1.67; CI 1.27-2.21), followed by categories E, B and C. Adjusted HR of 1-year CV death was highest for category E (HR = 1.67; CI 1.18-2.36), followed by categories C, B and D.
Conclusions: This study confirms the high burden of exacerbations even before a diagnosis of COPD. Patients with increasing number and severity of exacerbations at diagnosis have an increased risk of subsequent moderate and severe exacerbations, all-cause and CV mortality. Timely COPD diagnosis and treatment is needed to decrease exacerbations burden.

Keywords: *Chronic obstructive pulmonary disease. Exacerbations. Risk. Mortality. Real-world.*

PC 045. EVALUATION OF INTERVENTION FOR SMOKING CESSATION IN PREGNANT WOMEN

L. Simões, I. Costa, V. Figueiredo

USF Sol Nascente, Centro de Saúde de Albufeira.

Introduction: Maternal smoking is a recognized cause of pregnancy complications, such as fetal growth restriction, preterm birth, ectopic pregnancy or miscarriage. In turn, newborns with growth restriction have a higher risk of perinatal morbidity and mortality, cardiovascular disease and cognitive development delay. Recent data estimate that smoking in Europe among pregnant women is 8.1% (very high percentage when compared to world levels - 1.7%). Smoking cessation interventions that are effective in reducing maternal smoking will benefit the well-being and development of the fetus and child, reducing future complications and health care costs.
Objectives: The main objective of this study was to evaluate the proportion of smokers in pregnant women monitored at the Family Health Unit (FHU) Sol Nascente in 2021, and of these, those who underwent intervention for smoking cessation. The impact of this intervention on tobacco consumption by pregnant women was also evaluated.
Methods: Information on all pregnant women at FHU Sol Nascente in 2021 was extracted from the MIM@UF® platform, completing the remaining information by consulting their files in Sclinico®. Intervention for smoking cessation was identified through indicator 398 – "Proportion of pregnant smokers with brief or very brief intervention in the 1st trimester". Statistical analysis elaborated in Excel®.
Results: Of 172 women, those who were still pregnant at the time of the study, who had miscarried or whose information was unknown were excluded. Of the 138 included, 28 were smokers at the time of onset of pregnancy, with a mean age of 29 years (between 21 and 37 years), delivery performed on average at 39 weeks of gestation (between 34 and 41 weeks). The mean weight of newborns was 3,298 kg (between 4,170 and 2,045 kg). The average smoking load was 5.12 pack-years (between 0.2-16.5 pack-years). The average consumption was 12 cigarettes/day (between 4 and 20 cigarettes/day). In this sample, 14 women stopped smoking completely and 14 reduced an average of 11 cigarettes/day (between 3 and 18 cigarettes/day). Intervention was recorded in 10 pregnant women (36%), of which 4 (40%) completely stopped consumption and 6 reduced, on average, 11.5 cigarettes/day. Of the 18 pregnant women without intervention, 10 (56%) had completely stopped smoking and 8 had reduced an average of 11 cigarettes/day. No statistically significant difference was found in the number of reduced cigarettes between the two groups.
Conclusions: These results may not be real, as there is oral advice in medical or nursing consultations that is not recorded in a computer. The possible lack of records and the low statistical power of this pilot sample highlights precisely the little attention that is given to such a relevant topic in the monitoring of pregnant women and that needs clear improvement. At the national level, information on this topic is scarce. A set of interventions is being planned for professionals, pregnant women and fertile-age women accompanied at the unit. These include clinical sessions, posting posters in the waiting room and distributing information leaflets. This assessment is expected to be repeated in 2024, with a significant improvement in the results expected.

***Keywords**: Smoking. Pregnancy. Cessation. Primary Health Care.*

PC 046. USE OF AND ATTITUDES TOWARDS TOBACCO AND NICOTINE PRODUCTS BY PORTUGUESE UNIVERSITY STUDENTS: A PANDEMIC SURVEY

M. Vaz, O. Lourenço, S. Ravara, P. Cascais

FCS-UBI, Faculty of Health Sciences, University of Beira Interior.

Introduction: On March-June 2021, we performed a cross-sectional study by applying an online-questionnaire to university students in University of Beira Interior, Covilhã, Portugal. The main aim was to assess the experimentation and consumption of tobacco and nicotine products, as well as opinions and beliefs towards tobacco and nicotine novel products.
Results and discussion: Participants included 452 university students, with a mean age of 21.9 ± 3 years, 67.0% of whom were female. Most (60.4%) had experimented tobacco/nicotine products; 31.2% were current users; poly use was frequent (65.2%). Of the current users, 100% used traditional cigarettes; 41.1% heated tobacco; 20.6% E-cigarettes (EC); 14.9% water pipe. Multilogistic regression showed that being male, attending the 3rd year, cohabiting or socializing with smokers was significantly associated with being a tobacco/nicotine current user. Most students disagree that these novel products are less harmful than traditional cigarettes; and that they may assist in smoking cessation. Moreover, the majority of the students agree that the exposure to EC and heated tobacco aerosol may cause health problems, and that these products are addictive. The use of tobacco/nicotine is high among university students. Most students do not support an outdoor university ban on smoking and do not want to stop the use of tobacco/nicotine suggesting a predominantly pro-smoking social norm among college students.

***Keywords**: Tobacco. Nicotine. University students. Electronic cigarette. Heated tobacco. Waterpipe. Smoking ban in enclosed public places.*

PC 047. ASSESSMENT OF FRAGILITY FRACTURE RISK IN COPD PATIENTS

M. Barbosa, H. Botica Ferreira, K. Lopes, M.J. Simões, F. Rodrigues, P. Pinto, C. Bárbara

Serviço de Pneumologia, Centro Hospitalar Barreiro-Montijo.

Introduction: In the current literature, osteoporosis and especially fragility fractures have been associated with a worse prognosis in chronic obstructive pulmonary disease (COPD), making it a potentially treatable trait.
Objectives: Assessment of the 10-year fragility fracture risk, using the FRAX® score (University of Sheffield and validated for the Portuguese population) in patients with COPD.
Methods: Multicenter evaluation of the 10-year fragility fracture risk in 100 patients with a diagnosis of COPD according to GOLD guidelines: 25 patients seen in General Practice, 25 patients followed in a general pulmonology consultation, 25 patients currently in a pulmonary rehabilitation program and 25 patients followed in an outpatient non-invasive ventilation (NIV) unit.
Results: The majority of the patients (68%) were male, mean age 69 ± 10 years, and BMI 28 ± 5.9 kg/m^2. GOLD stage classification: 1 (14%), 2 (21%), 3 (40%) and 4 (9%); A (25%), B (39%), C (5%) and D (31%). Mean mMRC score of 1.80 ± 0.97, mean number of exacerbations in the last year of 0.74 ± 1.03, requiring hospitalization of 0.34 ± 0.80, and mean %FEV1 of 52 ± 14.80%. CT-Thorax presenting: 50% emphysema and 21% bronchiectasis. In the overall assessment: 34% of patients had a FRAX® score with a high 10-year risk of fragility fracture (≥ 11% risk of major osteoporotic fracture or ≥ 3% risk of hip fracture) with formal indication for initiation of anti-osteoporotic treatment without the need for evaluation by dual X-ray absorptiometry (DXA), 12% had an intermediate FRAX® score (7-11% risk of major osteoporotic fracture and 2-3% risk of hip fracture) with indication for DXA and reassessment of the FRAX® score, and 54% with no indication for DXA or initiation of treatment (< 7% risk of major osteoporotic fracture and < 2% risk of hip fracture), according to the Portuguese Society of Rheumatology 2018 guidelines. Of the patients with treatment indication, only 44% underwent anti-osteoporotic therapy at some point in their lives. In the comparative evaluation between the two groups with high FRAX® score and the last group, the chi-square test of independence revealed a statistically significant positive association between high risk of fragility fracture and frequent exacerbators (GOLD C and D), χ^2 (1, N = 100) = 5.3, p = 0.02; and between high fragility fracture

risk and long-term NIV, χ^2 (1, N = 93) = 5.2, p = 0.02. On the other hand, COPD with severe obstruction (GOLD 3 and 4), more respiratory symptoms (GOLD B and D), respiratory failure under long-term oxygen therapy, less serum calcium level, treatment with inhaled corticosteroids, or presence of bronchiectasis or emphysema did not present a statistically significant difference between the two groups (p > 0.05).
Conclusions: Recognizing that osteoporosis is under-evaluated and under-treated and that fragility fractures have a profound impact on prognosis in patients with COPD, this study points to the importance of the evaluation of FRAX® score in COPD patients, especially in frequent exacerbators or under long-term NIV.

Keywords: *COPD. Fragility fracture. Osteoporosis. FRAX Score. NIV.*

PC 048. ECSC *VERSUS* GLI2019 IN THE INTERPRETATION OF STATIC LUNG VOLUMES MEASURED BY PLETHYSMOGRAPHY

T. Duarte, C. Rijo, M. Cadete, S. Sousa, P. Duarte

Centro Hospitalar de Setúbal, EPE-Hospital de São Bernardo.

Introduction: Reference equations for static lung volumes for individuals of European ancestry have been published by the Global Lung Function Initiative. In clinical practice it is necessary to understand the effects of switching to the GLI2019 equations in the interpretation of static volumes measured by plethysmography.
Methods: Cross-sectional study. Were included all Caucasian individuals, aged 20 to 80 years who underwent Pulmonary Function Tests (PFT), in the Pulmonary Function Laboratory of the Setúbal Hospital Center, between January and December 2021, in accordance with the recommendations of the American Thoracic Society/European Respiratory Society (ATS/ERS). The parameters analyzed were thoracic gas volume (TGV), residual volume (RV), total lung capacity (TLC) and RV/TLC ratio, measurements made using body plethysmography. The interpretation was performed considering the lower and upper limits of normality (LLN and ULN). Statistical analysis was performed using the IBM® statistical software, SPSS Statistics® version 26. A significance level of 5% was considered.
Results: 540 individuals were included, 58% male. The mean age of the sample was 61.0 ± 12.24 years. Statistically significant differences were observed for the mean values of LLN and ULN for the analyzed parameters, when comparing the reference equations ECSC and GLI2019. Comparing the proportion of types of ventilatory defects using ECSC and GLI2019 reference equations by gender, for females, there was a decrease in the proportion of nonspecific pattern, consequently, an increase in the proportion of restrictive ventilatory pattern when using the GLI2019 equations. As for males, there was an increase in the proportion of restrictive ventilatory pattern when ECSC equations were used.
Conclusions: There were significant differences in the lower and upper limits of normality when comparing the reference equations ECSC and GLI2019. These differences lead to changes in the interpretation of static volumes measured by Plethysmography that will impact therapeutic decisions.

Keywords: *Reference equation. Plethysmography. GLI.*

PC 049. IMPACT OF THE 2021 ERS/ATS RECOMMENDATIONS ON THE INTERPRETATION OF PULMONARY FUNCTION TESTS (PFTS)

S. Pipa, A.R. Afonso, L. Ribeiro, S. Heleno, A.I. Loureiro, B. Conde

Pulmonology Department, Centro Hospitalar de Trás-os-Montes e Alto Douro, Hospital de Vila Real.

In 2021, an update of the recommendations for PFTs interpretation and classification of functional impairments was published by the European Respiratory Society (ERS) and American Thoracic Society (ATS). It aimed to minimize gender, height, ethnicity and age biases, considering natural decline in lung function, and to permit a better association between severity classification and clinical outcome, however, did not include age extremes. The objective of this study was to understand whether differences are observed in the results obtained and in the stratification of the identified changes, considering the ERS/ATS 2021 recommendations, compared to 2005. A cross-sectional observational study with non-probabilistic convenience sampling was carried out. From the spirometries performed in May 2022 on a Vyntus Body plethysmograph with the SentrySuit v3.10 software, which uses Global Lung Initiative reference equations, we selected the tests that met the ATS/ERS acceptability and reproducibility standards. A total of 104 spirometries were analyzed, with 59.6% (n = 62) being male subjects. The mean age was 57.41 years (SD = 20.07) ranging from 7 to 84. Sixteen (15.4%) were smokers and 30 (28.8%) previous smokers. We found that 20.2% of the individuals (n = 21) had obstructive ventilatory impairments (AVO) and 9.6% (n = 10) had restrictive ventilatory impairments (AVR) (defined by spirometric parameters), according to the criteria of both recommendations. Regarding the small airways, there was a difference in the percentage of patients with obstruction (34.6% (n = 36) and 22.1% (n = 23), considering the 2005 and 2021 recommendations, respectively). The severity of AVO was different in 52.4% of cases (n = 11), and of AVR in 80% (n = 8). In both situations, the level of severity decreased, according to the 2021 criteria. Most differences were observed in the age groups of 65-80 years and > 80 years (72.8% of the AVO differences and 87.5% of the AVR). Regarding the bronchodilation tests, performed on 73 subjects, 13.7% (n = 10) and 9.6% (n = 7) were positive, according to the 2005 and 2021 standards, respectively. Although the change in the positivity criteria was not approved in children, we analyzed this population (n = 8), with only one having a different result (previously positive, but negative according to the new recommendations). In general, considering the individuals whose results differed according to the criteria used (n = 5), there was no difference in frequency between the various age groups. This study does not allow to extrapolate conclusions for the population, considering the size and characteristics of the sample and the type of study. Even so, it was found that in the higher age groups there is a greater distinction between the results obtained. This is consonant with the literature and reinforces the importance of considering the natural changes in lung function. This work enables a future patient follow-up study, to evaluate the possible correlation between the clinical outcome and the z-score cut-offs established in the 2021 recommendations. Regarding the bronchodilation test, it would of interest to perform a larger study in order to understand what has changed in practice, as well as evaluate the correlation of the results with the response in the small airways and clinical evaluation.

Keywords: *Spirometry. Pulmonary function tests.*

PC 050. PULMONARY RESTRICTION - HOW TO CLASSIFY?

R. Branquinho Pinheiro, G. Portugal, L. Rodrigues, R. Barros, A.S. Oliveira

Northern Lisbon University Hospital Center (CHULN).

Introduction: Respiratory function tests (PFT) reflect the physiology of the respiratory system, being used in the diagnosis, monitoring and evaluation of the response to the treatment of various diseases. Its interpretation has evolved over time.
Objectives: To characterize the severity of pulmonary restriction through the parameters FEV1 and TLC; to relate the severity of the pulmonary restriction to the underlying pathology; to correlate the severity of the restrictive ventilatory alteration with the severity of the DLCO reduction.

Methods: Retrospective observational study with analysis of PFT performed during 6 months, between April and September 2021, in the respiratory function unit of Hospital Pulido Valente, and selected patients with evidence of a restrictive pattern by TLC lower than LLN. Patients with mixed ventilatory disorders and PFT who did not meet the quality criteria were excluded. A severity classification based on predicted FEV1 was used (5 categories: mild ≥ 70%, moderate 60-69%, moderately severe 50-59%, severe 35-49%, very severe < 35%), and a severity classification based on TLC (4 categories: mild 70-80%, moderate 60-70%, moderately severe 50-60%, severe < 50%). Data was collected through consultation of hospital clinical files, according to the principle of pseudo-anonymization, and analyzed using Excel. Direct comparison has limitations due to the number of categories in each classification.
Results: PFT of 828 patients were analyzed, of which 146 met inclusion criteria. The mean age was 65.8, ranging from 28 to 86 years old, 57% of the patients were male (n = 83). Intrinsic pulmonary alterations prevailed over extrinsic ones as the reason for performing PFT, with diffuse parenchymal lung diseases being the most frequently observed. The severity of the pathologies observed was variable. In 45% of the exams the classifications based on FEV1 and TLC coincided (n = 66), in 30% of the patients (n = 43) the classification based on FEV1 showed a lower severity and in 25% (n = 37) a higher severity. The post-COVID-19 evaluation corresponded to 22% of the PFT performed and showed a coincident classification in 59% of the cases. Diffuse parenchymal lung diseases, including fibrosing forms, was predominantly concordant, but not exclusively. Rheumatologic diseases with lung involvement showed a higher severity when classified as FEV1 in 47% of the cases. Despite a short sample, airway and chest wall diseases predominantly demonstrated superior classification with FEV1. 79% of coincident PFTs were mild (n = 52). 55% of patients (n = 80) had previous PFT, and 28% of these had no restriction. Of the previous exams with a restrictive pattern, 50% coincided with both classifications (n = 29). The DLCO study was performed in 145 patients, being normal in 21% (n = 30). Of the DLCO studies, 21% (n = 31) had severity coincident with the FEV1 restriction classification and 37% (n = 53) with the TLC classification.
Conclusions: PFT mostly coincided when mild, diverging with increasing severity. The difference in classifications in certain pathologies was predominant, but not exclusive. Knowledge of the classification used is extremely important for the interpretation and comparison of results.

***Keywords**: Respiratory function tests. Pulmonary restriction. Classification.*

PC 051. A RARE CASE OF PULMONARY ARTERIAL HYPERTENSION

J. Nascimento, C Pereira, A Dias, A Mineiro, N Lousada, P Campos

Pulmonology, Centro Hospitalar Universitário Lisboa Norte.

Introduction: Partial anomalous pulmonary venous return (PAPVR) is a rare congenital anomaly with a reported prevalence of less than 0.7%. PAPVR consists of draining at least one pulmonary vein into the systemic venous network or the right atrium. Symptoms can include exertional dyspnea, dysrhythmia, right heart failure and pulmonary hypertension, varying according to the size of the left-right shunt. The diagnosis is often made in adulthood. The therapeutic approach to PAPVR is controversial due to its rarity and complexity of surgical correction.
Case report: A 51 years-old woman, active smoker (25 PY) with history of epilepsy and depressive syndrome had initial complaints of productive cough with mucous sputum and dyspnea on exertion with 1 year of evolution. She denied fever, weight loss or other symptoms. Physical examination showed a II/VI systolic murmur audible throughout all precordium. Chest CT scan showed an asymmetrical chest, with decreased left lung field and homolateral mediastinal shift in probable association with pleural thickenings involving the costal pleura at the base, enlargement of the pulmonary artery (PA) trunk in association with pulmonary arterial hypertension (PAH)). During childhood she had a contact with a bacillary patient, so she underwent mycobacteriological examination of the sputum, which was negative. Subsequently, a functional respiratory study was performed, which showed small airway obstruction; gases showed hypocapnia (paCO2 29.7 mmHg, paO2 84.2 mmHg); transthoracic echocardiogram showed slight dilatation of the right cavities, PASP 36+3 mmHg, thin interatrial septum with an image suggestive of atrial septal defect (ASD), without compromise of the left function; labs were negative for autoimmunity and viral serologies and NTproBNP was 215 pg/ml. A chest CT angiography was also performed, which revealed a congenital cardiac anomaly translated by an anomalous partial venous return from the upper lobe of the right lung with double drainage to the superior vena cava (SVC) and left atrium (LA), without images of pulmonary thromboembolism. Right catheterization confirmed PAH due to increased pulmonary output in the context of congenital heart disease with increased pulmonary resistances, a mean pulmonary artery pressure of 24 mmHg and a mean pulmonary capillary wedge pressure of 8 mmHg. Surgical correction was performed under cardiac arrest and extracorporeal circulation, with implantation of an autologous pericardium patch and RVPA derivation from the SVC to the LA via the ASD, followed by the latter's closure. There were no intercurrences. Post-surgical chest CT scan showed favorable aspects of anterior thoracotomy, cardiac area without current suspicion of ASD, without pleuroparenchymal changes.
Discussion: The detection of abnormal pulmonary venous drainage is important because of its association with congenital cardiac pathology, as well as other cardiac and respiratory anomalies, which differ significantly in the therapeutic approach. PAPVR is one of the rare but treatable causes of pulmonary hypertension in adults.

***Keywords**: Partial anomalous pulmonary venous return. Pulmonary hypertension. Congenital disease. Treatabel.*

PC 052. FROM PULMONARY HYPERTENSION TO TRANSPLANT

J. Nascimento, F. Rodrigues, C. Costa, R. Roberto, R. Placido, A. Dias, S. Miguel, C. Bárbara

Pulmonology, Centro Hospitalar Universitário Lisboa Norte.

Introduction: Pulmonary veno-occlusive disease (PVOD) is a rare cause of pulmonary hypertension (PH) with significant involvement of pulmonary veins and venules. When DLCO is decreased, hypoxemia is severe and chest CT scan shows centrilobular ground-glass opacities and mediastinal lymphadenopathy the suspicion of PVOD is high. However the diagnosis is challenging. The greater the pulmonary/capillary venous involvement, the worse the prognosis and response to therapies for PH.
Case report: 58-year-old male, former smoker of 14 PY, marked exposure to glues, resins, phenolics, carbons, glass fibers. He began to experience rapidly progressive fatigue and dyspnea on exertion since July/2021. Without spirometric criteria for COPD, he had only a marked reduction in DLCO (34%). Thoracic CT angiography was performed, which excluded pulmonary thromboembolism. In addition to moderate centrilobular and paraseptal emphysema with a higher predominance bilaterally, he had diffuse ground-glass micronodularity and mediastinal adenopathies. The echocardiogram documented right ventricular dilatation with significant impairment of function, PASP 50 mmHg. In the right catheterization the mean pulmonary artery pressure (mPAP) was 45 mmHg, capillary wedge pressure of 15 mmHg, cardiac output of 1.98 L/min/m^2, pulmonary vascular resistance was 8.5 uW and central venous saturation was 61%, thus concluding the diagnosis of precapillary PH. in less than

one month after diagnosis, he started long-term oxygen therapy because of marked desaturation in effort and hypoxemia at rest with rapid need for debt escalation. Since the beginning of September he had increased peripheral edemas. He started tadalafil and bosentan, under close supervision, along with a diuretic booster and was referred for lung transplant consultation. In this context, he was also referred for respiratory rehabilitation (RR) and started an outpatient RR program. This program proceeded to an intensive 3-week inpatient phase, after which it returned to the outpatient clinic until the date of transplantation in March/2022. The exercise program was based on aerobic training at 50% of the maximum load evaluated in cardiorespiratory stress test. He trained on a bicycle, treadmill, exercises with an arm ergometer and strength training. The evaluation of the RR program revealed an improvement in quality of life (CAMPHOR scale), functional capacity, muscle strength, dyspnea and impact on activities of daily living. He underwent a bipulmonary transplant under ECMO, uneventfully. The postoperative complications were primary graft dysfunction requiring oxygen therapy, surgically-solved iatrogenic right hemothorax, and tracheobronchial infection in the immunocompromised patient with non-resistant *Klebsiella pneumoniae*, improved after antibiotic therapy. He maintains immunosuppression with tacrolimus, mycophenolate mofetil and prednisolone, he also maintains treatments in the RR Unit. From the genetic investigation carried out by the NGS panel for PAH (Genomed, 2022) no pathogenic variant was found. The anatomopathological diagnosis of PVOD was confirmed.
Discussion: In a case of severe precapillary PH, PVOD should be considered given its poor prognosis and reduced response to vasodilator therapy, which may even be deleterious. Urgent referral for lung transplantation is mandatory. In this case, we highlight the optimization of the clinical condition obtained with the respiratory rehabilitation program with an intensive 3-week inpatient phase.

Keywords: *Pulmonary venooclusive disease (PVOD). Pulmonary hypertension. Pulmonary transplant. Respiratory rehabilitation.*

PC 053. PREVALENCE, INCIDENCE, AND FACTORS ASSOCIATED WITH CHRONIC COUGH: A SYSTEMATIC REVIEW AND META-ANALYSIS

T. Crespo, D. Moço, G. Rodrigues, A. Marques, A. Oliveira

University of Aveiro.

Introduction: Chronic cough (CC) is a common and disabling symptom, associated with physical and psychological effects that interfere with patients' daily activities. Previous studies showed that CC may be present in people without any underlying condition and that environmental and occupational factors increase the risk of developing CC. However, the prevalence and incidence of CC in the general population and in groups exposed to potential risk factors have been scarcely investigated. Objective: We aimed to study the prevalence and incidence of CC (productive and non-productive) in the general population and in people exposed to specific environmental (i.e., fumes, smoke, dust) or occupational (i.e., factories, farms, and mines) factors, which have shown to be associated with CC.
Methods: A systematic literature review was conducted (ref.: CRD42022298240) and searches were performed in CENTRAL, CINAHL Plus with Full Text, MEDLINE ALL, SCOPUS, and Web of Science. Studies were included if investigated adults with CC (>8 weeks) and reported on its prevalence/incidence or exposure to potential environmental and occupational factors. Two independent reviewers assessed the titles, abstracts and full-texts according to the eligibility criteria. Data on prevalence/incidence and exposure factors of CC were extracted. Evidence of publication bias was assessed with the Risk Of Bias In Non-randomized Studies – Exposures scale by two reviewers.
Results: Sixty studies were included, 59 reported on the prevalence, nine on the incidence and 46 on exposing factors related to CC. The prevalence of productive CC in the general population was 6.3% to 13.7% (n = 5) and of non-productive CC was 0.2% to 37% (n = 11). The incidence of productive CC was 6.9% (cumulative, n = 1) and of non-productive CC varied from 6.1-34.7% (cumulative, n = 2) to 38-67% (non-cumulative, n = 1). Studies reporting factors associated to CC showed a prevalence of productive CC of 3 to 51% in the exposed group and of 1% to 20.6% in the unexposed group (n = 8). Non-productive CC showed a prevalence of 1.3% to 65.4% in the exposed group and of 0% to 69.5% in the unexposed group (n = 21). The incidence of productive CC varied from 2.2% (non-cumulative) to 9% (cumulative) in the exposed group and 1% (non-cumulative) to 6.6% (cumulative) in the unexposed group (n = 1), whilst the incidence of non-productive CC ranged from 11.3% to 70% in the exposed and from 6.3% to 49.8% in the unexposed groups (cumulative, n = 4). Factors associated with higher prevalence and incidence of CC were dusts, gases or fumes, biological and mineral dust in occupational exposures and pesticides and smoke in environmental exposures.
Conclusions: Chronic cough affects up to 37% of the general population. People exposed to dusts, gases or fumes, biological and mineral dust, pesticides, and smoke seem to be the most affected by CC, especially non-productive cough. Addressing these factors seems of paramount importance in the treatment of people with CC.

Keywords: *Incidence. Prevalence. Chronic cough. Risk factors.*

PC 054. THE IMPORTANCE OF HYPERBARIC OXYGEN THERAPY IN THE TREATMENT OF GAS EMBOLISM

J. Arana Ribeiro, A. Teixeira, J. Menezes, S.H. Teles, J. Cardoso, G. Bernardo, P. Modas Daniel, C. Vaz Pereira, R. Araújo, D. Alpuim Costa, D. Cavalheiro, C. d'Espiney Amaro

Pulmonology Department, Unidade Local de Saúde da Guarda, EPE.

Introduction: Gas embolism is a rare and potentially fatal condition that results from the entry of air into circulation through direct communication with atmospheric air, favored by a pressure gradient. The most common causes are iatrogenic and include intravenous catheterization, radiologic procedures, bronchoscopy and positive pressure ventilation. In venous embolisms it is important to be alert for patients with left-to-right shunt, such as pulmonary arteriovenous malformations and patent foramen ovale, since the passage of air bubbles from the pulmonary circulation to the systemic circulation may occur with the inversion of the shunt.
Case reports: Case 1: A 51-year-old female, smoker (20 pack-year), with diagnosis of Rendu-Osler-Weber syndrome, presenting pulmonary arteriovenous malformations, having been submitted to percutaneous embolization. In the context of reassessment of pulmonary arteriovenous malformations, pulmonary computed tomography angiography scan (CTA scan) was performed. After performing the CTA scan, she presents paresthesia in the extremities of the upper limbs. She was eupneic with SpO2 > 95% on room air and was hemodynamically stable, with no changes in the neurological examination. CTA scan images showed gas bubbles in the left subclavian vein, pulmonary artery trunk, atrium and right ventricle. Iatrogenic Air Embolism was aged upon, probably related to contrast injection. She was placed in the Trendelenburg position and supplement oxygen was administrated using non-rebreather mask. She was referred to Hyperbaric Medicine Center for hyperbaric oxygen therapy. "Table 6" (Canadian Force Diving Manual: Hyperbaric Chamber – Operation and Treatment Procedures) was applied, with resolution of symptoms at 18 meters, without complications during compression and decompression or related to hyperoxia. Case 2: A 76-year-old female, hospitalized for decompensation of psychiatric pathology, presented with left chest pain radiating to the ipsilateral upper limb with about 16h of evolution. CTA scan showed gas bubbles in the pulmonary artery trunk. Iatrogenic Air Embolism was admitted, probably related to venous punctures. A transthoracic echocardio-

gram was performed, highlighting the presence of a patent foramen ovale. She was placed in the Trendelenburg position and supplement oxygen was administrated using non-rebreather mask. "Table 6" was applied with resolution of symptoms during treatment and without intercurrences.
Discussion: Gas embolism is a type 1 indication for hyperbaric oxygen therapy, according to the 10th European Consensus Conference on Hyperbaric Medicine. Hyperbaric oxygen therapy is a form of treatment that consists of inhaling an inspired fraction of 100% oxygen at a pressure above atmospheric pressure (table 6 - 2.8 bars), reaching an arterial oxygen pressure > 2,000 mmHg. By the Boyle-Mariotte Law, the size of gas bubbles in a liquid decrease with increasing pressure. On the other hand, the hyperoxia state creates a pressure gradient, favoring the displacement of nitrogen to the outside of the bubble, also contributing to the reduction of its size. Finally, the increase in arterial oxygen pressure improves the oxygenation of ischemic tissues by Henry's Law. Thus, gas embolism is a rare entity, often associated with iatrogenesis, to which early detection with timely referral to hyperbaric medicine centers is essential.

***Keywords**: Gas embolism. Hyperbaric oxygen therapy.*

PC 055. UNCOVERING CHRONIC THROMBOEMBOLISM IN AN ONCOLOGICAL PATIENT: THE ROLE OF DUAL-ENERGY CT ANGIOGRAPHY

A. Vital, E. Santana, M. Urbano, J. Veiga

Serviço de Radiologia, Centro Hospitalar Universitário Lisboa Central-Hospital Santo António dos Capuchos.

Introduction: Chronic thromboembolism can be detected using classical chest CT angiography, however, the dual energy (spectral) study offers a dynamic and volumetric assessment that is complementary to the morphological evaluation, visually represented in a color map. This feature is essential to increase the diagnostic accuracy in the detection of subsegmental and more tenuous filling defects (due to smaller clots) that occur in chronic thromboembolism.
Case report: We present the case of a 60 years old male patient, autonomous, with a past medical history of high risk stage II sigmoid colon adenocarcinoma that was submitted to left sigmoidectomy (Hartmann's surgery) and concomitant splenectomy. He also underwent adjuvant chemotherapy with Capecitabine. Other medical conditions included paroxysmal supraventricular tachycardia, obesity and renal lithiasis. Three months after the initial oncological diagnosis, due to occasional syncope and progressive fatigue, the patient was admitted in the emergency department and performed a chest CT angiography, which identified an acute pulmonary thromboembolism affecting the left pulmonary artery bifurcation and the superior and inferior left lobar segmental branches. On the right, subsegmental branches were affected, especially in the pulmonary base. There was no hemodynamic repercussion. In the light of such findings, the patient started anticoagulant treatment with apixaban. After 6 months of treatment, a revaluation chest angiography CT complemented with a dual energy (spectral) map was performed and an improvement in the permeability of the pulmonary vasculature was identified, as there were no endoluminal repletion defects, suggesting resolution of acute pulmonary thromboembolism. However, in the spectral study, some areas of hypoperfusion were detected in the right lower lobe and middle lobe, corresponding to areas of thinning of segmental arteries on CT angiography, suggesting chronic thromboembolism. The patient subsequently underwent cardiac catheterization, which excluded the concomitant presence of pulmonary hypertension. It is important to recognize the existence of chronic thromboembolism resulting from the non-dissolution of pre-existing clots, since it constitutes a risk factor for developing chronic thromboembolic pulmonary hypertension, that can ultimately lead to cor pulmonale. The worse prognosis of chronic thromboembolism when compared to acute thromboembolism requires a bigger diagnostic effort, with the dual energy study being a potential complement to the evaluation with classical CT angiography.
Discussion: The present case emphasizes the importance of recognizing chronic thromboembolism as a consequence of unresolved acute pulmonary embolism, with both therapeutic and prognostic implications. The interdisciplinary discussion with radiologists can help to assess the pertinence of complementing classical chest CT angiography with the dual energy study, depending on the clinical context for each patient.

***Keywords**: Chronic thromboembolism. Dual-energy CT angiography. Spectral.*

PC 056. SWYER-JAMES-MACLEOD SYNDROME: A RARE CONDITION

J. Vieira Naia, M.C. Silva, M.J. Pereira, J.F. Cruz, L. Ferreira, D. Pimenta, R. Pereira

Hospital de Braga.

Introduction: Swyer-James-MacLeod syndrome, also known as hyperlucent lung syndrome, is a rare condition (prevalence of 0.01%) characterized by a reduction in the pulmonary vasculature (resulting in pulmonary parenchyma hypoperfusion), with or without bronchiectasis. It is considered to be a postinfectious complication of bronchiolitis obliterans. The causative agents implicated in these infections include viruses (adenovirus, measles, respiratory syncytial virus, and influenza A) and bacteria (B. pertussis, *M. tuberculosis*, M. pneumoniae). Most patients are asymptomatic whereas some present recurrent lung infections or dyspnea on exertion, wheezes, cough, and pleuritic chest pain.
Case report: We present a 33-year-old man, a former smoker, with Wolff-Parkinson-White syndrome, usually medicated with ivabradine. He used to present recurrent pulmonary infections in childhood. The patient resorted to the emergency service due to epigastric pain and vomits. No signs of fever, thoracic pain, cough, dyspnea, or other changes. After the objective examination, no significant changes were detected. It was detected a left lower lobar hyperlucency and an absence of vascular web at this level in the thoracic radiograph. An upper abdominal computed tomography was performed with contemplation of thoracic sections: "decreased density of the parenchyma of the left lower lobe, which also presents vascular rarefaction and endobronchial filling and tubular bronchiectasis", assuming Swyer-James-MacLeod syndrome as the most likely hypothesis. The patient was referred for a medical appointment in the pneumology department.
Discussion: The diagnosis of this condition is based on the radiological pattern of unilateral lobar or pulmonary transparency, air trapping, and decreased unilateral vascularization on thoracic computed tomography. Treatment is generally conservative, but pneumonectomy may be considered in patients with severe bronchiectasis complicated by recurrent infections. Complications include recurrent bronchiectasis infections, lung abscesses, and spontaneous pneumothorax. This case is presented since it is a rare condition and to warn that chest radiography may sometimes underestimate its real prevalence.

***Keywords**: Swyer-James-Macleod syndrome. Respiratory infections. Bronchiectasis.*

PC 057. IMAGIOLOGICAL EVOLUTION OF HYPERSENSITIVITY PNEUMONITIS SECONDARY TO PEMBROLIZUMAB

M. Vasques Osório, M. Pereira, R. Fernandes, F. Rodrigues

Hospital Prof Dr Fernando Fonseca.

Introduction: Immunotherapy, including anti PD-1, is one of the therapeutic weapons against lung cancer. Systemic toxicities as-

sociated with its use have been commonly described, including pneumonitis, reported in about 3 to 5% of patients with NSCLC undergoing immunotherapy. Its diagnosis is based on imaging evaluation, correlated with the respiratory clinic and the temporal relationship with the beginning of therapy, although variable, in addition to the exclusion of infection, PTE and disease progression. Radiologically corresponds to patterns of cryptogenic organizing pneumonia, NSIP, hypersensitivity pneumonia, ground glass areas, and pneumonitis not otherwise specified. Classically, hypersensitivity pneumonitis is described as diffuse or centrilobular reticular or micronodular opacities predominantly in the upper and middle lobes. Temporary or permanent avoidance of immunotherapy associated with steroid therapy in symptomatic cases or with moderate to severe lung parenchymal impairment is the basis of its treatment.
Case report: The case depicts a man, 66 years old, 51 TPY, with a recent diagnosis (06/15/2021) of lung adenocarcinoma, located in the IRL, TNM: c T1b pN2 cM1c and, therefore, in stage IV-c. Of the remaining study, PD-L1 > 50% and mutated KRAS, having started 1st-line therapy with Pembrolizumab on 08/23/2021. He performed 13 cycles of therapy, with a pause due to liver toxicity associated with immunotherapy and, on 04/2022, performs a new chest CT with evidence of disease progression, so he maintained therapy, awaiting a therapeutic decision meeting in July/2022. However, on 07/19/2022, he went to the ER due to a condition of sensory disturbance in a stocking and glove pattern associated with tetraparesis of proximal predominance, causing incapacity to walk associated with dyspnea, conditioning IRG with the need for NIV. In the context of probable Guillian Barré Syndrome, he begins therapy with IV human immunoglobulin and is admitted to the non-invasive ventilation unit, signaled to the PICU. On 07/21/2022, he performed a chest CT which revealed "identical aspects of the tumor mass, contralateral mediastinal and hilar adenopathies" and bone metastases (costal, vertebral and sacral) in relation to previous exams. However, in the lung parenchyma, "peribronchovascular densification of the upper lobes and with distortion of the parenchyma architecture and images of bronchiectasis associated with other ground-glass areas, namely in the upper and lower right lobes, which reflect probable processes of fibrosis/ground glass, in the context of toxicity by systemic therapy". Thus, the diagnosis of hypersensitivity pneumonitis secondary to pembrolizumab was assumed. After finishing IV human immunoglobulin, the patient starts corticotherapy 1 mg/kg, with methylprednisolone 40 mg/day. On 8/1/2022, a reassessment CT of the chest was performed after 7 days of corticosteroid therapy, which showed "a considerable decrease in the areas of densification of the lung parenchyma with an alveolar pattern, although in the same locations some architectural distortion with traction bronchiectasis and some areas of accentuation of the pulmonary interstitium, but which evolutionarily present favorable characteristics" corroborating the diagnostic hypothesis. The patient is still hospitalized, undergoing weaning from ventilation and oxygen therapy, still under systemic corticosteroid therapy, which should be maintained for at least 4 weeks with the respective slow weaning.

Keywords: *Hypersensitivity pneumonia. Pembrolizumab. Imagiology.*

PC 058. PULMONARY ARTERIOVENOUS MALFORMATION: TREATMENTS APPROACHES

I. Carvalho, M. Serino, R. Boaventura

Centro Hospitalar e Universitário de São joão.

Introduction: Pulmonary arteriovenous malformations (PAVMs) are direct communications between the branches of pulmonary arteries and veins, without an intervening pulmonary vessel. Females are affected twice as often as males. About 40% of patients are asymptomatic, while the remaining can manifest with dyspnea, hemoptysis or neurologic symptoms such as embolic stroke or brain abscess. The endovascular approach is the gold standard, with about 98% success rate. Surgical approaches include wedge resection, segmentectomy, lobectomy, and pneumonectomy, remaining the preferable approach in patients not eligible for endovascular embolization.
Case reports: The authors present 2 case reports of PAVMs which represent different treatment approaches: the first was a case of 54-year-old female with Osler-Rendu-Weber diagnosis and an arterio-venous shunt who presented with embolic stroke. She had a PAVM with a feeding artery diameter (FAD) of 8,5 mm and went through treatment with embolization. The second, was a case of a 57-year-old female, asymptomatic, previous history of SARS-CoV-2 infection and incidental diagnosis of a PAVM with a 3,6 mm FAD which was treated with pulmonary lobectomy. Although the endovascular approach remains the gold standard in most of PAVMs, surgery might be an option, especially in most distal and small lesions.
Discussion: The authors would like to review the imaging findings of the presented cases and discuss the criteria for different treatment approaches for PAMVs as well the risk of complications implied in each treatment.

Keywords: *Pulmonary arteriovenous malformations. Lung.*

PC 059. PULMONARY ARTERIOVENOUS MALFORMATION: CASE REPORT

P. Fernandes, J. Paulo Silva, M. Argel, S. Guerra, R. Ferro, R. Nunes

CHTV.

Introduction: Arteriovenous malformations constitute communications between pulmonary arteries and veins (MAV). They occur more frequently in females, between the ages of 30-40. The etiology is variable, being more frequently in hereditary hemorrhagic telangiectasia (THH) and also in cases of liver cirrhosis. It is clinically manifested by platypnea, orthodeoxia, epistaxis, hemoptysis and telangiectasia and is associated with multiple important embolic and infectious complications.
Case report: The authors present the clinical case of a 59-year-old female patient, with a history of peripheral desaturation, which was detected in the perioperative period 4 years earlier. She reported exertional dyspnea mMRC 2, and morning cough with mucoid sputum. She denied platypnea, epistaxis, telangiectasias, hemoptysis or other complaints. Physical examination revealed obesity (BMI 38) and auscultation with a global decrease in breath sounds. Arterial blood gas in room air presented partial respiratory failure. She performed a Chest- CT- which revealed a 3 × 4 cm mass on the contrast-enhanced right upper lobe, apparently with an afferent and an efferent vessel, compatible with MAV. The transthoracic echocardiogram was inconclusive due to the patient's biotype and the transesophageal echocardiogram revealed an important right-left shunt suggestive of being extracardiac, therefore compatible with the clinical suspicion of AV fistula in the pulmonary circulation. The patient underwent selective embolization of the afferent artery by interventional radiology with resolution of desaturation and dyspnea on exertion. She subsequently performed a 6-minute walk test with no evidence of desaturation or dyspnea. Keeps follow-up in consultation.
Discussion: The patient has an MAV of unknown etiology, fulfills only one Curaçao criterion for THH and has no liver disease. She underwent successful selective embolic therapy and remains under follow-up given the relapse rate.

Keywords: *Pulmonary arteriovenous malformation. Dyspnea.*

PC 060. BILATERAL PULMONARY NODULES – A RARE MANIFESTATION OF CHRON'S DISEASE

A. Fabiano, L. Santos, F. Rodrigues

Hospital Professor Doutor Fernando Fonseca.

Introduction: Chronic of Chron is an autoimmune, idiopathic disease with primary involvement of the gastrointestinal tract. The disease can have extra-intestinal manifestations, although the probability and prevalence of pulmonary involvement is variable in the literature, it is estimated to be less than 0.4%. Pulmonary manifestations are known but can be considered as airways and lung parenchyma.
Case report: We present the case of a 26-year-old male patient with a history of well-controlled allergic asthma. Due to a clinical picture with about 7 years of evolution of colicky abdominal pain, sensation of incomplete evacuation, diarrhea and hematochezia, a colonoscopy was performed which showed ileal mucosa with multiple small nodules, suggestive of lymphoid nodular hyperplasia - biopsy of this region with inflammatory changes chronic diseases corresponding to non-specific chronic ileitis, without evidence of alcohol-acid-resistant bacilli, so the diagnosis of Chron's Disease was admitted. He is hospitalized for a month of evolution of arthralgias with an inflammatory rhythm with morning stiffness and functional impotence, fever, anorexia, weight loss, marked asthenia and the appearance of painful nodular lesions on the anterior face of the legs. On observation, he was in good general condition, without palpable adenopathies, but with several nodular lesions on the legs suggestive of erythema nodosum. Analytically, normocytic and normochromic anemine (Hb 12 g/dL), SV 72, CRP 17 mg/dL, negative extended autoimmunity. Chest radiograph with evidence of a doubtful nodule in the middle third of the right lung field. Chest CT revealed multiple scattered nodules, with random distribution, without associated cavitation, the largest with 2 cm located in the middle lobe, without adenomegaly. Bronchoscopy was performed with bronchoalveolar lavage at the level of the middle lobe, whose differential cell count showed lymphocytosis of 26% and a CD4/CD8 ratio of 2.4. It was decided to proceed to transthoracic biopsy of the larger nodule and histology revealed non-necrotizing granulomatous inflammation. After a multidisciplinary discussion, the diagnosis of Chron's disease with pulmonary involvement was admitted, and therefore, pulsed corticosteroid therapy was started, methylprednisolone 125 mg for 3 days, and then prednisolone with progressive dose weaning. There was resolution of asthenia, fever and normalization of inflammatory parameters. Chest CT was repeated after 3 months of treatment, with disappearance of all pulmonary nodules.
Discussion: In this case, the rare pulmonary involvement by Chron's Disease in the form of multiple pulmonary nodules is reported. The previously established diagnosis of Chron's Disease facilitated the investigation and management of pulmonary nodules, although in some reported cases the pulmonary manifestations may precede the intestinal manifestations. This case highlights the importance of considering inflammatory bowel diseases as a possible cause of pulmonary pathology, in the appropriate clinical context.

Keywords: *Chron's disease. Pulmonary nodules.*

PC 061. THE DIAGNOSTIC CHALLENGE IN PULMONARY HYPERTENSION – CLINICAL CASE

M.V. Matias, A,C, Vieira, D, Repolho, F, Ferreira, S, Alegria

Centro Hospitalar Lisboa Ocidental.

Introduction: Pulmonary hypertension associated with respiratory diseases (group 3) is more common at advanced ages and is usually mild or moderate, with mean pulmonary artery pressure (mPAP) values of 20 to 35 mmHg; the severity of pulmonary hypertension appears to correlate with severity of the underlying lung disease. Severe pulmonary hypertension is more typical in group 1. We present a case of a patient with pulmonary hypertension of undefined etiology.
Case report: Male patient, 44 years old, BMI 17. Former smoker (25 pack/year) with previous consumption of cannabinoids and hepatitis C. The patient was referred to Cardiology by primary health care due to fatigue (WHO functional class III), he has already an echocardiogram that revealed moderate insufficiency of the tricuspid valve, PASP 61 mmHg, dilated right atrium and right ventricle. He was admitted as an inpatient for etiological investigation and risk stratification of pulmonary hypertension. He underwent CT angiography, which showed an increase in the caliber of the pulmonary arteries, severe centrilobular pulmonary emphysema but no pulmonary thromboembolism. He also underwent a respiratory functional study with obstruction of the small airways and severe decrease in DLCO 49% and KCO 47%; 6-minute walking test: 300 m (50% of predicted) and significant decrease in O2 saturation (100-91%). Analytically highlighted NT-proBNP 930 pg/mL and HCV RNA 230,436 copies, genotype 1a, normal a1 antitrypsin assay. He underwent left catheterization with right dominance and right catheterization that was compatible with precapillary pulmonary hypertension (mPAP 46 mmHg, PCWP 6 mmHg, RVP 13 uWood) with an intermediate severity criterion (cardiac index 3.4 L/min/m^2). The case was discussed in a team meeting, and it was assumed that it would be a case of pulmonary hypertension, probably of group 3 due to severe emphysema, however it was not possible to exclude a concomitant cause of group 1. The patient was discharged medicated with an inhaled combination LABA/LAMA and diuretic therapy with improvement of the functional class to II. During the follow-up, an abdominal ultrasound with doppler study was performed without relevant changes; V/Q scintigraphy without evidence of thromboembolism and a cardiorespiratory exercise test with maximal effort criteria, peak VO2 16.2 ml/Kg/min (34% of predicted), ventilation class IV, VE/VCO2 slope 58.2 - test limited by vascular disease lung with severe functional impairment, the patient has not depleted the respiratory reserve. The case was discussed again as a team and given the severity of the pulmonary hypertension, it was decided to initiate dual vasodilator therapy with tadalafil and macitentan.
Discussion: The authors present the case due to the disproportionate severity between pulmonary hypertension and pulmonary disease, which should raise the suspicion of the contribution of an alternative etiology, namely group 1. In this case, the cardiorespiratory stress test supports the presence of another etiology by respiratory reserve has not been depleted. For the diagnosis of pulmonary hypertension in group 3, right catheterization is sometimes not required, and these patients are not eligible for therapy aimed at pulmonary hypertension. However, in these dubious cases, patients should undergo a thorough investigation to exclude other causes of pulmonary hypertension and consider specific therapy.

Keywords: *Pulmonary hypertension. Etiology.*

PC 062. PULMONARY CEMENT THROMBOEMBOLISM, A FORGOTTEN ENTITY

J. Marques Diogo, T. Saldanha, C. Saraiva

Serviço de Pneumologia, Hospital Nossa Senhora do Rosário-Centro Hospitalar Barreiro-Montijo.

Introduction: Pulmonary Cement Thromboembolism (PCE) is a rare complication of vertebroplasties in the treatment of vertebral fractures. Although most patients with PCE are asymptomatic, symptoms such as chest pain, tachycardia, signs of severe respiratory distress and death may appear in the most severe cases. Computed Tomography angiography (Angio-CT) allows visualization of the cement within the pulmonary blood vessels. Despite the well-established risk of PCE, the clinical approach is unclear, with limited evidence on treatment options, which include anticoagulation and embolectomy.

Case report: We present the clinical case of a 70-year-old male, born in Mozambique, retired. With a known history of multifocal low urothelial carcinoma with bone and left iliac lymph node metastasis under systemic therapy, being followed-up in the medical oncology consultation, and status-post vertebroplasty D11 and L1 due to vertebral fracture. Ex-smoker of 86 pack-years. No other relevant history. The patient referred to the oncology follow-up visit. Objectively, the patient was reasonably ruddy and hydrated, ECOG-PS1, with generalized pain complaints, hemodynamically stable, eupneic at rest, without signs of respiratory distress, normotensive, heart rate within normal limits, and apyretic. Cardiac and pulmonary auscultation were unaltered. The patient walked with the support of crutches, without edema in the lower limbs. The chest X-ray revealed high density branched images at the right lung base and adjacent to the right hilum, signs of vertebroplasty at D11 and L1 and large expansible lesions with bone destruction in the left costal arches. Thoracic CT confirmed the existence of high density linear structures compatible with surgical cement in the lumen of the arteries in the right upper, segmental and lower lobes and lumbar vertebral vasculature. It also confirmed the existence of voluminous high-density costal metastases.
Discussion: Pulmonary Cement Thromboembolism (PCE) is a rare and underdetected entity due to its asymptomatic nature in most cases. With a large proportion of patients presenting no symptoms, some clinicians recommend routine chest radiography after vertebroplasty. Symptomatic PCE cases are less frequent and their approach remains controversial, but anticoagulation is the therapy of choice.

Keywords: *Pulmonary cement thromboembolism. Dyspnea. Vertebroplasty. Anticoagulation.*

PC 065. MEDIASTINAL LYMPHADENOPATHY – RENAL CARCINOMA RECURRENCE 15 YEARS AFTER NEPHRECTOMY

M. Alves, S. André, F. Nogueira

Serviço de Pneumologia, Centro Hospitalar de Lisboa Ocidental.

Introduction: Renal cell carcinoma, originating from epithelial tissue, is the most common type of kidney cancer, accounting for 85% of all kidney cancers and its incidence has been increasing. Renal carcinoma can metastasize to any organ, including lymph nodes, and can occur many years after nephrectomy. We present the case of a patient with a history of a renal cancer, with nephrectomy 15 years ago, who presented now with thoracic lymph node metastasis.
Case report: 68 years old man, retired of a chemical company but without exposure to it. History of right nephrectomy in 2007 for Grawitz tumor and Prostatic nodule under study. A thoracic-abdominal-pelvic CT was performed (8/2021): "centrilobular micronodules with a "tree-in-bud" distribution in the middle lobe, suggestive of an infectious process in an early stage. Moreover, some linear densities are observed, predominating in the bases, in relation to subsegmental atelectasis. (...) several mediastinal lymphadenopathies and one hilar noted: retrotracheal with 12 × 18 mm and with 21 × 20 mm (with necrotic center), inferior paratracheal with 32 × 25 mm and right hilar with 17 × 17 mm". He maintained surveillance in pulmonology and repeated chest CT (12/2021) with evidence of persistence of mediastinal lymph nodes, with dimensional increase. In retrotracheal 21 × 20 mm and in more superior topography currently with 20 × 12 mm, anhilar adenopathy with 20 × 19 mm. In right paratracheal position adenopathic conglomerate with 10 × 25 mm. During this period, prostatic adenocarcinoma was diagnosed. For this motive and given the dimensional increase in mediastinal lymph nodes, endobronchial echoendoscopy (EBUS) was performed on May/2022: "multiple suspected lymph nodes stations were identified 7 (10 × 10.7 mm), 11RS (20.6 × 13.6 mm), 10R (9.5 × 9.1 mm), 4R (16.9 × 13.3 mm), 2R (25 × 23.1 mm). A needle aspiration biopsy (19G) was performed in 4R, 2R and 11RS, which was positive for neoplastic cells, compatible with lymph node involvement by Adenocarcinoma. The immunohistochemical pattern was suggestive of primary renal origin. PET-CT in July/2022 showed right supraclavicular and mediastinal lymph nodes hypermetabolism, which does not exclude malignancy, and a focal aspect in the anterolateral wall of the LV – variant of normality? ischemia? Malignancy? No other evidence of malignancy was seen.
Discussion: Renal cell carcinoma frequently metastasizes, with 18% of patients presenting with metastases at diagnosis and 50% of patients developing metastases following surgical nephrectomy. Although most metastases appear in the first few years after nephrectomy, in 11% of patients there may be a late recurrence. In the case of our patient 15 years after nephrectomy. It is also known that in patients with renal cell carcinoma the presence of lymph node involvement doubles the risk of distant metastasis and significantly reduces their 5-year survival. The question we can ask with this case is when to suspect of metastasis in a patient with such a long history of cure?

Keywords: *Lymphadenopathy. Renal cancer. Recurrence.*

PC 066. PARAGANGLIOMA OF THE ANTERIOR MEDIASTINUM: A CASE REPORT

P. Monteiro de Castro, J. Rei, C. Araújo Silva, M. Guerra, J. Miranda

CHVNG/E.

Introduction: Mediastinal paraganglioms are rare, highly vascularized neuroendocrine tumors arising from chromaffin tissue located in the para-aortic ganglia. Although being low-grade tumors, local infiltration and distant metastases can lead to an aggressive behaviour. Presenting symptoms are related to catecholamine hypersecretion or to a mass effect. Complete surgical resection remains the standard of care. Strategic location of the tumor in proximity to great vessels, trachea, and recurrent laryngeal nerve poses challenge for surgical approach.
Case report: We report a case of a non-smoker 44-year old female who presented with unspecific cough and dyspnea one month after asymptomatic SARS-CoV-2 infection. Conversely, she had also mucopurulent sputum and sensation of dyspnea in the supine position. Imaging diagnosis was based on chest computerized tomography (CT) and magnetic resonance imaging (MRI) scan showing a bulky mediastinal mass with 13 × 12 × 8 cm, compressing virtually the entire lumen of the left main bronchus. With no previous histological diagnosis, we attempt surgical biopsy of the mass through videomediastinoscopy, which was unsuccessful. Through a Chamberlain Procedure we were able to obtain satisfactory material for histological diagnosis of a mediastinal paraganglioma. However, during the procedure there was a massive hemorrhage of the tumor, approximately three liters, with consequent hemodynamic instability. Nevertheless, postoperative course was uneventful.
Discussion: Mediastinal paragangliomas are rare tumors. Surgical resection is the treatment of choice and careful intraoperative manipulation is recommended, due to the high vascularity of these tumors. After complete excision, long-term prognosis is generally good. However, even after surgical removal, a close, periodical and life-long follow-up is mandatory.

Keywords: *Paragangliomas. Lung. Mediastinum. Diagnosis. Surgical treatment.*

PC 067. FOLLICULAR BRONCHIOLITIS - A DIAGNOSTIC CHALLENGE

J. Cunha Silva

Serviço de Pneumologia, Hospital Garcia de Orta.

Introduction: Follicular bronchiolitis (FB) was first described in 1973 by Bienenstock. It is a rare bronchiolar disease associated with

hyperplasia of bronchus-associated lymphoid tissue (BALT). FB is often associated with connective tissue diseases such as rheumatoid arthritis or Sjogren's Syndrome, immunodeficiencies, interstitial lung disease (ILD), and inflammatory airway diseases. Some characteristic findings on chest CT are described, such as small centrilobular ground-glass nodules especially in lower lobes (LL) that may be associated with peribronchial nodules. The diagnosis is difficult and should be confirmed histologically,

Case report: Female patient, 72 years old, Caucasian. Her previous relevant personal history includes pleurisy at the age of 20, arterial hypertension, dyslipidemia and intense osteoarticular pain. She was followed-up in a Pulmonology consultation in 2018 due to changes in chest CT, which revealed "nodular formations in both lung fields". From that time on, she maintained surveillance of the nodules through clinical and imaging evaluation. Until 2019 the clinical situation remained apparently stable, however, in the chest CT performed in 2020 new findings were found: "subpleural nodule located right lower lung (RLL) with 12 mm, appearance of surrounding ground glass densification, small nodules and micronodules coexist, some centrilobular", so he subsequently performed a PET-CT that did not allow to exclude malignancy, which is why she performed two Trans-thoracic Aspiration Biopsy (BATT), both without diagnosis. From the respiratory point of view, the patient presented only intermittent coughing periods, and the main symptoms were of osteoarticular nature. Analytically, a sedimentation rate of 50mm/h was noted and from the autoimmunity study performed, the Rheumatoid Factor was 105 IU/ml, and anti-citrulline peptide antibodies were negative. Due to the changing characteristics of the nodule and the absence of a diagnosis despite two biopsies, we decided to discuss the case at the Multidisciplinary Oncological Pulmonology Consultation, where surgical resection was proposed. The patient underwent an atypical resection of the right lower lobe (RLL) and the histological result of the material revealed "lung parenchyma with multiple peribronchiolar lymphoid nodules and diffuse interstice, suggestive of follicular bronchiolitis". Currently, the patient remains under surveillance in the Pulmonology Consultation, having been referred to the Rheumatology Consultation.

Discussion: This case emphasizes the importance of the medical team's persistence in establishing the diagnosis of a given pathology, through the use of different approaches, also highlighting the beneficial role that multidisciplinary consultations can have in this attempt to establish a correct diagnosis as early as possible. However, there are still no guidelines for the treatment of idiopathic FB, so that the treatment of the underlying condition remains the basis of secondary FB, and it is also important to identify its etiology. FB is a real challenge, both in its diagnosis and in the follow-up of these patients.

Keywords: *Follicular bronchiolitis. Lymphoid hyperplasia.*

PC 068. CLINICAL EXPERIENCE WITH BIOLOGIC TREATMENT FOR DIFFICULT-TO-TREAT ASTHMA AND RECURRENT NASAL POLYPOSIS

M.I. Pereira, A. Sokolova, C. Pardal, F. Rodrigues

Serviço de Pneumologia, Hospital Prof. Doutor Fernando Fonseca, EPE.

Introduction: Comorbidities such as chronic rhinosinusitis with nasal polyposis (CRSwNP) impair quality of life of asthma patients and can complicate asthma management. This issue is particularly important when first line therapy for CRSwNP fails and polyps recur after surgery. Biologic treatment should be considered. In Portugal, such drugs have been used for less than two decades. We present the first five patients in our hospital who initiated biologic treatment for difficult-to-treat asthma and recurrent CRSwNP.

Case reports: Case 1: female, 46 years old, with diagnosis of eosinophilic asthma, underwent endoscopic sinus surgery (ESS) four times. She initiated Mepolizumab in 2018. After 16 months, she still presented with exacerbations requiring systemic corticotherapy. It was decided to switch to Benralizumab in 2019. After one year, there was an improvement in asthma and CRSwNP (ACT 24, SNOT 22 = 33). After two years, nasal polyps recurred and surgery was recommended which the patient declined. Currently, after three years, asthma is controlled despite subjective only mild response to therapy regarding CRSwNP (ACT 24, SNOT 22 = 50). Case 2: male, 66 years old, with diagnosis of allergic and eosinophilic asthma, underwent ESS once with recurrence of nasal polyps. Previously treated with Omalizumab (2009-2011) which was suspended due to an adverse reaction. He initiated Mepolizumab in 2018. After eight months, there was an improvement in asthma (ACT 23), but no subjective response to therapy regarding CRSwNP. He underwent surgery again in 2019. Currently, both asthma and CRSwNP are controlled (ACT 24, CARAT 10+18 = 28). Case 3: male, 39 years old, with diagnosis of allergic and eosinophilic asthma, underwent ESS twice. He initiated Mepolizumab in 2020. After one year, there was an improvement in asthma and CRSwNP (ACT 20, CARAT 8+14 = 22). However, two years later, both conditions have worsened (ACT 17, CARAT 4+10 = 14). Case 4: male, 54 years old, with diagnosis of allergic and eosinophilic asthma, underwent ESS once with recurrence of nasal polyps. He initiated Benralizumab in 2021. After nine months, there was an improvement in asthma (ACT 24), but no subjective response to therapy regarding CRSwNP (SNOT 22 = 67, equal to prior to Benrazilumab). Case 5: female, 69 years old, with diagnosis of eosinophilic asthma, underwent ESS twice with recurrence of nasal polyps. She initiated Benralizumab in 2021. After five months, there was an improvement in asthma and CRSwNP (ACT 22, SNOT 22 = 25).

Discussion: CRSwNP is a common comorbidity in asthma patients with significant impact on quality of life. In our small sample, biologic treatment response was heterogeneous. Some patients experienced full response (Cases 2 and 5) and others partial response (Cases 1 and 4). Initial improvement was not sustained over time in one patient (Case 3). All our patients underwent ESS before initiating biologic treatment. Reflecting upon ideal timing for biologic treatment, according to our sample, it is not clear if initiating biologic treatment shortly after surgery (Cases 1, 3) would be a better approach than initiating it only after nasal polyps recurrence after surgery (Cases 2, 4, 5).

Keywords: *Difficult-To-Treat Asthma. Nasal polyps. Biologic treatment.*

PC 069. SEVERE ASTHMA – THE FUTURE ON BIOLOGICAL THERAPY SELF-ADMINISTRATION

G. Santos, S. Morgado, A. Mendes, E. Pedro

Hospital Garcia de Orta.

Introduction: The treatment of severe asthma has become increasingly a challenge given the diversification of therapies with monoclonal antibodies. The safety and efficacy of this treatment has allowed the transition to self-administration regimens, avoiding the periodic displacement of the patient to the hospital.

Objectives: We intend to assess the impact of exacerbations in this population among patients on biological therapy administered in the hospital (group 1) and with self-administration (group 2).

Methods: We performed a retrospective and observational study in patients with severe asthma under biological therapy. Data were obtained through the clinical processes from consultation until June 2022.

Results: We selected 59 patients (mepolizumab (n = 22) and omalizumab (n = 37)), 79.7% (n = 47) were female and had a mean age of 52 years. The main co-morbidities were rhinitis, sinusitis, arterial hypertension, dyslipidemia and diabetes. Thirty-six patients had COVID-19 infection (52.8% (n = 19) under self-administration), without

serious complications. There were no adverse effects from self-administration, after teaching the technique in outpatient hospital. The mean number of exacerbations among patients on self-administration and hospital administration is not significant ($p > 0.05$). Total IgE and eosinophil count at diagnosis were not significantly different between the exacerbating and non-exacerbating groups ($p > 0.05$).
Conclusions: Although patients under self-administration have less hospital supervision, with a lower number of hospital visits, there is no increase in the number of exacerbations, so we can state that self-administration is effective in controlling exacerbations in patients with severe asthma.

Keywords: *Severe asthma. Self-administration. Compliance. Biological therapy.*

PC 070. OBESITY AND SEVERE ASTHMA – A REAL-LIFE DATA

C. Rôlo Silvestre, R. Cordeiro, L. Mateus, M.J. Cavaco, A. Nunes, N. André, A. Domingos

Serviço de Pneumologia, Centro Hospitalar do Oeste, Torres Vedras.

Introduction: Obesity is a relevant comorbidity in patients with asthma.
Objectives: Characterize the patients with severe asthma and obesity.
Methods: Observational, retrospective, and descriptive study of patients followed in a Respiratory Allergology Consultation (2014 to 2022). Data were collected from the clinical files. We consider obesity when the body mass index (BMI) is ≥ 30 Kg/m^2. We performed statistical analysis using SPSS v.23.
Results: Our study sample had 37 patients, we found that 51.4% (n = 19) were obese, with a median BMI of 32 kg/m^2 (IQR 4.8). Regarding the degree of obesity, the majority had grade I obesity (n = 13). About 73.7% of patients were female (n = 14), and the median BMI of women (Mdn = 32.35; IQR 7.98) did not differ significantly from that of men (Mdn = 32.00; IQR 3.91) ($p = 0.313$). We identified that 52.6% (n = 10) of the patients had the diagnosis of asthma established in adulthood (≥ 18 years) and started therapy with biologics with a mean age of 56.3 years (± 2.20). The mean age at initiation of biologics in obese patients ($\chi = 56.26$, SD = 9.61) is statistically different from non-obese patients ($\chi = 43.17$, SD = 17.15) ($p = 0.007$). There was no statistically significant difference between age at treatment initiation and sex. The most frequent comorbidities found in our obese patients were hypertension (n = 14; 73.7%), allergic rhinitis (n = 11; 57.9%), gastroesophageal reflux (n = 7; 36.8%), diabetes mellitus (n = 6; 31, 6%) and nasal polyposis (n = 6; 31.6%). We identified a positive, statistically significant, and strong correlation between ($r = 0.589$; $p = 0.001$) BMI and the number of comorbidities. There was no association between functional respiratory changes and BMI ($p = 0.172$). We identified that 52.6% (n = 10) of obese had an obstructive pattern in spirometry, and three patients had severe obstruction.
Conclusions: More than half of the patients with severe asthma analyzed were obese. Obesity was associated with morbidity. We found that obese patients start biological therapy later, which may indicate a later worsening of asthma.

Keywords: *Asthma. Severe asthma. Obesity.*

PC 071. OMALIZUMAB HOME ADMINISTRATION IN ASTHMA: A CENTRAL HOSPITAL EXPERIENCE

M. Inês D. Cerca B. Tolentino D. Silva, A. Mendes, A. Bernardino, C. Costa, E. Gregorio, E. Pedro

Serviço de Imunoalergologia, Centro Hospitalar Universitário Lisboa Norte.

Introduction: Omalizumab is indicated in severe allergic asthma. Home administration by the patient or caregiver is possible since 2019. The study aimed to evaluate asthma control, safety, advantages/disadvantages perceived by patients and cost reduction in patients who switched omalizumab to home administration.
Methods: Retrospective observational study with clinical-demographic evaluation and application of a survey featuring the advantages, disadvantages, costs and adverse reactions of omalizumab home administration. Clinical evaluation was performed in T0: last hospital administration and T1: home administration > 12 weeks, by Asthma Control Test (ACT), Control of Allergic Rhinitis and Asthma Test (CARAT) and mini-Asthma Quality of Life Questionnaire (mAQLQ).
Results: 20 patients were included: mean age 39.7 ± 14 years old, 80% female, 52.6% with university education and 73.7% active workers. Mean dose of omalizumab on hospital administration was 393.8 ± 170.1 mg every 3.5 ± 1.3 weeks for 5 ± 3.7 years. Before home administration, 73.7% patients went to hospital administration by own transportation, taking 36.6 ± 40 minutes/travel, with costs 10€/travel in 50%, staying in the hospital for 66 ± 16 minutes. 21% reported labor absenteeism > 12 days/year. At the time of the survey, all patients had > 3 home administrations and in 84% they were the ones themselves administering omalizumab; 79% reported equal pain intensity, 10.5% higher pain and 10.5% lower pain compared to hospital administration. Thighs and abdomen were the home administration body parts preferred in 78.9%. Three patients reported ecchymoses in the first home administration, one causing change in the administration local. No severe adverse reactions were reported. Regarding asthma control, no patient needed systemic corticosteroid therapy, nor were there any exacerbations since home administration beginning; only 1 patient reduced the interval from 3 to 2 weeks. There were no significant differences in ACT, CARAT and mAQLQ scores between T0 and T1, proving asthma control. All patients considered the home administration to be advantageous, mainly due to the shorter time spent, fewer trips to the hospital and greater schedule flexibility in the self-administration of omalizumab. The vast majority (85%) considered it a simple and practical procedure. The instructions of the nursing team and the possibility of practicing at the hospital before going home were determining factors in 74% and only 20% reported concerns about home administration, mainly with product handling. 45% of patients proposed simplification of omalizumab delivery process bureaucracy.
Conclusions: Omalizumab home administration allowed to maintain asthma control, evident in clinical scores, without serious adverse reactions. Globally, patients consider it as an advantage due to shorter time spent and reduced visits to the hospital, particularly in the current pandemic situation. Omalizumab home administration in patients with severe allergic asthma is a safer and cost effective option.

Keywords: *Severe allergic asthma. Omalizumab. Self-administration.*

PC 072. BENRALIZUMAB - SANTA MARTA'S HOSPITAL EXPERIENCE

R. Gerardo, F. Duarte-Ramos, J. Oliveira Rodrigues, M. Emiliano

Pulmonology department, Santa Marta's Hospital, Centro Hospitalar Universitário de Lisboa Central.

Patients with severe/difficult to treat asthma, although in lower number, are responsible for the greatest health care system burden when compared with patients with mild or moderate asthma. In the last years there have been new drugs with the potential to treat and control symptoms of these group of patients, like monoclonal antibodies such as benralizumab. This study intends to characterize patients with severe asthma under benralizumab treatment as well as their clinical responses in the Santa Marta's Hospital, Centro Hospitalar e Universistário de Lisboa Central. It's a retrospective study which evaluated general and clinical characteristics, efficacy and security of all patients under benralizumab treatment since its beginning in Santa Marta's hospital. It included 8 patients, 7 of

which are still receiving benralizumab and 1 abandoned after 1 year of therapy. Most of the patients were female (75%, n = 6/8) with mean age of 49,8 years old (min = 33; max = 64 yo). All patients presented with high blood eosinophil count – superior or equal to 350 cells/μL (mean = 793,8 cel/μl [370-1,580]). Total IgE varied between 37 and 1443 UI/L (mean = 293,5 UI/L). Half of the patients had chronic rinossinusitis w/wo nasal poliposis and, most of the patients, were taking daily oral corticosteroids in doses ranging between 2,5 and 20 mg of prednisolone per day. The first patients started benralizumab treatment in December of 2019 and the most recent one started in April of 2022. The average time of therapy is 16,8 months (min = 3; max = 32 months). Three of the eight patients (37,5%) received therapy switch from other biological treatment: 2 were previously taking omalizumab and 1 was taking mepolizumab. After the beginning of benralizumab, most of the patients reduced the number of exacerbations (75%; n = 6/8) as well as hospital admissions (80%; n = 4/5) and all except one (87,5%) self-reported clear clinical improvement. Asthma control was defined as "well controlled" since the first appointment after beginning benralizumab by mostly all patients. Just one patient reported side effects – headaches and eritema – related to the therapy. In this observational analysis of patients treated with benralizumab in Santa Marta's hospital, we observed the therapeutical efficacy as well as security with benralizumab treatment. Benralizumab still was an effective therapy in patients who did not respond to other monoclonal antibodies such as other anti-IL5 therapies.

Keywords: *Asthma. Biologicals. Efficacy. Security.*

PC 073. IMAGING SEVERE ASTHMA PATIENTS

C. Rôlo Silvestre, R. Cordeiro, L. Mateus, M.J. Cavaco, A. Nunes, N. André, A. Domingos

Serviço de Pneumologia, Centro Hospitalar do Oeste, Torres Vedras.

Introduction: Imaging alterations in patients with severe asthma have been extensively explored in recent years, in an attempt to assess structural-functional relations. Computed tomography (CT) in asthma is commonly used in deferential diagnosis, and to identify associated conditions, such as bronchopulmonary aspergillosis.
Objectives: Characterize the radiological change in patients with severe asthma before starting biological therapy, and without acute exacerbation.
Methods: Observational study of patients with severe asthma before initiation of biological therapy, followed between 2014 and 2022 in Respiratory Allergology Consultation. Data were collected based on consultation of clinical records.
Results: In our sample of 37 patients, the mean age at the beginning of treatment was 49.9 years (SD ± 15.1). Nine patients had no relevant changes on chest CT. Of the patients with imaging findings, most showed signs of hyperinflation (n = 13; 35.1%), followed by bronchial parietal thickening (n = 12; 32.4%), air-trapping (n = 10; 27.0%) and bronchiectasis/bronchiolectasis (n = 6; 12%). There was no association between the measurement of total IgE and the value of serum eosinophils with the radiological changes identified. There was an increased risk of having hyperinflation and being female (OR 1.042; 95%CI 0.260-4.181; p = 0.003). Patients with hyperinflation were younger at the beginning of biological therapy (43.64 ± 14.18 *vs*. 53.69 ± 14.70 years; p = 0.048). Non-obese patients have a higher relative risk than obese patients concerning parietal bronchial thickening (OR 0.923; 95%CI 0.233-3.658; p = 0.013).
Conclusions: Most patients with severe asthma have radiological changes before starting biological therapy. The presence of hyperinflation is higher in females and seems to be associated with an earlier onset of biologicals.

Keywords: *Asthma. Severe asthma. Imaging alterations.*

PC 074. A SATISFACTION SURVEY AMONG PATIENTS USING AT-HOME BIOLOGIC TREATMENT FOR SEVERE ASTHMA

J. Lourenço, C. Lopes, R.A. Fernandes, I. Neves, J. Amado, S. Dias, M. Araújo, M.J. Moura, A.P. Vaz, A.L. Fernandes

Pulmonology Department, Pedro Hispano Hospital.

Introduction: The emergence of biologic agents for the treatment of severe asthma has provided promising targeted therapy in the past years. As monoclonal antibodies, they were traditionally administrated in healthcare environment. However, more recently there are studies assessing the safety and efficacy of the at-home subcutaneous administration for some biological agents. The improved convenience for patients associated with the potentially lower healthcare costs, because of the reduced number of visits, are advantages of this regime. Still, there is a lack in literature about the patient perspective of at-home biologic treatment for asthma.
Methods: Based on pre-existing questionnaires, a 15-question survey was built in Portuguese language to access satisfaction among patients using at-home biologic treatment. It was proposed in person, between April to August 2022, at routine Pulmonology and Immunoalergology appointments, to all patients with severe asthma or eosinophilic granulomatosis with polyangiitis (EGPA) receiving at-home biologic treatment. A cross-sectional and observational study was carried out based on a descriptive analysis of responses.
Results: Thirty patients were identified using biological treatment, of which 2 due to EGPA and the remaining due to severe asthma. Of these, 19 (63.3%) performed at-home administration. A 94.7% (n = 18) response rate was achieved. The mean age was 54 ± 10 years and 83.3% were female. Profession: 10 (55.6%) were employed, 1 (5.6%) unemployed and 7(38.9%) pensioners. Eleven patients (61.1%) used Mepolizumab and 7 (38.9%) used Benzalizumab. The median time performing at-home administration was 15.7 months (9.9-17.3). Although previous self-administration training in a hospital environment was unanimously considered adequate (n = 18, 100.0%), 2 patients (11.1%) would like to regularly review the administration technique with a doctor/nurse. Time saving was the main advantage for at-home regime mentioned by patients (83.3%), generally between 1 to 5 hours per treatment. The majority (n = 10, 55.6%) never had experienced treatment adverse effects, but others reported fatigue/sleepiness (n = 3, 16.7%) and joint pain (n = 2, 11.1%). Thirteen patients (72.2%) did not show any concern, however, the possibility of experiencing adverse effects without immediate evaluation by a healthcare professional and errors in the administration technique were reported by 2 patients (11.1%), respectively. Overall, 17 patients (94.5%) were satisfied/very satisfied regarding symptom control. Fifteen (83.3%) were very satisfied with at-home administration and all 18 patients expressed the desire to maintain this therapeutic modality.
Conclusions: Understanding the patient's perspective is central to improve healthcare quality. In this study, at-home administration of biologicals, after adequate training, was considered a safe and time-saving strategy.

Keywords: *Asthma. Biologic Agents. At-Home Treatment.*

PC 075. CHARACTERIZATION OF MAINTENANCE THERAPY IN PATIENTS WITH SEVERE ASTHMA UNDER BIOLOGICAL THERAPY IN A PORTUGUESE TERTIARY HOSPITAL

M. Pereira Ferreira Gomes, A. Rita Presa, S. Morgado, J. Iap, A. Mendes, M.E. Pedro

Centro Hospitalar e Universitário Lisboa Norte, Hospital de Santa Maria.

Introduction: Almost 4% of the asmathic patients are classified as having a Severe Asthma phenotype. The main goals of asthma man-

agement are symptom control and reduction of exacerbations, divided into maintenance and reliever treatment. Regarding maintenance therapy, adherence and inhaler technique are essential keys to achieve therapeutic success. In patients with Severe Asthma who remain poorly controlled despite good adherence and correct inhaler technique, antibody therapy can be used to improve control, being essential, however, in these patients to keep the remaining maintenance therapy to ensure adequate disease control.
Objectives: We propose to characterize the maintenance therapy and its adherence of patients under monoclonal antibody therapy in an allergy unit outpatient clinic from a Portuguese tertiary hospital.
Methods: We reviewed clinical files from 73 patients under biological therapy in an allergy unit outpatient clinic from March 2020 to July 2022. We analyzed the following variables: demographic characteristics, monoclonal antibody therapy, maintenance therapy, ACT (Asthma Control Test), therapeutic adherence.
Results: Of the 73 patients with severe asthma phenotype followed in our outpatient clinic (71% female gender, median age 57 years old), 52,1% were under biological therapy with omalizumab (n = 38), 30,1% under mepolizumab (n = 22), 12,3% under benralizumab (n = 9), 4,1% under dupilumab (n = 3) and 1,4% under reslizumab (n = 1). Regarding maintenance therapy 62% (n = 45) were medicated with two different inhaler devices (one containing both corticosteroid and long-acting beta agonists, and other with an antimuscarinic agent, tiotropium bromide). These patients showed good adherence and controlled disease (median ACT score ≥ 20 points). Thirty-eight percent (n = 28) were medicated with a single device with three different pharmacological agents (corticosteroid, long-acting beta agonists and antimuscarinic). Six months after starting this therapy these patients showed an improvement in median ACT scores (increase from 18 to 20 points) due to greater adherence to treatment. We also found that 92% (n = 67) were under leukotriene receptor antagonists therapy and 23% under xanthine (n = 17). Five patients (6%) were also under maintenance systemic corticosteroid therapy.
Conclusions: We found that all patients under biological therapy are treated with triple inhaled therapy, mostly with two different devices. In a relevant percentage of patients, changing to a single device was crucial to improve therapeutic adherence. Maintenance of the remaining medication, even in patients under biological therapy, is essential. Poor adherence can be an obstacle so it is important to find strategies to reduce the complexity of treatment regimens.

Keywords: *Severe asthma. Monoclonal antibody. Adherence.*

PC 076. PATIENT AND PUBLIC INVOLVEMENT IN CHRONIC RESPIRATORY DISEASE: PERSPECTIVES AND CHALLENGES

M. Areia, L. Pereira Dias, D. Figueiredo, A.L. Neves, A. Sá Sousa, C. Jácome

Allergy and Clinical Immunology Unit, Centro Hospitalar Vila Nova de Gaia/Espinho.

Objectives: This study explored the perspectives of patients with chronic respiratory disease (CRD), caregivers and interested citizens, regarding the participation in a collaborative network of health investigation, as well as the facilitators and barriers to their involvement.
Methods: A qualitative study based on focus groups was conducted. Participants were recruited by purposive sampling, through invitations on social media platforms and to patients who have participated in previous research projects of the team. Three focus groups were conducted, by video conference, following a semi-structured guide. Thematic analysis was performed by two researchers and discussed with the rest of the team.
Results: Fifteen patients with CRD, 1 caregiver and 1 interested citizen (76% females, median age (min-max) 36 (18-72) years) participated in the focus groups. All of the participants acknowledged the importance of the implementation of a collaborative network and most of them demonstrated interest in being integrated. The main aim identified for this network was to facilitate the communication between patients and researchers. Participants considered relevant the integration of patients, caregivers, researchers and healthcare professionals from several areas. Participants acknowledged the importance of their involvement in several phases: recruitment and network amplification, generation of research questions, contribution to study design, results validation and dissemination in the scientific community and society. The identified facilitators for the patients/carers/citizens engagement were the sharing of experiences, researchers and healthcare professionals support and feedback, schedule flexibility and network organization. The barriers identified included the amount of time dedicated, low health/digital literacy and the potential detachment of underdiagnosed patients or with low symptom impact in daily life.
Conclusions: Patients, caregivers and citizens acknowledged relevance in the implementation of a collaborative network and demonstrated interest in active participation in every stage of the health research cycle. A deeper knowledge of the barriers and facilitators identified in this study could support the implementation of these initiatives in Portugal.

Keywords: *Chronic respiratory disease. Patient and public involvement. Citizen science. Asthma. Chronic obstructive pulmonary disease.*

PC 077. HELIOX IN STATUS ASTHMATICUS

B.D. Freitas, S. Guerreiro, F. Feliciano, M. Ferreira, I. Figueiredo, M. Paiva, M. Monteiro, C. Camacho, S. Brito, C. Paulino, D. Nora, L. Coelho, B. Valério, V. Mendes, C. Tapadinhas, P. Póvoa

Centro Hospital de Lisboa Ocidental-Hospital de São Francisco de Xavier.

Introduction: The helium was first used for treatment of asthma in 1934 by Barach. The heliox is a mixture of 78% helium and 22% oxygen. This compound is less dense than air which origins a less turbulent flow, generating less resistance through the passage in the airways. The increased laminar flow promotes a better deposition of drugs in the lower airways.
Case report: A 86-year-old male with a past medical history of asthma, followed in Pneumology Clinic, controlled with tiotropium bromide, salmeterol/fluticasone, aminophylline and montelukast. The patient presented to the emergency department for evaluation of a 1-week dyspnea without fever or another complains. At admission he was in severe respiratory distress, central cyanosis and decrease breath sounds with wheezing. In the initial approach, he was started on systemic corticoids, bronchodilators and oxygen. In spite of the therapy, the bronchospasm got worst leading to global respiratory failure with acidemia, and evolution to mechanical ventilation support. At the Intensive Care Unit (ICU), the patient was put on continuous nebulized bronchodilators, intravenous corticoids, magnesium sulphate and he was ventilated in volume control ventilation with zero positive end-expiratory pressure (ZEEP) and inspiratory-to-expiratory ratio (I:E) of 1:10. Given the severity of the case characterized by severe obstruction (resistance of 55 $cmH_2O/L/s$), the patient was started on heliox. After the institution of heliox, there was an improvement of obstructive pattern (resistance of 25 $cmH_2O/L/s$) allowing a more physiology I:E, better ventilation and correction of acidemia. The ICU stay was complicated by a ventilator associated pneumonia to *Proteus mirabilis*, intensive care associated myopathy secondary to corticoids and neuromuscular blockade.
Conclusions: Despite pharmacological improvement in asthma therapy the heliox still has a role the treatment of status asthmaticus in patients with high airway resistance and difficulty in mechanical ventilation.

Keywords: *Heliox. Status asthmaticus.*

PC 078. IS OMALIZUMAB DOSE REDUCTION IN SEVERE ASTHMA PATIENTS A POSSIBILITY? – OUR EXPERIENCE

N. Fernandes, I. Pascoal, D. Machado, R. Lima

Centro Hospitalar Vila Nova de Gaia/Espinho.

Introduction: Omalizumab is an anti-IgE monoclonal antibody used for treatment of uncontrolled severe atopic asthma. Its efficacy in severe asthma patients is well documented in real-life studies, however questions remain regarding the optimal duration of omalizumab treatment. Currently, there are no specific criteria for a step-down dose or withdrawal of omalizumab treatment. With this analysis, we aimed to characterize patients undergoing omalizumab dose reduction and assess whether they maintain symptomatic control and clinical stability
Methods: We performed a retrospective analysis of patients with severe asthma followed in the Pulmonology Asthma Consultation of a Tertiary Hospital Center who underwent omalizumab dose reduction. Dose reduction of omalizumab was performed by increasing the time interval between drug administration to every 6 or 8 weeks.
Results: A total of 13 patients were included, which represents 33% of the patients analyzed. Most patients were female (69%). Mean age at the beginning of omalizumab dose reduction was 54 years and the median time on the usual omalizumab regimen was 63.6 months (minimum 23 months and maximum 115 months). Seven patients were on the 8-weekly omalizumab regimen and the remainder were on the 6-weekly regimen. Mean body mass index was 29.8 kg/m^2. Nine patients were nonsmokers and four were former smokers. Regarding lung function, before omalizumab initiation median FEV1 after bronchodilator was 63.5% [54.0-68.0], and in the last evaluation, median FEV1 was 70.0% [60.0-83.0]. Ten patients maintained symptomatic control with only three patients manifesting clinical worsening. Of these, two presented with asthma exacerbation requiring emergency care. In the patients who presented complications, the time interval between initiating omalizumab dose reduction and the presentation of clinical worsening or asthma exacerbations was 6, 10 and 55 months. Two of the patients were on an every 6 weeks omalizumab administration regimen and the third patient was on an every 8 weeks administration regimen. Of the patients who experienced complications resulting from the decrease in the omalizumab dose, two are now being treated with mepolizumab and the third patient is being considered to initiate a different biological treatment. In the maintained clinical stability group, two patients suspended omalizumab treatment and at the present, are clinically stable with no history of exacerbations.
Conclusions: The majority of patients tolerated omalizumab dose reduction, maintaining symptomatic control and no asthma exacerbations. In two patients it was even possible to suspend omalizumab treatment with no associated complications. Regarding lung function there was also no deterioration. Nonetheless, 3 patients did experience clinical worsening and two even required emergency care. In conclusion, dose reduction of omalizumab may be well tolerated with no associated negative consequences in some patients. However, the decision to reduce the dose of omalizumab should be individualized and carefully taken and the patients must maintain periodic clinical and functional surveillance. More studies should be done in this area to evaluate the safety and define in which patients with severe asthma omalizumab dose reduction can be safely made.

Keywords: *Severe asthma. Omalizumab. Dose reduction.*

PC 079. SUSPENDING OMALIZUMAB IN SEVERE ASTHMA PATIENTS – OUR EXPERIENCE

N. Fernandes, I. Pascoal, D. Machado, R. Lima

Centro Hospitalar Vila Nova de Gaia/Espinho.

Introduction: Omalizumab is an anti-IgE monoclonal antibody used for treatment of uncontrolled severe atopic asthma. Its efficacy in severe asthma patients is well documented in real-life studies, however questions remain regarding the optimal duration of omalizumab treatment. At present, it is still unknown whether the beneficial effects of omalizumab persist after its discontinuation or the duration of its effects. Data in the literature is contradictory, with some studies demonstrating maintenance of asthma control, while others demonstrated loss of disease control. With this study, we aimed to characterize the patients with severe asthma who discontinued omalizumab treatment, evaluate whether they maintained clinical stability and asthma control and analyze the consequences associated with its suspension.
Methods: We performed a retrospective analysis of patients with severe asthma followed in the Pulmonology Asthma Consultation of a Tertiary Hospital Center treated with omalizumab and who discontinued treatment. Patients who switched to another biological treatment, that is, patients who were always with biological treatment, were excluded.
Results: Five patients were analyzed, 4 were women. Mean age at the beginning of treatment was 40.2 years. Regarding smoking status, 3 patients were non-smokers and two patients were former smokers. Mean body mass index was 32 kg/m^2. Median FEV1 after bronchodilator at the time of omalizumab suspension was 67.8% [59-79] and median serum IgE was 454.6 UI/ml [214-609]. At the time of suspension only 1 patient had slight peripheral eosinophilia.
Conclusions: Notwithstanding the small number of patients and the notorious heterogeneity of the sample, it is possible to observe that in the 2 patients in which omalizumab was suspended due to clinical stability and in which the dose of omalizumab was weaned, they maintained symptomatic control and no asthma exacerbations. This analysis reinforces the importance that the decision to discontinue the treatment of severe asthma with omalizumab must be individualized and carefully taken, and patients must maintain periodic clinical and functional surveillance. More studies should be done in this area to assess the possibility/safety of withdrawing omalizumab treatment in patients with severe asthma.

Keywords: *Severe asthma. Omalizumab. Treatment suspension.*

PC 080. CHIARI MALFORMATION, A CHALLENGE IN THE TREATMENT OF SLEEP BREATHING DISORDERS

D. Sousa, A. Veloso, A.C. Brás, J. Moita

Centro Hospitalar Universitário Cova da Beira.

Introduction: Chiari malformation type I (CM-I) is characterized by an abnormal conformation of cerebellar amygdala, which extends below foramen Magnum. In most cases, neuronal structures at this level tend to be compressed, manifesting with oropharyngeal dysfunction, peripheral neuropathy, cerebellar dysfunction, syringomyelia, among others. Often, it is related to sleep breathing disorder, with both central and obstructive apneas. Two cases of women with CM-I followed in a specialized sleep center are presented.
Case reports: Case 1: A 50-year-old woman with history of CM-I, which was surgically corrected in 2006. She presented with daytime hypersomnolence at the sleep appointment. She performed a polygraphic sleep study level I (PSG I) with an RDI of 65.7/h, with only central events recorded. She underwent a new PSG I with ventilation to start treatment. As the patient showed a better response to BiNivel-ST (residual RDI 15.8/h at the expense of obstructive hypopneas, especially in REM) compared to adaptive servo ventilation (ASV) (RDI 104.3/h at the expense of central apneas, poor sleep quality), was started on treatment with BiNivel-ST. After 6 months, patient presented poor adherence to therapy due to complaints of aerophagia and maintenance insomnia, with severely uncontrolled residual AHI (> 30/h) despite several attempts at adaptation. At this point, it was decided to switch to ASV. After several pressure adjustments and referral to psychiatric consultation, she improved adherence (to around 100%), complaints of insomnia and daytime symptoms, de-

spite maintaining a residual AHI of 12/h. Case 2: A 32-year-old woman with history of CM-I, vertigo syndrome, respiratory bronchiolitis associated with interstitial lung disease, and obesity surgery (current BMI 23.6 kg/m^2). In PSG II, presented RDI 70.3/h and desaturation mainly due to central apneas, with indication to initiate treatment ASV. PSG II under ASV revealed a residual AHI of 10.5/h, overlapping with home ventilation data reports. In this case, patient was already followed in a neurosurgical consultation, which delayed intervention due to lack of symptoms. However, with this recent diagnosis of central sleep apnea (CSA), and after discussion with neurology, the case must be reviewed as the possibility of surgical solution could improve response to treatment with ASV.
Discussion: Neurological pathology is frequently identified as a cause of sleep disorders. In the case of CM-I, the compression of neuronal structures at the pons level can result in complex cases of CSA, difficult to treat, requiring a multidisciplinary approach.

Keywords: *Central apnea. Adaptative servoventilation. Chiari malformation.*

PC 081. SLEEP PATHOLOGIES, WHERE NEUROLOGY AND PULMONOLOGY MEET

D. Sousa, A. Veloso, A.C. Brás, J. Moita

Centro Hospitalar Universitário Cova da Beira.

Introduction: Sleep disorders have been gaining more attention due to the increase in understanding and, consequently, diagnostic amplification. REM sleep behavior disorder (RSBD) is a parasomnia characterized by the absence of atony during REM sleep, accompanied by vivid dreams, often of disruptive content. Although it may be associated with some drugs (psychotropic drugs), it is more typically presented in a chronic form and is related to degenerative neurological pathology. It also exhibits an especially well-established relationships with alpha synucleinopathies, namely Parkinson's Disease and Lewy Body Dementia (LBD).
Case report: A 68-year-old male patient, followed since 2020 in a neurology consultation for a symmetrical akinetic-rigid parkinsonian syndrome, with cognitive deterioration. Sent to sleep neurology consultation for complaints of sudden movements during sleep lasting about 9 months, nightmares for about 6 years, as well as daytime hypersomnolence. Previously medicated with ropinirole, later switched to levodopa/carbidopa, with some improvement in complaints of rigidity and hallucinations, but maintaining movements during sleep. A level I polysomnographic sleep study (PSG) was performed, revealing an RDI of 67.8/h due to obstructive events, and the presence of REM sleep without atony in 100% of the time in REM, despite the absence of more typical RSBD movements. Considering the clinical picture of atypical parkinsonism, the most likely diagnoses in this case are LBD, concomitant RSBD and sleep apnea syndrome (SAS). Auto-CPAP was started for the treatment of severe SAS and clonazepam for the treatment of RSBD, in order to control the nocturnal symptoms.
Discussion: Often, in LBD, the diagnosis of RSBD occurs before or during the onset of symptoms more suggestive of parkinsonian pathology. In these cases, PSG is of interest for the diagnosis of RSBD and for allowing the screening of other sleep-disruptive pathologies, namely SAS, which in addition to being a frequent comorbidity, can present similar symptoms. In fact, if they are both present, the treatment of sleep-disordered breathing is essential to enhance the therapeutic response and reduce dream-enactment behavior. Sleep disorders often present similar symptoms, constituting a diagnostic and therapeutic challenge. It is at this level that pulmonology and neurology often meet, with pathologies that can be related and that are simultaneously a differential diagnosis between them, requiring a multidisciplinary approach.

Keywords: *REM sleep behavior disorder. Lewy body dementia. Sleep apnea syndrome.*

PC 082. PREOPERATIVE PULMONOLOGY ASSESSMENT IN BARIATRIC SURGERY

J. Canadas, F. Guimarães, M. Cunha, C. Pissarra, P. Rosa, T. Louro, N. Gonçalves

Vila Franca de Xira Hospital.

Introduction: Preoperative pulmonology consultation (POPC) is an important tool for diagnosis of sleep-disordered breathing and lung pathology, as well as for optimization of already known lung disease. The postoperative period of several types of surgery under general anesthesia may be impaired by pulmonary complications, such as acute respiratory failure, atelectasis and pneumonia, which are common and associated with increased postoperative morbidity and mortality rates, particularly in patients with prior pulmonary pathology. In patients undergoing non-cardiothoracic surgery, the incidence of pulmonary complications ranges from 1-19%. Obstructive Sleep Apnea Syndrome (OSAS) is associated with an increased risk of postoperative complications (POC) and there is a significant number of patients proposed for surgery with undiagnosed OSAS, especially for bariatric surgery (BC).
Objectives: Characterization of the sample of patients undergoing BC and their evaluation in POPC and diagnosis of OSAS.
Methods: Retrospective study of patients undergoing BC in 2018 at Vila Franca de Xira Hospital. Statistical analysis with SPSS. Variables studied: gender, age, body mass index (BMI), comorbidities, time of hospitalization and POCs, OSAS diagnosis and treatment.
Results: Sample of 63 patients, with a mean age of 52 years old, female predominance (n = 49; 77.7%) and mean weight of 121 kg, with the majority (n = 52; 82.5%) having BMI > 40. As comorbidities, arterial hypertension was the most prevalent (n = 18; 28.6%), followed by ostheoarthrosis (n = 9; 14.3%), dyslipidemia (n = 7; 11.1%) and diabetes mellitus (n = 5; 7.9%). Regarding preoperative evaluation, 11 patients (17.5%) were seen in POPC, however, 12 other patients (19.1%) were already followed-up in pulmonology consultations (general, sleep and smoking cessation). Of the patients evaluated in pulmonology consultations (n = 23), 12 (52.2%) underwent polysomnographic sleep study (PSS), of which 2 (16.7%) had moderate OSAS and 8 (66.7%) had severe OSAS. All patients with OSAS (n = 10) started home noninvasive ventilation (NIV) prior to BC. Most patients (n = 60; 95.2%) underwent gastric sleeve, with a mean time of hospitalization of 6 days. The subgroup of OSAS patients on NIV had a mean hospital stay of 4.9 days, but no statistically significant difference compared to the group not on NIV (p-value 0.0664). POCs were recorded in the first 30 days in 3 patients (4.8%), of whom 1 had to be re-intervented for drainage of a subphrenic abscess. Of these 3 patients, none underwent POPC evaluation.
Conclusions: In this sample of patients, most were not referred for POPC. More than half of the patients evaluated at the POPC or other pulmonology consultations underwent PSS, and most (83.3%) were diagnosed with moderate to severe OSAS. A shorter duration of hospitalization was recorded for patients on NIV, however, with no statistically significant value (small sample size). Among patients with POCs, none was previously evaluated by pulmonology. Contrary to expectation, this study shows that there is still a large number of patients proposed for BC without evaluation in POPC, in whom there is a high suspicion of undiagnosed OSAS.

Keywords: *Bariatric surgery. Obstructive sleep apnea syndrome.*

PC 083. IMPACT OF SMOKING ON OBSTRUCTIVE SLEEP APNEA SYNDROME

F. Pereira da Silva, A. Tavares, F. Luís, F. Jesus, É. Almeida, M. Tavares, J. Ribeiro, S. Braga, L. Ferreira

Unidade Local de Saúde da Guarda; FCS-UBI.

Introduction: Obstructive sleep apnea (OSA) is considered a public health problem, conditioning, among others, excessive daytime

sleepiness and increased cardiovascular risk. Although the effects of smoking on OSA remain unclear, it is thought that smoking may be a risk factor for this pathology, and there is synergism between the two conditions with regard to cardiovascular risk. There are some proposed mechanisms, but more scientific evidence is still needed to confirm the association between OSA and smoking, and the results presented in different studies are somewhat contradictory.
Objectives: To evaluate the smoking habits of patients with OSA under non-invasive ventilation and its impact on the severity of the pathology.
Methods: Retrospective study, through consultation of polysomnographic sleep exams performed between January 2017 and June 2022. Variables evaluated: sociodemographic, smoking, BMI, cervical circumference (CC), Epworth, AHI at the time of diagnosis. Two groups were created: Group I – no smoking habits; Group II – history of smoking habits (former smoker or active smoker). Statistics: Chi-Square test, Spearman correlation, Mann-Whitney test.
Results: Sample of 266 patients. Group I (n = 136): Most patients were male (80; 58.8%). Mean age at diagnosis: 63.1 years. Mean BMI 33.2. Average CC: 41.5 cm. Initial Epworth: 7.8. AHI 46.1. Severe OSA in 92 (67.6%) patients. Group II (n = 122): Most patients were male (116; 95.1%). Mean age at diagnosis: 57.2 years. Mean BMI 32.3. Average CC: 43.4 cm. Initial Epworth: 8.4. AHI 51.4. Severe OSA in 98 (80.3%) patients. Smoking habits: 89 (73.0%) were former smokers and 33 (27.0%) were active smokers. Average estimated smoking history of 32.2 pack year units. There was a statistically significant relationship between smoking history and the development of serious illness (p = 0.045) and a positive correlation (0.021) without statistical significance (p = 0.821) between smoking history and AHI value at diagnosis. There were no statistically significant relationships between smoking history and initial Epworth (p = 0.399) and AHI at diagnosis (p = 0.079). There were no statistically significant relationships between active and former smokers regarding baseline Epworth (p = 0.686), AHI at diagnosis (p = 0.906) and disease severity (p = 1.000).
Conclusions: In our sample, there was a statistically significant relationship between a history of smoking and the development of severe disease, with higher AHI and Epworth values for the group of patients with a history of smoking compared to the group of patients who never smoked. There were no significant differences between active and former smokers regarding the variables studied, and it remains unclear whether smoking represents a risk factor for OSA or whether smoking cessation may have a beneficial effect on its treatment. Thus, further studies are needed, with larger and more representative samples, in order to accurately establish the impact of smoking on OSA.

Keywords: *Smoking. OSA.*

PC 084. RISK FACTORS ASSOCIATED WITH OBSTRUCTIVE SLEEP APNEA SYNDROME IN HEAVY TRUCK DRIVERS

C. Pimentel, A. Macedo, D. Amorim, C. Santos, S. Feijó

Centro Hospitalar de Leiria.

Introduction: OSA (Obstructive Sleep Apnea) Syndrome is a common condition in the general population, being an increased risk factor in people with professions that require a high level of concentration, such as heavy truck drivers.
Objectives: To estimate the prevalence of OSAS and to verify the factors associated with the presence of OSAS in heavy truck drivers.
Methods: A prospective study was carried out that included the employees of a Portuguese transport company (TCPombalense) between 2019 and 2022. Sociodemographic data, associated pathologies and symptoms associated with OSAS were collected and subsequently a screening was carried out with PSG level III in the employees who agreed to participate in the study and who did not have a previous diagnosis of OSA. For statistical analysis, SPSS was used and a p-value lower than 0.05 was considered statistically significant.
Results: A total of 104 employees participated in this study, of which 86 had active jobs as truck drivers. The assessed drivers were all male, with a mean age of 48.02 ± 9.99 years (min. 24, max 66). After performing PSG level III, it was found that 77.9% of drivers (n = 67) had OSA, with a mean AHI of 16.72 ± 14.69 events/hour. Of the patients diagnosed, 44.78% (n = 30) had mild, 31.32% (n = 23) moderate and 20.89% (n = 14) severe OSA. In this sample, the mean body mass index was 30.14 ± 4.4 kg/m² and obesity was shown to have a statistically significant association with a higher AHI (p = 0.001), with the mean AHI of patients with normal weight being 6.11 ± 7.51/h (n = 9), overweight 12.65 ± 9.37/h (n = 38), Obesity grade I 23.33 ± 17.24/h (n = 24) and Obesity grade II 21.16 ± 17.49/h (n = 14) and only 1 patient had grade III Obesity (IAH 44/h). A statistically significant difference was also evident between patients with hypertension and a higher AHI (p = 0.016), being 14.59 ± 13.04/h in patients who did not have hypertension and 22.23 ± 17.39/h in patients with hypertension (n = 24). There were no statistically significant differences between patients with (n = 9) and without type II diabetes mellitus. In this sample, patients with dyslipidemia (n = 22) had a higher AHI (21.27 ± 15.65/h) than patients without dyslipidemia (15.16 ± 14.14/h), with a statistically significant difference (p = 0.032). Auto-CPAP was prescribed in 36 patients (10 patients with mild OSA, 14 with moderate OSA and 12 with severe OSA), with 10 patients newly diagnosed and awaiting evaluation in a Pulmonology consultation and 4 patients that refused ventilation and are being evaluated for alternative therapies.
Conclusions: In the evaluated truck drivers, the prevalence of OSA was very high (77.9%), which reinforces the importance of screening for this pathology since, when left untreated, it is a major risk factor for exercising their profession safely.

Keywords: *OSA. Truck drivers. Screening. Risk factors.*

PC 085. A SECURED AIRWAY DOESN'T ALWAYS MEAN A SECURED SLEEP: A CLINICAL CASE REPORT

I. Fernandes Pedro, R. Branquinho Pinheiro, S. Lopes Moreira

Pulmonology Department, Hospital de Santa Maria, Centro Hospitalar Universitário Lisboa Norte.

Introduction: Treatment-emergent central sleep apnea (TECSA) is a well know disorder. It is diagnosed when a sleep study shows a persistence or emergence of central sleep apneas (CSA) during the administration of positive airway pressure without a backup rate, despite significant resolution of obstructive respiratory events (ICSD-3). However, the emergence of central apnea can appear after other obstructive sleep apnea treatments, as tracheostomy.
Case report: 69-year-old male, former smoker, mean tobacco load 80 packs/year. Past medical history of COPD GOLD 2B on LABA/LAMA; severe Obstructive Sleep Apnea (OSA) - in-laboratory polysomnography (PSG): apnea-hypopnea index (AHI) 42/h, mainly obstructive events; oxygen desaturation index (ODI) of 46/h -; obesity; hypertension; heart failure; type 2 diabetes mellitus. Since the diagnosis of OSA and until 2009, under CPAP, well adapted, without any symptoms related to this pathology and without residual obstructive events. In 2009, with the diagnosis of left jaw giant cell tumor, submitted to partial maxillectomy. Postoperative complicated with subglottic stenosis, requiring tracheostomy. In 2015, referred to our center due progressive shortness of breath at night, waking up grasping for air and inability to sleep in supine or lateral position. Daytime respiratory symptoms unaltered. In-laboratory-polysomnography revealing AHI 61.5/h, with central events and resolution of obstructive events; T90 65.7%; no Cheyne-Stokes breathing. Arterial blood gas with pH 7.422, PaCO2 34.2 mmHg, PaO2 69.7 mmHg and HCO3 21.8 mmol/L. Transthoracic echocardiogram revealing preserved left ventricular ejection fraction. The diagnosis of Emergent Central Sleep Apnea post tracheostomy was assumed and an attempt of positive pressure ventilation support through the tracheostomy was made, without tolerance by the pa-

tient. Currently, under supplemental oxygen during sleep (FiO2 35%), without nocturnal desaturation, with AHI improvement and asymptomatic from the respiratory point of view.
Discussion: We present a case report of a patient with risk factors for TECSA development, those being the concomitant diagnosis of heart failure and the patient's sex, who develops emergent CSA after tracheostomy. These CSA are permanent over the years and associated with nocturnal desaturation in a patient that keeps refusing positive airway pressure treatment and is well controlled only with night oxygen supply. These findings illustrate and alert for the need of further studies with more robust methodologies concerning these conditions (TECSA and emergent SCA after other non positive airway pressure), so that we can have more reliable information on the disease's natural history and its pathogenesis and, also, biomarkers on different patient subtypes (persistent *versus* transitory CSA, for example). Furthermore, the case highlights the need not to forget alternative causes of emergent apnea, such as tracheostomy.

Keywords: *Central apnea. Tracheostomy.*

PC 086. FATAL FAMILIAL INSOMNIA: THE CHALLENGES OF PERIODIC BREATHING IN NON-INVASIVE VENTILATION – A CASE REPORT

L. Almeida Santos, F. Costa, N. Barros, M. Santis

Linde Saúde, REMEO.

Introduction: Fatal familial insomnia (FFI) is a rare prion disease with a prevalence of 1 in 30 million. It is an autosomal dominant genetic disease caused by mutation in the PrPC gene that causes prion deposition. This deposition occurs in the thalamus, olivary nucleus of the brainstem and isolated gliosis in the hypothalamic gray matter. FFI onset is usually between age 55-60, with an average life span of 13.5 months. There are currently no therapeutic approach, comfort care is provided in a palliative approach. In FFI we observe periodic breathing Cheyne-stokes respiration (CSPR) in association with severe central apneas and progressive hypoventilation. Until the present, there is no record of successful non-invasive ventilation (NIV) because, once it's a rare disease, there are no standardized protocols or clinical trials. We present a case of a patient who developed CSPR who initiated NIV over the course of the disease and after sleep study (SS).
Case report: A 65-year-old woman, inserted in a family cluster of FFI and already diagnosed. Prodromes of the disease (at 55 years of age) characterized by dysautonomia, mostly with insomnia, episodes of excessive sweating, urinary retention, depression, and transient diplopia. At 65 years the manifestations of ataxia, tremors, progressive dysphagia, and decreased cough efficacy began. She described sleep dysfunction with decreased vigil periods and an increase in non-reactivity periods. Due to significant dysphagia a PEG (percutaneous enteric gastrostomy) is placed and we began to perform hyperinflation using a manual resuscitator to optimize cough efficacy. In the context of the progressive loss of cough efficacy we opted to initiate in-exsuffator therapy reaching PCF 270 l/min. This approach was successful managing sialorrhea and pulmonary secretions. In awakefullness periods as well as in non-reactivity periods, we observed apneas with 20-30s duration, in association to CSPR, respiratory rate (RR) in the order of 4-7 cpm, concomitantly there were objective signs of respiratory distress and complaints of dyspnea and fatigue EBM 7. The patient was submitted to SS level III where there is an index of sleep breathing disorders (RDI) of 87.2 e/h, with evidence for the index of central apneas of 70.9/h, with desaturation index (ODI) of 76.8/h. We initiated servo-ventilation reaching an improvement in AHI to 8.2 e/h and an improvement in ODI to 10.8/h. When reassessing the NVI approach, we considered que respiratory drive defect, the long periods with RR of 3-5 cpm and the increase in the hours of ventilation per day, regarding this, we opted to upgrade to a life support equipment providing iVAPS-AE ventilation mode.
Discussion: Until now, there are no documented non-pharmacological therapies for IFF. Ventilatory drive defects, periodic breathing and important dysphagia constitute a permanent life-threatening condition and countless suffering for the patient and family. We share this successful therapeutic approach through NIV by iVAPS-AE mode and assisted cough as a future horizon for the IFF approach, however it is still unclear whether this therapeutic approach can impact survival in these patients.

Keywords: *Fatal familial insomnia. Cheyne-Stokes. Non-invasive ventilation. Servo-ventilation. IVAPS-AE. In-exsufflator.*

PC 087. CATATHRENIA – DIFFERENT TREATMENT FOR ALL OR NO TREATMENT AT ALL?

M. Sá Marques, C. Dália, M. Pereira, C. Pereira, A. Marta Silva, L. Almeida, R. Staats, P. Pinto, C. Bárbara

Centro Hospitalar Vila Nova de Gaia/Espinho.

Introduction: Catathrenia (nighttime groaning) is an uncommon sleep-related disorder that consists of a deep inspiration followed by a protracted expiration, during which a monotonous, groaning sound is produced. As a central apnoea mimicker, it usually occurs during REM sleep. Despite its poorly understood clinical impact, a propension to ventilatory instability and high arousal index has been observed. We present a series of clinical cases that illustrate the different aspects of presentation of catathrenia and the impact of distinct treatment attitudes.
Case reports: A 21-year-old woman, with a medical history of asthma and nasal sept deviation sought an otorhinolaryngologist due to nocturnal complaints of snoring, morning headaches and a loud nocturnal groaning. Her Epworth Scale Score was 7/24. Level 1 polysomnography (PSG) showed mild obstructive sleep apnoea with a respiratory disturbance index (RDI) of 9.4/h and 9 cluster periods (CP) of catathrenia, that occurred predominantly in REM stage. Auto CPAP (APAP) treatment was started, but due to the lack of disturbing symptoms she suspended the treatment. A 39-year-old man, night shift worker, with medical history of atrial fibrillation, was sent by his cardiologist to the Sleep Medicine Department for exclusion of OSA. He did not refer any nocturnal complaints or consequent daytime symptoms. Level I PSG showed diminished sleep efficiency, due to two periods of insomnia and two periods of catathrenia. No therapy was instituted. A 29-year-old woman with no medical history, sought a neurologist due to non-restoring sleep, excessive daytime sleepiness and problematic marital status due to nocturnal groaning. Level 2 PSG showed an elevated arousal index (25.1/h), a normal RDI (3.4/h), no periodic limb movement and 9 catathrenia CP. Treatment with APAP resulted in complete remission of symptoms.
Discussion: Classified as an isolated symptom of a sleep related breathing disorder clinical practice proves us wrong, as catathrenia never comes alone. Not only do we need to shift this paradigm, as the precision medical era that we are living in implies personalized attitudes for every patient. This leads us to push the boundaries of the inconvenient of not knowing - do we treat, whom we treat and how we treat?

Keywords: *Sleep-related breathing disorder. Catathrenia. Treatment.*

PC 088. MULTISEGMENTAL RIB FRACTURE: AN "OUT OF THE BOX" CLINICAL COMPLICATION DURING HOSPITALIZATION

A. Vital, M. Urbano, E. Santana, J. Lopes Dias

Serviço de Radiologia, Centro Hospitalar Universitário Lisboa Central-Hospital Santo António dos Capuchos.

Introduction: Lung intercostal herniation is a rare clinical entity that consists in the protrusion of the lung parenchyma beyond the

intercostal space and the rib cage. These hernias are classified as congenital, spontaneous or secondary to trauma. They can be asymptomatic or associated to ipsilateral chest pain, especially if there is a previous history of surgery or thoracic drain placement. As lung herniation can be difficult to see in a common chest radiography, computerized tomography (CT) is the gold standard for its diagnosis.
Case report: We present the case of a 61 years old male patient that was urgently transferred to our hospital center after a politrauma due to an accident with a bull. Past medical history was remarkable for dyslipidemia and a surgically treated rectal neuroendocrine tumor. On admission, the patient was hemodynamically stable, had a Glasgow Coma Scale of 15 and a peripheral oxygen saturation of 95%. During clinical observation, a bruise was identified on the anterior neck face and left rib cage. A CT of the neck and thorax performed for initial evaluation confirmed the presence of a comminuted jaw fracture and multiple fractures of the left costal arches (from the 5th to the 9th costal arches), with misaligning of the fracture ends, and also revealed extensive ipsilateral hemothorax, as well as subcutaneous emphysema on the left hemithorax. In this context, the patient was submitted to a surgical repair of the jaw fracture and he was evaluated to thoracic drainage, having placed a thoracic drainage catheter on day 1 of internment. The postoperative period was uneventful, with progressive weaning from mechanical ventilation, improvement of the pain and maintenance of a functional thoracic catheter. Due to the favorable clinical evolution, the catheter was removed on day 3 of internment, without any associated complications and with a chest x-ray documenting the absence of pneumothorax or other complications. However, on the 5th day of internment, the patient had a new aggravation of the pain on the left hemithorax, which was worse with ipsilateral recumbency and during coughing fits. Clinically, the patient was hemodynamically stable and the subcutaneous emphysema continued fairly stable. Due to the nonspecifity of the clinical findings, absence of laboratorial data and exacerbation of the pain, a new chest CT was required for revaluation. The CT showed the presence of herniated lung parenchyma in the lateral side of the left hemithorax, between the 6th and the 8th ribs, suggestive of lingular parenchyma, with 40 × 27 mm of larger dimensions. It was necessary to undertake a short-term surgical repair of the hernia.
Discussion: This case seeks to recall that multiple intercostal fractures are a risk factor for intercostal lung herniation. Although this entity is rarely described, its identification on the CT image radically changes the approach of the patient, with the surgical repair becoming imperative to prevent serious complications such as strangulation or recurrent infections of the herniated lung.

***Keywords**: Chest wall hernia. Intercostal lung herniation. Computerized tomography.*

PC 089. PATHOGENS AND MORTALITY IN VENTILATOR-ASSOCIATED PNEUMONIA: EVAP-PT STUDY

C. Torrão, H. Castro, A. Vale Fernandes, A. Krystopchuk, J. Ribeiro, D. Miranda, C. Eira, J. Morais, C. Lameirão, S. Gomes, D. Leal, J. Duarte, L. Pássaro, F. Froes, P. Mergulhão, J. Gonçalves Pereira

Hospital de Santo António, Centro Hospitalar Universitário do Porto.

Introduction: Ventilator-associated pneumonia (VAP) is a major threat in patients admitted to intensive care units (ICU) receiving invasive mechanical ventilation (IMV), with the majority of cases being caused by Gram-negative bacteria. VAP is associated with increased IMV duration, length of hospital stay and health care costs. Inadequate empirical therapy has been associated with higher mortality. Causative pathogens vary according to the duration of hospital stay before VAP diagnosis and previous exposure to antimicrobials, leading to the distinction between early-onset and late-onset pneumonia.
Objectives: To determine the most prevalent bacterial microorganisms present in early- and late-onset VAP, and to evaluate the adequacy of the selected empirical antimicrobial treatment as well as the associated mortality.
Methods: We conducted a national, multicenter, retrospective cohort study of patients admitted to the ICU of 11 Portuguese hospitals.
Results: We included 197 patients with VAP, 173 with microbiological documented infection. The most frequently identified pathogens were *Staphylococcus aureus* (21.8%), *Pseudomonas aeruginosa* (18.6%), and *Klebsiella pneumoniae* (10.0%). Both *Staphylococcus aureus* and *Pseudomonas aeruginosa* were the main Gram-positive and Gram-negative pathogens identified, respectively. In early-onset VAP, 31.5% of the identified bacteria were Gram-positive and 68.5% were Gram-negative. In late-onset VAP, 26.1% of bacteria were Gram-positive and 76.9% were Gram-negative. Gram-negatives were more frequent in both early- and late-VAP when compared to Gram-positive microorganisms. *P. aeruginosa* was numerically higher in late-VAP (21.0%) when compared to early-VAP (12.7%). No significant differences in mortality rates were identified between patients infected with Gram-negative or Gram-positive microorganisms. However, a significantly higher mortality rate was associated with *P. aeruginosa* VAP when compared with *S. aureus* infection (51.2 *vs.* 27.1%, p = 0.028). Empirical initial antimicrobials proved to be inappropriate in 34.3% of microbiologically documented VAP patients. No significant differences were noted between Gram-negative or Gram-positive infections, as well as among those with *P. aeruginosa* or *S. aureus* VAP.
Conclusions: VAP remains a concerning threat with very frequent cases of inadequate empirical therapy, as shown in this study. This can lead to worse outcomes. P. aeruginosa seems to have a particularly poor prognosis, highlighting the need for optimal treatment strategies.

***Keywords**: Ventilator-acquired pneumonia.* Pseudomonas aeruginosa. *Appropriate antimicrobial treatment. Mortality.*

PC 090. CROHN DISEASE AND LUNG: WHAT RELATIONSHIP?

R. Correia D. Neves, T. Sales Marques, V. Areias, I. Ruivo, U. Brito

Pulmonology Department, Faro Hospital, Algarve University Hospital Center.

Introduction: Chron's disease (CD) is a non-specific inflammatory disease that often affects the distal ileum and colon, sometimes affecting extra-intestinal organs. Although pulmonary involvement is rare in CD, the existence of pulmonary changes associated with this pathology such as chronic bronchitis, bronchiectasis, upper airway stenosis, bronchiolitis obliterans, granulomatous pulmonary disease and interstitial diseases have been described.
Case report: Female, 27-year-old, Caucasian, non-smoking, CD diagnosed at age 16 under ustekinumab therapy since March 2022. Sent to the Pulmonology's medical appointment in May 2022 for presenting, since 2019, complaints of cough with mucous sputum, mMRC1 dyspnea and more recently stridor. On physical examination, SpO2 was 99% (FiO2 21%), eupneic, pulmonary auscultation showed no changes. Functional respiratory study showed flow-volume curve suggestive of fixed obstruction of the upper airway. Soft tissue neck CT identifies, at the subglottic section level immediately below the vocal cords, thickening of circumferential tissue density of the trachea, especially accentuated in the posterior area, with a cross diameter of 7.3 mm and an anteroposterior diameter of 9.1 mm. She underwent rigid bronchoscopy (RB), in which a diffuse edema from the paranasal sinuses to the larynx was visible. Unsuccessful intubation with RB with an inferior di-

ameter (ID) of 7.5 mm. Concentric stenosis with 2 cm in length and 7 mm lumen was identified 2-3 cm below the vocal cords, where biopsies were performed and hydrocortisone was instillated. Tracheal mucosa with marked and diffuse edema, with a granular and hemorrhagic appearance in some areas. Biopsy revealed moderate nonspecific chronic inflammation. Considering the exuberant edema of the entire airway and the unsuccessful intubation attempt with RB, it was decided to hospitalize the patient in order to perform high-dose systemic corticosteroid therapy: metiprednisolone 1 mg/kg for 4 days, followed by oral prednisolone for 4 weeks. The patient showed an initial improvement in symptoms, but subsequent worsening. A CT scan of the neck and chest was repeated, showing no improvement in the subglottic stenosis, so she was proposed for airway dilatation. RB was performed, as the already described stenosis was observed. Biopsies were performed at this level. Initially introduced RB with ID of 6.5 mm, with successful dilation. Unsuccessful dilatation by RB with ID of 8.5 mm. Final lumen of 7 mm. Currently, the patient reports improvement in symptoms and is undergoing progressive weaning from corticosteroid therapy. Follow-up is being kept at medical appointments.

Discussion: The diagnosis of CD usually precedes the development of respiratory symptoms, however, this may be the first manifestation of CD. Thus, the existence of pulmonary involvement in patients with CD and respiratory symptoms needing clarification should be considered. Tracheobronchial involvement is rare in CD. It typically presents a favorable evolution with corticosteroid therapy. Bronchoscopic techniques prove to be a fundamental tool in the resolution of airway stenosis, especially if there is insufficient response to corticosteroid therapy.

Keywords: *Crohn's disease. Airway stenosis. Rigid bronchoscopy.*

PC 091. THORACIC ROBOTIC SURGERY IN THE SNS: THE BEGINNING

J. Eurico Reis, J. Maciel, C. Moita, Z. Cruz, C. Figueiredo, A.R. Costa, J. Silva, P. Calvinho

Hospital de Santa Marta-CHULC.

Technological developments have made it possible to offer patients increasingly less invasive approaches for the surgical interventions required for the diagnosis, treatment and palliation of multiple thoracic pathologies. Robotic Assisted Thoracic Surgery (RATS) has existed in Portugal since 2016, but was performed for the first time, in the National Health System (SNS), on March 24th, 2022. Here we describe the first RATS surgeries completed with the Da Vinci Xi System, by our team, between March and July 2022. We operated fifteen patients, 8 were male, with a mean age of 65 ± 16 years [30-88 years]. Fourteen surgeries were carried out for mediastinal pathology (10 lesions of the anterior mediastinum and 4 of the posterior mediastinum) a surgical correction of a diaphragmatic hernia, after liver surgery, was also performed. The surgeries were conducted using 3 robotic arms (8 mm ports) and a 12 mm port for the assistant, which is extended if necessary for removal of the surgical specimen. There were no conversions. The procedures had a mean duration of 94 ± 49 min [25-225 min], with estimated intraoperative blood losses between 5 and 30 mL (mean 17 ± 8 mL). In 13 of the surgeries a chest drain was placed, which remained for an average of only 1 day. In two patients no drain was left after surgery. One patient kept the drain for 4 days and was discharged on the 5th post-op day for initial serous drainage > 300 mL/24h. All other (14) patients were discharged on the first postoperative day, with their pain controlled only with analgesic (per os) medication. Four (28.6%) of the excised lesions were malignant, namely thymomas, in stages Masaoka Koga between I and IIb, in all of them the excision was R0. Among the other excised lesions we highlight a thymectomy for myasthenia gravis without thymoma, an ectopic parathyroid adenoma, a myelolipoma and a schwannoma among others. Our series demonstrates, as described in the international literature, that RATS allows us to complete multiple thoracic surgeries in a safe and accurate manner, with a great control of intraoperative bleeding. It has a faster learning curve than thoracoscopy, which does not significantly increase surgical times, and always complying with the oncological surgical principles. The hospital stays were short and a reduction in the pain felt by the patients was noted. The objective now is to undergo pulmonary surgeries with a progressively higher degree of complexity, at the same time as more surgeons become autonomous in this technique.

Keywords: *Thoracic surgery. Rats.*

PC 092. THE DIAGNOSTIC VALUE OF BRONCHIAL BRUSHING - THE EXPERIENCE OF A PERIPHERAL HOSPITAL

M. d'Almeida, C. Giesta, S. Ferreira, T. Câmara, A. Szantho, C. Lousada

Centro Hospitalar do Médio Tejo.

Introduction and objectives: Bronchial brushing is a diagnostic procedure frequently used during flexible bronchoscopy for the pathologic diagnosis of malignant neoplasms of the lung. Its use is complementary to the use of biopsies, aspiration punctures, bronchial aspirate and directed lavage. We decided to perform a retrospective analysis reflecting the experience of its use over a 6-month period.

Methods: Flexible bronchoscopies performed at the Centro Hospitalar do Médio Tejo between January 1 and June 29, 2022 were included. The frequency of bronchial brushing use was analyzed and its outcome was compared with the other methods in patients in whom this approach was used.

Results: Of a total of 111 flexible bronchoscopies performed at the Centro Hospitalar do Médio Tejo, bronchial brushing was used in 13 patients (11.7%). The age range was 55 to 88 years (mean 70.8 years), with a male:female ratio of 3.33:1. In this group, 6 patients were non-smokers (46.2%) and smokers had a mean smoking load of 37 pack-years. Regarding bronchoscopy findings, one patient had direct and indirect signs of neoplasia and the biopsy was positive for non-small cell lung carcinoma (NSCLC), with the brushing being suggestive of the same diagnosis. Five patients had direct signs of neoplasia, and the brushing was considered suggestive of NSCLC in one patient and positive for NSCLC in another, and in the remaining three patients, proximal biopsies identified small cell lung carcinoma (SCLP) and a probable atypical carcinoid tumor. Two patients had indirect signs of neoplasia, including one with bronchial brushing that was suspicious for NSCLC. In the remaining five patients with no signs of neoplasia on flexible bronchoscopy, the brushing was positive for SCLP in one of the cases. Overall, bronchial brushing was considered positive in 15.4%, suggestive of neoplasia in 15.4%, suspicious of neoplasia in 7.7%, and negative in 62.5% of cases. Biopsies were performed in 76.9% of the patients, with results being positive in 60% of the cases and negative in the remaining 40%. In 15.4% of patients, a bronchial aspirate was considered suspicious for neoplastic cells and negative in the remaining 84.6%.

Conclusions: These findings attest to the importance of performing bronchial brushing in suspected cases of malignant neoplasm of the lung. In our analysis, the procedure in question showed a significant percentage of non-negative cases (38.5%), which contrasts with the results of bronchial aspirate cytology. The data presented suggests that bronchial brushing should be considered in a greater number of cases.

Keywords: *Bronchial brushing. Lung cancer. Flexible bronchoscopy.*

PC 093. ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION IN PREOPERATIVE LUNG CANCER STAGING

C. Gouveia Cardoso, M. Jacob, C. Sousa, V. Santos, M. Sucena, A. Magalhães, G. Fernandes

Centro Hospitalar e Universitário de São João.

Introduction: Accurate mediastinal and hilar staging is a crucial step to plan the best therapeutic strategy in patients with non-small cell lung cancer (NSCLC). Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) plus transoesophageal ultrasound-guided fine needle aspiration (EUS-FNA) are an established minimally invasive approach for mediastinal staging, in patients who are fit for surgery. However, it remains unclear whether mediastinoscopy is always required after a negative EBUS-TBNA result to identify patients with surgical indication. The aim of this study was to analyse the true value of EBUS-TBNA in lung cancer staging based on the pathologic staging.
Methods: Retrospective analysis of patients submitted to EBUS-TBNA for preoperative lung cancer staging, between 2009 and 2020, in a tertiary hospital. Patients with a N0/N1 staging after EBUS-TBNA who underwent surgical treatment were included in this study. EBUS-TBNA and pathologic staging were compared, and negative predicted value (NPV) was calculated.
Results: Among 1,609 patients sampled, 109 patients met the study criteria. The mean age was 65.8 ± 8.8 years and 94 patients (86.2%) were men. NSCLC histologic types were adenocarcinoma (76.1%; n = 83), squamous cell carcinoma (21.1%; n = 23), adenosquamous (1.8%; n = 2) and giant cell carcinoma of the lung (0.9%; n = 1). Tumour was located more commonly in the right upper lobe (36.7%, n = 40) and tumour mean size on computed tomography (CT) was 30.5 ± 36.8 mm (range of 8.0-330.0 mm). Positive lymph nodes (LNs) were seen on CT in 31.2% and on positron emission tomography- computed tomography (PET-CT) in 56.9% of patients. A total of 784 punctures of LNs stations were done (mean ultrasonographic size 9.1 ± 2.5 mm, range of 4.0-20.7 mm), with a median of 7 (range 3-16) punctures per patient. The stations more frequently assessed were: 7 (87 patients – 79.8%), 4R (73 patients – 67.0%) and 4L (41 patients – 37.6%). Pathologic staging demonstrated eight cases (7.34%) of upstaging to N2/N3. The overall NPV of EBUS-TBNA in this setting was 92.66%. No statistically significant factors associated with upstaging were found (namely, NSCLC histologic type (p = 0.876), tumour location (p = 0.431), tumour size (p = 0.864), presence of positive LNs on CT (p = 0.833) or on PET-CT (p = 0.052)). No major complications occurred in this cohort of EBUS-TBNA patients.
Conclusions: In this cohort of patients, the high NPV confirmed endosonographic staging as a safe and effective method in preoperative lung cancer staging.

Keywords: *EBUS-TBNA. Mediastinal staging. Non-small cell lung cancer.*

PC 094. TOBACCO AND PNEUMONECTOMIES – WHO AND WHEN TO OPERATE?

F. Leite, S. Lopes, G. Paupério

Serviço de Cirurgia Torácica, Instituto Português de Oncologia do Porto.

Introduction: Given the recent major advances in the treatment of non-small cell lung cancer, and the not negligible risk a pneumonectomy portends, it is worth questioning if this procedure is still worth it.
Objectives: To analyse and establish a profile of patient submitted to surgery, focusing on its history of smoking and type of surgery, in order to better match both and optimize prior to surgery.
Methods: A review of a tertiary oncological centre's thoracic surgery database from January 2018 to June 2021, considering cardiovascular risk factors, lung function, disease type and stage, type of resection and survival.
Results: During this period 330 patients were operated, with 20 pneumonectomies performed. Overall non-smokers where younger (p < 0.001), mainly women (65.1%), had less cardiovascular risk factors (p < 0.001) and better FEV1 (p: 0.047). No difference was found on histological type, stage or type of resection. When exploring patients submitted to pneumonectomy, age was no longer significantly different (p: 0.899), nor was FEV1 (p: 0.271) or cardiovascular risk factors (p: 0.408). Concerning survival, non-smoking patients submitted to pneumonectomy had similar long term survival as non-pneumonectomy patients. A history of smoking, both past and present, portended a 50% survival at 2 years, with current smokers fairing worse with a greater early mortality.
Conclusions: Globally, non-smokers faired better early on in the follow-up. Patients submitted to pneumonectomy had poorer survival, with past and active smokers having the worse survival. This suggests that, when referred for surgery, a patient should have lung function and cardiovascular risk factors optimized, but when a pneumonectomy is planned, smoking cessation should take precedence.

Keywords: *Pneumonectomy. Tobacco. Lung cancer. Lung function.*

PC 095. ENDOBRONCHIAL ULTRASOUND – TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) FOR THE MOLECULAR CHARACTERIZATION OF NON-SMALL CELL LUNG CANCER (NSCLC): SINGLE CENTER EXPERIENCE

S. Almeida da Silva Cunha, L.V. Rodrigues, P. Matos, M. Santis, M. Viegas, L. Barradas

Cardiothoracic Surgery, Functional Unit of Thoracic Surgery, Centro Hospitalar e Universitário de Coimbra.

Minimally invasive procedures can fail to provide adequate samples for a complete (histopathogical and molecular) diagnosis of NSCLC. The aim of this study was to assess the use of EBUS-TBNA for the molecular characterization of NSCLC in our center. We conducted a retrospective analysis (January 2019-December 2021) of patients that undergone EBUS-TBNA. Molecular analysis was performed after histopathological evaluation in a sequential fashion (first to identify EGRF mutations, if negative, proceeded for detection of ALK gene rearrangements). Demographics, smoking history, histopathological classification, and staging were collected. Details of the procedure were registered (number of stations assessed, number of needle passes per station, and final molecular diagnosis). Statistical analysis was performed with the software SPSS. EBUS-TBNA was performed in 718 patients. 59 (8.2%) proceeded to molecular characterization, but only 38 (5.3%) had their study performed in EBUS-TBNA samples. The patients (n = 38) were mainly male (65.7%) with a median age of 67 years. Half had a relevant smoking history. Most NSCLC were lung adenocarcinomas (86.8%). Patients presented either locally advanced or metastatic disease. A median of 2 lymph node stations were approached, with a median number of 3 needle passages. 34 (89.5%) were considered satisfactory for EGRF, whereas 31 (81.6%) were suitable for ALK. EGFR mutations were identified in 6 patients and ALK rearrangements in 2. Mutated patients were mainly male, non-smokers, and most presented with metastatic disease. This study presents limitations, namely the low sample size. Nevertheless, in our sample, EBUS-TBNA had a high probability of achieving sufficient material for a complete diagnosis of NSCLC.

Keywords: *EBUS-TBNA. Lung cancer. Molecular diagnosis.*

PC 096. BRONCHOALVEOLAR LAVAGE IN ACUTE CHEST SYNDROME - SICKLE CELL ANEMIA

I. Duarte, F. Canedo, D. Silva, R. Gerardo, D. Maia, A. Sofia Santos, A. Mineiro, A. Miguel

Serviço de Pneumologia; Centro Hospitalar Universitário Lisboa Central-Hospital Santa Marta.

Introduction: The acute chest syndrome (ACS) is a frequent and potentially fatal complication of Sickle Cell Anemia. There are several causes associated with the development of this complication, including infectious processes and pulmonary infarction. Gold-yellow bronchoalveolar lavage (BAL) is characteristic of SCA, making it an important diagnostic clue.
Case report: A 20-year-old man, black, non-smoker, with a known history of sickle cell anemia phenotype SS (Drepanocytosis), went to the emergency department presenting bilateral dorsal pain with one day of evolution and progressive worsening associated with febrile temperature and exposure to cold. Gas analysis showed partial respiratory failure and analytically increased inflammatory parameters. It was decided to hospitalize the patient for further study and symptomatic control, and empirical antibiotic therapy was initiated. Septic screening with urine culture, blood culture, and antigenuria tests were negative. Since the complaints and hypoxemia persisted, a chest CT scan revealed peripheral alveolar consolidation at the level of the lower left lobe, which was complemented with videobronchoscopy. Collection of bronchial secretions and bronchoalveolar lavage (BAL) with a characteristic golden-yellow macroscopic appearance confirmed the diagnosis of ACS. From the BAL analysis no microbiological isolates were obtained, the total bilirubin value was low (< 0.10 mg/dL) while the lactate dehydrogenase (LDH) value was higher (59 U/L). Treatment included transfusion of red blood cell concentrate units, oxygen therapy, fluid therapy and escalation of antibiotic therapy with subsequent clinical, analytical and imaging improvement.
Discussion: The golden bronchoalveolar lavage is a pathognomonic sign of acute chest syndrome often associated with the presence of bilirubin in the alveolar space due to injury-related increased capillary endothelial permeability. More recently, it has been found that this staining may also be associated with an intense exudative process with increased LDH rather than bilirubin content. The recognition of BAL characteristics and its complementary study is an added value in the correct diagnosis of the underlying pathology and consequent effective treatment.

Keywords: *Bronchoalveolar lavage. Golden. Acute chest syndrome. Drepanocytosis.*

PC 097. PERSISTENT SPONTANEOUS SECONDARY PNEUMOTHORAX REFRACTORY TO THERAPY

P.S. Pereira, A. Figueiredo, R. Lopes, S. Cunha, S. Lareiro, R. Pancas

Centro Hospitalar e Universitário de Coimbra.

Introduction: Secondary spontaneous pneumothorax is a pathology associated with worse symptoms and higher mortality rates compared to primary pneumothorax. In fibrotic interstitial diseases, pneumothorax is associated with a worse prognosis and lower survival rates. We present a case of secondary spontaneous pneumothorax refractory to medical and surgical treatment, whose collection of pleural fluid during the intervention allowed the identification of pleural infection, contributing as a possible etiological cause.
Case report: Female, 60 years old, non-smoker, followed in pulmonology due to fibrotic hypersensitivity pneumonitis diagnosed in 2016 by surgical lung biopsy. In stability, she referred dyspnea mMRC 1 and non-productive cough with progressive worsening in the previous year. Respiratory function tests revealed a FVC of 49% (previous year of 76%) and DLCO of 64% (previous year of 58%). She was treated with mycophenolate mofetil and was proposed for nintedanib. Other comorbidities were cachexia (weight: 39 Kg) and spontaneous right pneumothorax in 2015 treated with chest drainage. The patient was observed in the emergency department on 3/July with acute worsening of dyspnea and interscapular pain. A chest X-ray revealed a left pneumothorax and a 14 Fr chest tube was placed. There was absence of resolution of pneumothorax with incomplete lung expansion, persistent air leak, subcutaneous emphysema and pneumomediastinum documented by chest CT. Due to an episode of desaturation associated with the non-functioning of the chest tube, a 24 Fr tube was placed. There was partial clinical improvement, but the pneumothorax persisted. Discussed and accepted for surgical treatment. The patient was transferred to cardiothoracic surgery department after 22 days. She underwent uniportal VATS. Fibrin within the pleural cavity, adhesions to the wall, scarce citrine pleural fluid and thickening of the visceral pleura were observed. An air leak was identified in the left superior lobe, which was covered by a plaque that was biopsied. The alveolar-pleural fistula was closed with 3/0 vicryl stitches supported on Teflon strips and reinforced with hemopatch. Pleurodesis was performed with poudradge-type talc. The surgery was uneventful and she maintained invasive mechanical ventilation for 24h and aminergic support for 48h. The culture of biopsies and pleural fluid identified Aspergillus fumigatus, PAS+ filamentous fungi colonies were identified in the pathological exam and later the same fungus was identified in bronchial aspirate culture. Voriconazole 4 mg/kg/weight was started as well as Nintedanib, previously accepted for treatment. Despite this, there was continued symptomatic worsening and respiratory failure, requiring HFNT (FiO2 maximum of 90%) started on the 3rd postoperative day. Despite optimized medical and surgical treatments, the patient maintained persistent air leak (~1 L/min) with incomplete lung expansion on chest X-ray. After deciding that she was unfit for lung transplantation, as well as invasive organ support measures, the patient died on the 6th postoperative day.
Discussion: Despite the medical and surgical treatments performed, there was an inability to resolve the pneumothorax, complicated by the pleural infection with Aspergillus fumigatus. It is important to remember that patients with secondary pneumothorax and structural lung disease may have other complications that make treatment and clarification of aetiology of the secondary pneumothorax difficult.

Keywords: *Pneumothorax. Pulmonary fibrosis. Alveolar-pleural fistula. Invasive aspergilosis.*

PC 098. PULMONOLOGY CALLED TO THE OPERATING ROOM: INTERVENTION IN THE DIFFICULT AIRWAY

A. Trindade, C. Alves, M. Alves, J. Boléo-Tomé, L. Santos, M. Silveira, R. Costa, F. Rodrigues

Hospital Prof. Doutor Fernando Fonseca.

Introduction: Physical, physiologic and contextual predictors of the difficult airway (DAW) should be identified to anticipate its management and decide the necessary equipment for its support. At the Hospital Professor Doutor Fernando Fonseca, Pulmonology is the third line in the algorithm management of DAW, after evaluation performed by Anesthesiology and before otorhinolaryngological intervention. The authors present a study of patients whose DAW implicated calling Pulmonology to the Operating Room, in an elective or emergent manner.
Objectives: To characterize demographic, clinical and procedure factors of patients whose DAW was managed by Pulmonology, in the Operating Room, between 2015 and 2021.

Methods: Clinical charts of patients registered as DAW in the Pulmonology Techniques Unit's procedures list were verified. Information about demographic data, type of surgery, cause of DAW, Mallampati scale score, ASA scale, and type of intubation was registered.
Results: 17 patients were analyzed, 55.6% (N = 10) female, planned for surgical procedures from General Surgery Department (N = 7), Maxillofacial Surgery (N = 6), and Otorhinolaryngologic Surgery (N = 4). 47.1% of patients had a score of III or IV on the ASA Physical Status Classification System Scale. The pulmonologist's presence was anticipated in 66.7% (N = 12) of surgeries. Intubation was performed by the pulmonologist in most cases (83.3%; N = 15), mainly nasotracheal with videobronchoscopic support (77.8%; N = 14). The predictive factors of DAW most frequently identified were limited mouth opening (N = 7), cervical mobility limitation (N = 4), small and large neck (N = 4), airway lesion (N = 4). Mallampati scale was not applied in 8 patients due to the disease state or patient's physiognomy; in the remaining, only four patients had classification III or IV. There was only one intercurrence registered, a case of moderate nasal bleeding.
Conclusions: Knowledge of predictive factors of DAW is essential for planning its algorithm management, to anticipate the intervention of all the medical specialties involved. Mallampati scale by itself is insufficient to predict a DAW, so it should be integrated with an evaluation of other indicators. Pulmonologists should have formation in DAW, with the integration of videobronchoscopy in the algorithm for its management optimization.

***Keywords**: Difficult airway. Intubation with videobronchoscopy. Interventional pulmonology.*

PC 099. APPLICATION OF MITOMYCIN C IN SUBGLOTTIC STENOSIS

J.D. Rodrigues Barbosa, S. Salgado, T. Abreu, L. Mota, J. Semedo

Centro Hospitalar Universitário Lisboa Norte.

Introduction: Laryngotracheal stenosis (LTS) continues to be a challenge in diagnostic, therapeutic, and prevention. Mitomycin C has an inhibitory effect on fibroblast proliferation, decreasing the rate of restenosis and time to re-dilation. The topical application of Mitomycin C has shown promising results in previous studies when used as adjuvant therapy in the endoscopic treatment of LTS.
Case report: We present the case of a 42-year-old female, nonsmoker, obese, with a relevant personal history of bilateral retinal vasculitis, without extraocular involvement, and tetralogy of Fallot, who underwent two surgical interventions in childhood (1980 and 1992), left adnexectomy (2021) and awaiting surgical intervention due to a solid renal lesion, with suspected tumor etiology. She was referred to the Pulmonology appointment to investigate a focal nodular lesion of the pleura, however, the patient mentioned the presence of an inspiratory noise with months of evolution, mainly with efforts and with accelerated speech, which had not been valued until then. On physical examination, she was eupneic on room air, without signs of respiratory distress, peripheral oxygen saturation of 96%, and pulmonary auscultation with preserved vesicular murmur bilaterally. He also had intermittent stridor. Computed tomography of the chest showed nodular thickening of the left anterior pleura of about 12 mm, post-cardiac surgery status with calcification of the pericardium anterior to the right ventricle, but without lesions in the airway. A bronchoscopy was performed, which revealed a simple, circumferential, subglottic stenosis, with a lumen of approximately 5 mm. Autoimmune analysis, including anti-neutrophil cytoplasmic antibodies (ANCA), was negative. She underwent rigid bronchoscopy, with cuts in the mucosa and dilation with successively larger caliber up to 10 mm, with subsequent topical application of mitomycin C at a concentration of 0.4 mg/ml (5 ml). Reassessment showed concentric stenosis of the subglottic region with an extension of less than 3-4 mm and a diameter of 8-10 mm.
Discussion: We present the clinical case of a patient with subglottic stenosis, effectively submitted to endoscopic therapy with mitomycin C application. Topical application of mitomycin C has been used in cases of benign LTS and seems to have good results in reducing granulation tissue, reducing progression, and improving stenosis diameter, avoiding surgical intervention.

***Keywords**: Subglottic stenosis. Mitomycin C.*

PC 100. IMPACT OF BRONCHOFIBROSCOPY ON ANTIMICROBIAL STRATEGY – THE EXPERIENCE OF A CENTRAL HOSPITAL

M.M. Carvalho, A.C. Pimenta, J. Silva, B. Conde, R. Noya, A. Loureiro

Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Bronchofibroscopy (BFO) and subsidiary procedures allow obtaining biological samples from the lower respiratory tract, with superior profitability in the identification of disease-causing microorganisms. Due to their invasive nature, however, they do not represent a first line of diagnostic approach.
Objectives: To determine the impact of microbiological analysis of lower respiratory tract samples on antimicrobial treatment strategy.
Methods: We carried out a retrospective observational cohort study, analyzing all BFO performed at the Bronchology and Pleural Techniques Unit from May to October 2021. Demographic and clinical data were collected. Statistical analysis was performed using SPSS Statistics 25.
Results: We analyzed a total of 223 tests, most frequently requested for endobronchial staging/diagnosis of neoplasic disease (n = 108; 48.43%). Only 33 patients (14.80%) realized the exam due to an infection that was refractory to empirical antibiotic therapy or due to suspected opportunistic infection. Microbiological isolations were found in samples from 78 procedures (34.98%). Bronchoalveolar lavage (BAL) was performed in 63 of the exams (28.25%) – in n = 30 (47.61%) of these, microbiological isolation was obtained in the collected material. The profitability of the BAL microbiological examination was statistically significantly higher than the profitability of aspirate and bronchial lavage (p = 0.025). In relation to bronchial aspirate, BAL presented an odd of 1.95 for obtaining microbiological isolations. The most frequently isolated microorganism was *Streptococcus pneumoniae* (n = 17; 21.79%); there was a diagnosis of tuberculosis in n = 5 (6.41%). Most patients with isolated microorganisms were not under antibiotic therapy (n = 68, 87.18%) and only in 53 patients (67.94%) isolation motivated the clinical decision to start antibiotics, guided by the susceptibility test (TSA). The antibiotic most frequently started was amoxicillin/clavulanic acid (n = 22; 41.51%), followed by levofloxacin, trimethoprim/sulfamethoxazole and the HRZE regimen. In 12 of the cases (15.38%), the patients were previously on empiric antibiotic therapy (5 patients on amoxicillin/clavulanic acid, 5 on piperacillin/tazobactam, 1 on ceftriaxone and 1 on levofloxacin). In 6 of these patients, it was necessary to adjust an antibiotic instituted by the TSA demonstrating ongoing drug resistance.
Conclusions: Obtaining samples from the lower respiratory tract for microbiological analysis allowed the identification of an infection in 53 patients (23.77%) and adjustment of the antibiotic strategy in 6 of these patients (11.32%). The profitability of BAL is significantly superior to the profitability of bronchial aspirate or lavage in the identification of microorganisms. Despite not being a first-line test, the microbiological analysis of the products collected during BFO, even if performed for other reasons, allows the identification of

infectious agents, and allows the clinical decision of the institution of adequate treatment, avoiding therapeutic failure, toxicity unjustifiable and favoring resistance.

Keywords: *Bronchofibroscopy. Microbiological isolations. Bronchoalveolar lavage profitability.*

PC 101. PULMONARY TORSION: A COMPLEX DIAGNOSIS

R.J. Pereira de Matos Cordeiro, A. Nawojowska, A. Nunes, L. Mateus, M. Cavaco, C. Silvestre, R. Branquinho Pinheiro, D. Cabral, M. Alvoeiro, C. Torres, F. Félix

Centro Hospitalar do Oeste.

Introduction: Pulmonary torsion is a life-threatening condition that occurs when the lung (or a lung lobe) rotates on its axis and causes airway obstruction and/or vascular obstruction. If the lobe rotates more than 180º, the obstruction of the broncovascular pedicle is acute and can lead to atelectasis followed by pulmonary infarction and necrosis. Pulmonary torsion occurs mainly in patients undergoing thoracic surgery or intrathoracic procedures, although spontaneous torsion is described in the literature. About 77.4% of pulmonary sprains occur after right upper lobectomy. Symptoms are nonspecific and range from fever, chest pain, dyspnea, and cough. Most symptoms appear between 4-14 days after a surgical procedure or trauma. Chest radiography may show consolidation and bronchoscopy may be indicative of torsion, but the definitive diagnosis is made through CAT-Chest imaging with bronchial artery obstruction, pulmonary opacification and atelectasis. To save the viable lung, distortion must be performed within the first hours of diagnosis. Conservative therapy is associated with recurrent pneumonia and high mortality. Few cases have complications after surgical fixation.
Case report: We present the case of a 50-year-old female, Caucasian, smoker for 15 packs. Followed by an allergology consultation for bronchial asthma and adult-onset rhinosinusitis. In the context of a consultation, a CT-Thorax was performed in 2018 with visualization of a ground glass lesion in the LSD, without associated mediastinal and/or hilar adenopathies. An annual imaging reassessment was performed, which revealed a progressive increase in the size of the lesion and an increase in the ground glass component compared to 2018. PET showed no evidence of other lesions. Given the evolution of the condition, the patient was sent to the thoracic surgery consultation, being proposed a right upper lobectomy and mediastinal lymph node dissection with extemporaneous intraoperative examination. The observation of the specimen revealed lepidic invasive adenocarcinoma, which led to a right upper lobectomy and lymph node dissection. Chest drainage was placed. In the postoperative period, at 24 hours, she was asymptomatic but with a chest X-ray. to document middle lobe (LM) atelectasis. Bronchoscopy was ordered, which showed scanty secretions and a thin lumen in the LM. The following imaging control maintained upper right opacity compatible with atelectasis, which led to the suspicion of possible torsion of the middle lobe, despite the symptoms not being compatible. She performed a contrast-enhanced CT-Thorax that confirmed the torsion of the middle lobe. Underwent urgent surgery for middle lobe distortion and lower lobe pexia by VATS. Upon inspection, the LM was found to be hepatized, with 180º rotation about its axis. LM distortion was performed under bronchofibroscopic control followed by LM pexy to the right lower lobe (LID) with suture and mechanical stapling.
Discussion: Pulmonary torsion after lobectomy is a rare entity with high mortality that requires timely surgical intervention. Awareness of this surgical complication is necessary given the nonspecific symptoms and complementary diagnostic tests.

Keywords: *Pulmonary torsion. Lobectomy.*

PC 102. IMPACT OF THE COVID-19 PANDEMIC ON HOSPITALIZATIONS FOR ACUTE EXACERBATION OF COPD IN PATIENTS ON HOME NIV

D.A. Barroso Ferreira, M. Castro, E. Silva, T. Shiang, M. Vanzeller, C. Ribeiro

Pulmonology Department, Centro Hospitalar de Vila Nova de Gaia/Espinho.

Introduction: Non-Invasive Ventilation (NIV) represents the mainstay of ventilatory support for patients with COPD and Chronic Respiratory Failure, with a success rate of 80-85% in disease exacerbations. COVID-19 pandemic had impact on the management and follow-up of patients with NIV at home, but which it is not yet well characterized.
Objectives: We intended to understand the impact of the COVID-19 pandemic on hospital admissions for acute exacerbation of COPD (EADPOC) in patients on NIV at home.
Methods: We included all patients followed in the NIV consultation at tertiary hospital and who required hospitalization for COPD exacerbation in this hospital, without diagnoses of COVID-19 infection. Patients were divided into 2 groups, regarding the time period in which they were admitted: group 1 – January 1st, 2019 to March 11th, 2020 (pre-pandemic period); group 2 – March 12th, 2020 to May 21st, 2021 (pandemic period). The two groups were retrospectively analyzed and demographic information was compared, from the ventilator use report, cause and duration of hospitalization, arterial pH on admission, need and motive for NIV use on admission, articulation with the intermediate, intensive and palliative care units.
Conclusions: Patients hospitalized after the onset of the COVID-19 pandemic were older, had a greater degree of disability in daily activities and were more likely to be on triple inhaler therapy. Regarding the reason for hospitalization, there were fewer diagnoses of infection and more cases of decompensation of comorbidity, which might have motivated the higher number of requests for cooperation to the palliative care unit.

Keywords: *Home mechanical ventilation. COPD. COVID-19.*

PC 103. AMYOTROPHIC LATERAL SCLEROSIS- A RETROSPECTIVE STUDY

A. Barroso, H. Chaves Ramos, M.C. Carrondo, U. Brito

Pneumology, University Hospital Center of Algarve.

Introduction: Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease with an inexorably progressive course leading to progressive neuromuscular weakness. The disease usually appears between the ages of 40 and 60 and mostly occurs sporadically (90%).
Methods: This descriptive, population-based study was conducted using retrospective data from the medical records of patients treated at the multidisciplinary Neuromuscular consultation of a hospital in southern Portugal. Data extracted included age, sex, time of symptom onset, site of onset, family history of ALS, time between symptom onset and diagnosis, duration of disease course, use of noninvasive ventilation (NIV), percutaneous endoscopic gastrostomy (PEG) and the time of onset. Pearson's correlation was calculated comparing individual patient values and paired Student's t-test was used for significance testing after the Kolmogorov-Smirnov test for normality. Survival data were also analyzed using the Cox proportional hazards model. Kaplan-Meier curves were used to estimate cumulative survival. The established significance level was 0.05 and the confidence intervals were 95%.
Results: Of the 57 patients included, 31 were male (54.4%) and most were over 55 years of age (77.4%). Age at disease onset averaged 65.4 years (SD ± 11.1 years) and limb *vs.* bulbar signs were 56.5% and 35.5%, respectively. The mean time from symptom onset to ALS diagnosis was 14.8 (SD ± 22.5 months). Of the 57 patients, 38 (66.7%) were on NIV, 24 (42.1%) on PEG, and 28 (49.1%) died. Median survival was 10 months (SD ± 14.7 months) and a maximum of 53 months;

however, we observed that median survival in patients on PEG was 29.5 months and on NIV was 11.2 months. Bulbar ($r = 0.519$, $p < 0.001$) and multifocal ($r = 0.451$, $p < 0.001$) signals showed a positive correlation with death, while NIV ($r = -0.422$, $p < 0.001$) and PEG ($r = -0.696$, $p < 0.001$) showed the opposite. Although there is no statistically significant correlation with survival, it is observed in the Kaplan-Meier curves that patients who start NIV earlier and those who undergo the PEG procedure have a higher cumulative survival than those who start treatment later.
Conclusions: This study suggests that early use of NIV and PEG is associated with better survival outcomes. Further studies in larger patient populations are needed to determine what factors modify survival outcomes in ALS.

Keywords: *ALS. NIV. PEG.*

PC 104. TELEMONITORING IN HOME NONINVASIVE VENTILATION – OUR EXPERIENCE

D. Amorim, P. Viegas, D. Ferreira, C. Nogueira, S. Conde, C. Ribeiro

Serviço de Pneumologia, Centro Hospitalar de Leiria.

Introduction: Noninvasive ventilation (NIV) is an important measure to improve quality of life and survival in many patients with chronic respiratory failure. Monitoring of ventilator parameters, patient's compliance and software readout is imperative to obtain these outcomes. Nowadays, it is possible to remotely monitor many ventilatory devices, which allows clinicians to efficiently checkup patients' problems and reducing requirement for hospital visits. The aim of this study was to characterize the population of patients under NIV with telemonitoring and its use.
Methods: Retrospective observational study of all patients under home-NIV with tele-monitoring software (AirView™ or Care Orchestrator™) in the second semester of 2021. Patients' demographic characteristics, types of medical appointment (in-person or teleconsultation) and changes made in ventilation between January 2020 and December 2021 were analyzed. Statistical analysis was performed using IBM SPSS Statistics 27.
Results: The study included 290 patients under home NIV evaluated in our outpatient clinic, 138 (47.6%) had telemonitored ventilators. These 138 patients had 641 appointments (mean 4.6 in 24 months). Despite the telemonitorization possibility, in 15 (10,9%) patients the clinician did not access it: 7 (46,6%) only started NIV in the second half of 2021, 4 (26,7%) underwent adaptation at the end of 2020 requiring in-person adjustments and in other 4 (26,7%) it was deemed not necessary as the patients had in-person consultations in a short time. There was a statistically significant lower average use of NIV (in hours) in these 15 patients (7h47 *vs.* 9h29, $p = 0,032$). In some patients, ventilation adjustments were performed using telemonitorization, but less often than in in-person consultations (5,8 *vs.* 18,8%, $p < 0,001$).
Conclusions: We found marked differences between homecare respiratory companies regarding possibility of telemonitorization. Around half of patients are telemonitored but in 10,9% of these clinicians did not use this option, either for monitoring or prescription change. There seems to be a preference for in-person consultation when ventilation adjustments are required.

Keywords: *Noninvasive ventilation. Telemonitorization. Teleconsultation. In-Person consultation.*

PC 105. THE MULTIDISCIPLINARY TEAM IN THE FOLLOW-UP OF NEUROMUSCULAR DISEASES

P. Viegas, L. Lázaro Ferreira, S. Conde, R. Fernandes, C. Ribeiro

Serviço de Pneumologia, Centro Hospitalar de Vila Nova de Gaia Espinho.

Introduction: Neuromuscular diseases (NMD) are complex entities that need a multidisciplinary approach. This approach has been shown to extend survival and improve Amyotrophic Lateral Sclerosis (ALS) patients' quality of life.
Methods: We performed a retrospective analysis of the patients followed in a Home Mechanical Ventilation (HMV) outpatient clinic, between January 2017 and March 2022. The aim of our study was to ascertain the follow-up of our patients in other medical specialties in our institution. Statistical analysis was performed using IBM SPSS Statistics® 27.
Results: We identified 123 NMD patients. From our patients, 93% were being followed by Neurology. Rehabilitation Medicine, and Social Services followed 2/3 of our patients, respectively. Fifty seven percent of the patients had a nutritional evaluation. ENT and Palliative Care followed 1/3 of the NMD patients, respectively. Gastroenterology evaluated 10% of the patients. When a subgroup analysis of ALS and non-ALS patients was performed, the proportion of evaluated patients in Palliative Care, ENT, Rehabilitation Medicine, Nutrition and Social Services were all statistically different.
Conclusions: A high percentage of NMD patients have a multidisciplinary follow up. This is especially true in ALS patients, with a greater proportion of them being followed in Palliative Care, ENT, Rehabilitation Medicine, Nutrition and Social Services.

Keywords: *Multidisciplinary approach. Home mechanical ventilation. Neuromuscular diseases.*

PC 106. DYSPHAGIA EVALUATION IN NEUROMUSCULAR PATIENTS USING THE DYSPHAGIA OUTCOME AND SEVERITY SCALE (DOSS)

P. Viegas, L. Lázaro Ferreira, S. Conde, R. Fernandes, C. Ribeiro

Serviço de Pneumologia, Centro Hospitalar de Vila Nova de Gaia Espinho.

Introduction: Dysphagia is common in neuromuscular diseases (NMD), especially in amyotrophic lateral sclerosis (ALS). However, it can appear in other dystrophies, myopathies, and myasthenia. These complaints have important clinical implications, so they must be actively searched.
Methods: The Dysphagia Outcome and Severity Scale (DOSS) is a 7-point scale that scores the severity of dysphagia, using data gathered from nasofibrolaryngoscopy and swallowing video-endoscopy. The aim of our work was to evaluate the prevalence of dysphagia, and its' approach, in the NMD patients followed in our Home Mechanical Ventilation (HMV) outpatient clinic, between January 2017 and March 2022. Statistical analysis was performed using IBM SPSS Statistics® 27.
Results: We identified 123 NMD patients. A group analysis between ALS and Non-ALS patients was performed, with 49 and 74 patients, respectively. The presence of dysphagia was more frequent in ALS patients ($p < 0.001$). The prescription of oropharyngeal rehabilitation, with speech therapy, and the use of PEG (Percutaneous Endoscopic Gastrostomy) were more common in ALS patients.
Conclusions: Dysphagia is a common symptom that must be sought in neuromuscular patients. When this is suspected, the collaboration with ENT is important to evaluate the degree of dysphagia and allow the performance of the swallowing video-endoscopy. Many ALS patients have high scores, with no dysphagia, which probably results from an early evaluation. Regular reassessment is crucial.

Keywords: *Dysphagia. Home mechanical ventilation. Neuromuscular diseases.*

PC 107. SECRETION MANAGEMENT – PREVALENCE AND APPROACH IN NEUROMUSCULAR PATIENTS

P. Viegas, L. Lázaro Ferreira, S. Conde, R. Fernandes, C. Ribeiro

Serviço de Pneumologia, Centro Hospitalar de Vila Nova de Gaia Espinho.

Introduction: Excess secretions are a common symptom in neuromuscular diseases (NMD), affecting up to 50% of amyotrophic lat-

eral sclerosis (ALS) patients. Impaired cough is not uncommon in this population. These complaints must be searched and correctly approached in our patients in order to achieve adequate symptomatic control.
Methods: We performed a retrospective analysis of the patients followed in a Home Mechanical Ventilation (HMV) clinic, between January 2017 and March 2022. We analysed NMD patients regarding their secretion related symptoms and associated therapeutic approach. Statistical analysis was performed using IBM SPSS Statistics ® 27.
Results: We identified 123 NMD patients. A group analysis between ALS and non-ALS patients was performed, with 49 and 74 patients, respectively. From the several researched symptoms, all were more prevalent in ALS patients, with statistically significant results. Regarding symptom management, the use of atropine, manually assisted cough and mechanical in-exsuflator were all significantly higher in ALS patients. The remaining therapeutic strategies showed no difference.
Conclusions: Secretion related symptoms are common in NMD, especially in ALS patients. Nevertheless, they must not be forgotten in other NMD. It is important to recognize the several therapeutic options in the management of these symptoms.

Keywords: *Secretion management. Home mechanical ventilation. Neuromuscular diseases.*

PC 108. TITINOPATHY: A RARE CAUSE OF RESPIRATORY FAILURE

J. Vieira Naia, M.C. Silva, D. Pimenta, A. Ferreira, R. Maré, A.L. Vieira, L. Ferreira

Hospital de Braga.

Introduction: Hereditary myopathy with early respiratory failure (HMERF) is an autosomal dominant neuromuscular disease that affects the striated muscles, characterized by progressive proximal and/or distal muscle weakness and respiratory failure. It is considered an extremely rare disease, but the recent identification of new mutations in the last years suggests that it is underdiagnosed with unknown prevalence. It usually manifests in the third decade of life.
Case report: 40-year-old female, physical education teacher. No relevant pathological antecedents. Family history of inclusion body myopathy in maternal uncle and cousins. The patient initiated follow-up in Respiratory Failure/Neuromuscular appointment due to a diagnosis of HMERF under non-invasive ventilation (NIV). She went to the emergency service due to daytime hypersomnolence, fatigue, dyspnea, unquantified weight loss and progressively worsening headache in the last six months, with global respiratory failure and respiratory acidemia. Started NIV and was hospitalized for stabilization and etiologic study. The initial study did not show any significant changes, and Pompe's, autoimmune, infectious, vascular, gastrointestinal, and neoplastic diseases were excluded. Showed clinical and blood gas improvement during hospitalization, but still had residual hypercapnia. Was discharged with NIV at night (bilevel mode/AVAPS - IPAP 20-25, EPAP 6, tidal volume 480, RR 16, face mask), and referred for specialized follow-up appointments as well as motor and respiratory rehabilitation. The respiratory assessment demonstrated a moderately severe restrictive syndrome, decreased maximal respiratory muscle pressures, and peak cough flow of 400 L/min. Muscle biopsy showed myopathy with bordered cytoplasmic bodies and rimmed vacuoles. The diagnosis was confirmed by a genetic study, which revealed a heterozygous mutation (c.95134T>C) in exon 343 of the TTN gene - it was found to be the same mutation presented by the patient's relatives. Initially showed digestive complaints associated with positive pressure, resolved with non-pharmacological measures. The patient adapted well to NIV, recognizing its benefits, with good adherence, and no respiratory events, without nocturnal desaturation or hypoventilation. Resumed work and maintains regular physical activity. Has occasional respiratory infections requiring mechanical coughing with an in-exsufflator, associated with manual cough assistance techniques and respiratory kinesitherapy.
Discussion: HMERF manifests as proximal and/or distal muscle and respiratory failure, which may have different degrees of respiratory involvement. In the case described, the symptoms were mostly respiratory, which contributed to a delay in the diagnosis. Diagnosis is made through muscle biopsy and genetic testing. The presence of cytoplasmic bodies and rimmed vacuoles in muscle tissue is suggestive of this disease. Clinical and family history, as well as the exclusion of other pathologies and the area of residence, are also fundamental aspects. Treatment is based on supportive measures, namely the institution of non-invasive ventilation and motor and respiratory rehabilitation to prevent complications such as pneumonia, falls, and muscle paresis. We present this case, given that it is an extremely rare neuromuscular disease whose level of suspicion must be high to proceed with the rapid initiation of treatment and prevention of complications, which leads to an improvement of symptoms and prognosis.

Keywords: *Global respiratory failure. Titinopathy.*

PC 109. IMPACT OF THE COVID 19 PANDEMIC ON THE MORTALITY OF PATIENTS UNDER HOME NON-INVASIVE VENTILATION

M. Monteiro de Castro, D. Ferreira, C. Nogueira, D. Ferreira, S. Conde, C. Ribeiro

Centro Hospitalar Vila Nova de Gaia Espinho.

Introduction: Since March 2020, Portugal has been experiencing the effects of the COVID-19 pandemic. According to official data, in Portugal, more than 5 million people have been infected by the SARS-CoV-2 virus and more than 24,000 people have died. In addition to mortality directly related to the SARS-CoV-2 virus, there was also an increase in mortality from all other causes, possibly resulting from changes in the normal functioning of health services imposed by the pandemic.
Objectives: The objective of this work was to compare the mortality rate in a pre-pandemic period with an equal period during the pandemic in patients under home non-invasive ventilation (HNIV).
Methods: The pre-pandemic period was defined as the two years preceding the day on which the first state of emergency was declared in Portugal (March 19th, 2018 to March 18th, 2020) and the period during the pandemic as the two subsequent years (March 19th, 2020 to March 18th, 2022). Clinical records of patients followed in a pulmonology consultation at HNIV of a tertiary hospital undergoing treatment who died during the aforementioned periods were analyzed. Patients who discontinued treatment (regardless of the reason) and all patients who did not start treatment were excluded. The mortality rate in the two periods was calculated and the following data were collected: sex, disease and adherence to treatment.
Results: During the pre-pandemic period and the pandemic period, the mortality rate was 16.79% and 16.45%, respectively. In the pre-pandemic period, of the 64 patients who died, 56% were male. The most frequent diseases were COPD in 28% of patients and neuromuscular diseases in 23% of patients. Regarding adherence, 81% of patients had good adherence. During the pandemic period, of the 77 patients who died, 53% were male and the most frequent diseases were COPD in 35% of patients and neuromuscular diseases in 29%. Regarding adherence, 70% of patients had good adherence.
Conclusions: Contrary to what is described for the general population, in this sample of patients we did not find an increase in mortality during the pandemic in patients with HNIV.

Keywords: *Pandemic. SARS-CoV-2. Home non-invasive ventilation. Mortality.*

PC 110. WHAT KIND OF SUPPORT DO PATIENTS WITH AMYOTROPHIC LATERAL SCLEROSIS HAVE?

A. Barroso[1], H. Ramos[1], E. Afonso[2], U. Brito[1]

[1]Serviço de Pneumologia do Centro Hospitalar Universitário do Algarve - Faro. [2]Serviço de Fisiatria do Centro Hospitalar Universitário do Algarve - Faro.

Introduction: Patients with Amyotrophic Lateral Sclerosis (ALS) usually present an increase in their dependency. Disease progression raises the need for human support and equipment.
Objectives: To evaluate the kind of material and human support patients with ALS have at home.
Methods: Presential and telephonic quiz was made to patients or ALS patient caregivers followed at least during the last year in neuromuscular multidisciplinary consultation in Centro Hospitalar Universitário do Algarve- Faro. The questions were intended to provide information about principal and secondary caregivers, the equipment available at home (excluding respiratory care devises), therapies periodically available at home, other support on daily care and what they thought that would be important to improve patients and caregivers' quality of life.
Results: 19 quizzes were made (2 patients weren't available), 10 woman, 9 men. All patients lived in their house, except one patient living in a long-term care facility and 1 patient living temporarily in a short-term care facility. 7 patients have tetraparesis with total dependency, 6 have lost their locomotion capacity but still have movements on their superior limbs, 5 are capable of walking with help, 1 can walk with a walking aid independently. 15 patients only have 1 primary caregiver, 9 have also secondary caregivers. About home support/therapies: help in hygiene (7), physiotherapy (15), nurse care (11), nutrition (3), speech therapy (3), psychology (1). As to assistive devices given by the hospital or social security, we highlight: wheelchair (19), bath chair (11), adjustable bed (5), transfer lift (2). About what patients/caregivers consider thar would be important to have: a personal assistant (15), short term units to provide caregiver rest (8), celerity in the access to assistive devices and short-term units (3), psychological support at home (3), caregivers capable of replacing the principal caregiver in case of necessity (3), easy access to home therapies (3).
Conclusions: Although all patients have human support (family/health professionals) and some equipment support according to their needs, it is fundamental to improve the access to therapies at home, make the assistive devices delivery faster and facilitate quick solutions to support the patients in cases of incapacity of the primary caregiver.

Keywords: *Amyotrophic lateral sclerosis. Support.*

PC 111. PRESSURE MODIFICATION IN HOME MECHANICAL VENTILATION IN THE CONTEXT OF HOSPITALIZATION FOR ACUTE EXACERBATION OF COPD

D.A. Barroso Ferreira, M. Castro, E. Silva, T. Shiang, M. Vanzeller, C. Ribeiro

Pulmonology Department, Centro Hospitalar de Vila Nova de Gaia/Espinho.

Introduction: Non-Invasive Ventilation (NIV) has undeniable benefits in the treatment of Respiratory Failure in patients hospitalized for COPD, with criteria for ventilation therapy. Patients with home ventilators need to maintain treatment during hospitalization, which may be an excellent opportunity to optimize parameters and adaptation to NIV.
Objectives: We intended to understand the differences between patients who underwent modification of inspiratory (IPAP) and expiratory (EPAP) pressures, and patients who maintained the pressures at the time of hospital discharge.
Methods: We conducted a retrospective study of patients with home NIV admitted to hospital for acute exacerbation of COPD, from January 2019 to December 2021. Information was collected through the ventilator use report and the patient's clinical file on: cause and duration of hospitalization, arterial pH on admission, need and motive for NIV on admission, articulation with intermediate and intensive care units.
Results: During this period, there were 54 patients hospitalized with COPD exacerbation who were using NIV at home. Of these, 41 patients maintained the parameters at discharge, and 13 underwent parameter modification.
Conclusions: Patients who were submitted to changes in pressure at the time of discharge had a longer period of time since the last consultation, lower previous IPAP values, lower arterial pH at admission, and a greater proportion of them started NIV on admission, compared to those who did not undergo changes.

Keywords: *Non-invasive ventilation. COPD. Chronic respiratory failure.*

PC 112. USE OF A MOUTHPIECE IN PATIENTS WITH AMYOTROPHIC LATERAL SCLEROSIS

N. Fernandes, L. Lázaro, S. Conde, C. Ribeiro

Centro Hospitalar Vila Nova de Gaia/Espinho.

Introduction: Amyotrophic lateral sclerosis (ALS) is a progressive and fatal neurodegenerative disease. With disease progression, patients may become dependant on a ventilator to breath. Mouthpiece ventilators (MPV) may be useful in these patients as they allow them to receive daytime ventilatory support, which they can disconnect at will, for example, to speak, eat, swallow, and cough. With this analysis we intended to characterize patients with MPV, analyze their adherence and assess the difficulties related to its use.
Methods: We performed a retrospective analysis of patients with ALS with home mechanical ventilation (HMV) followed in the outpatient clinic of a tertiary hospital between January 2017 and March 2022.
Results: Adaptation to a MPV was attempted in 13 patients, corresponding to approximately 40% of the ALS patients' analyzed (total of 33 patients). The majority were male (69%), with a median age at start of HMV of 60.4 years. Only two patients did not adapt to HMV and had poor adherence. The remaining patients were well adapted to the ventilator and had no complaints regarding therapy. Eight patients did not adhere to/tolerate MPV. The reasons associated with non-adherence/intolerance included: inability to adapt to the mouthpiece due to non-closure of the mouth (n = 2), non-adherence to ventilatory therapy (n = 1), significant hypersalivation (n = 3) and preference in wearing a facial mask (n = 5). Sometimes more than one reason was mentioned. Survival with MPV in those who adhered was around 15 months.
Conclusions: The ALS patients analyzed were mostly very well adapted to HMV, with no complaints regarding therapy and with high usage. Although most of our patients preferred the use of a face mask, 5 of our patients were adapted and adherent to MPV and satisfied with the MPV, reinforcing that the decision to use MPV must be individualized and must be discussed with the patient in accordance to their personal preferences.

Keywords: *Amyotrophic lateral sclerosis. Mouthpiece ventilator. Home mechanical ventilation.*

PC 113. AMYOTROPHIC LATERAL SCLEROSIS – THE REALITY OF A DIFFERENTIATED HOSPITAL CONSULTATION

A. Pedroso

Hospital de Braga.

Introduction: Amyotrophic lateral sclerosis (ALS) is an incurable neurodegenerative disease that's characterized by progressive

muscle paralysis. Muscle involvement eventually conditions respiratory involvement, so follow-up in Pulmonology is included in the patient's follow-up plan.
Objectives and methods: There are few data on ALS patients and their characteristics. In that regard, this work arises, which aims to characterize the population of patients with ALS, followed in a Pulmonology hospital appointment. To this end, a 23-month retrospective analysis of the patients followed in the consultation for neuromuscular pathologies was carried out.
Results: The analyzed sample consists of 47 patients, 36 male and 11 were female, aged between 40 and 81 years. The mean body mass index of the evaluated patients was 24.92 kg/m^2. There was a mean difference of 2 years and 3 months between the onset of symptoms and the diagnosis. As for the form of presentation, the medullary was the predominant one (40%), followed by the bulbar (34%) and, lastly, bulbar and medullary simultaneously (21%). During follow-up, most patients developed spinal and medullary symptoms concurrently. At presentation, approximately 87% of the patients had respiratory and/or sleep symptoms. Regarding comorbidities that may condition other ventilatory changes, namely obesity, obstructive sleep apnea syndrome (OSAS), asthma/chronic obstructive pulmonary disease, other concomitant neuromuscular diseases, these were present in 55% of the patients, with 44% corresponding to patients with OSAS. The use of non-invasive ventilation (NIV) occurred in 83% of the patients, and in 8% it was initiated acutely, in an inpatient regime, given the existence of respiratory failure. 3 patients (6%) were dependent on NIV for more than 18 hours/day and 4 (8.5%) used a tracheostomy as an interface. The use of mechanical cough support techniques happened in 28 patients (60%). Of the evaluated patients, 20 were fed by gastrostomy, placed percutaneously endoscopically, with support from NIV accordingly to the protocol established between the Neuromuscular appointment and Gastroenterology. Throughout follow-up, 17 patients died, with a death rate of 36% (82% were male and 18% were female patients).
Conclusions: After analyzing the presented data, it is possible to verify the delay in the diagnosis since the beginning of the condition, it was also noticed, that on the initial evaluation there were already respiratory and/or sleep related symptoms, which demonstrates the delay in the referring of these patients. The evolution of most patients to medullary and bulbar symptoms at the same time shows the progressive nature of the disease. With this work we aim to contribute to the disclosure of ALS, emphasizing the need for early diagnosis, both of the pathology and the respiratory involvement, in order to improve the outcomes related to quality of life and prognosis of these patients.

Keywords: *Amyotrophic lateral sclerosis.*

PC 114. SPIROMETRIC VALUES AND 6-MINUTE WALKING DISTANCE IN ADULT CYSTIC FIBROSIS PATIENTS ACROSS THE FIRST YEAR OF ELEXACAFTOR/TEZACAFTOR/IVACAFTOR (KAFTRIO) THERAPY

A.M. Madeira Gerardo, L. Costa, C. Lopes, R. Bolas, P. Azevedo

Pulmonology Department, Hospital Prof. Doutor Fernando Fonseca, EPE.

Cystic fibrosis (CF) is a rare genetic autosomal recessive disease caused by mutations on the CFTR gene, which lead to multiorgan affection. The most common mutation worldwide, the F508del mutation, is found in nearly 90% of CF patients (approximately 50% are homozygous). In clinical trials the new CFTR modulator combination, Elexacaftor/Tezacaftor/Ivacaftor (Kaftrio) showed significant improvement in patients' clinical outcomes such as lung function, chloride sweat concentration and nutritional status. However real-world data on this CFTR modulator effectiveness and safety are scant. In Portugal, the Infarmed approved Kaftrio on july 2021 for CF patients 12 years age or older and homozygous for F508del or heterozygous for F508del mutation and minimal function mutation. To evaluate the effect of Kaftrio on spirometric parameters and 6-minute walking distance (6MWD) in CF patients in a real world clinical setting. Also to compare the results in F508del homozygous group (F/F) *versus* F508del heterozygous with a second minimal function mutation group (F/MF). Single-center, prospective and observational study of adult CF patients at the Cystic Fibrosis Center of Santa Maria Hospital who have started treatment with Kaftrio. Clinical characteristics were collected, spirometric parameters and 6-minute walking distance were evaluated at baseline and after 3 (T3) and 12 months (T12) of treatment. Statistical analysis was performed using independent t-test, paired t-test and Wilcoxon test. A p-value < 0.05 was considered to indicate statistical significance. Of the 56 total patients in the clinic, 28 had genotypes eligible for Kaftrio therapy at the time of the study period. Of these, 4 patients were excluded for not meeting the 12 months follow up period required. Only nine patients (37,5%) had previously received and stopped Lumacaftor/Ivacaftor (Orkambi). 13 F/F patients showed: At T3: FEV1 = 18,2% (range: -4,3%; +28%) FVC = 9,5% (range: -4,7%; +24%) FEF25-75 = 36,4% (range: 0%; +83,8%) 6MWD = 1,3% (range: -26,2%; +18,5%) At T12: FEV1 = 23,8% (range: +13%; +34,1%) FVC = 13,3% (range: -12,5%; +28,8%) FEF25-75 = 46,2% (range: 0%; +130%) 6MWD = 2,4% (range: -16,9%; +14,7%) 11 F/MF patients showed: At T3: FEV1 = 35,3% (range: +7,1%; +65%) FVC = 20,2% (range: -13,7%; +36,8%) FEF25-75 = 70,3% (range: +4,5%; +225%) 6MWD = 14,6% (range: -5,6%; +65,5%) At T12: FEV1 = 46,6% (range: +21,4%; +72,1%) FVC = 30,4% (range: 0%; +69,4%) FEF25-75 = 77,44% (range: 0%; +190,9%) 6MWD = 17,1% (range: -3,2%; +80,6%). Our data show an increase in all parameters at both, T3 and T12, the increase in F/F is about half than in F/MF patients. Among spirometric data, FEF25-75 gained the greatest increase. The 6MWD was clinically relevant only in F/MF patients both at T3 (+62m) and T12 (+73m). Although the improvements were interestingly greater in the heterozygous group of patients, this difference was not statistically significant. These results might suggest that other patients with different mutations might also benefit from Kaftrio. Our results provided evidence of Kaftrio effectiveness on lung function and 6-minute walking distance in a real world clinical setting. Long-term monitoring is needed to investigate if the gap between F/F and F/MF patients is confirmed over time.

Keywords: *Cystic fibrosis. CFTR modulator. Elexacaftor/tezacaftor/ivacaftor (Kaftrio). Spirometry. 6-minutes walking distance test.*

PC 115. ELEXACAFTOR-TEZACAFTOR-IVACAFTOR REAL WORLD CLINICAL EFFICACY DATA

K. Lopes, C. Custódio, C. Lopes, R. Bolas, P. Azevedo

Centro Hospitalar Barreiro Montijo.

Introduction: In clinical trials elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA) showed significant clinical improvement in cystic fibrosis (CF) patients. Real-world data on ELX/TEZ/IVA efficacy are scant.
Objectives: We aim to identify the clinical and functional outcomes of patients who have started ELX/TEZ/IVA.
Methods: Clinical and functional data of CF patients under ELX/TEZ/IVA treatment for at least 12 weeks were analyzed using paired and independent t-test.
Results: We studied 24 patients, 13 F508del homozygous and 9 with prior exposure to modulator therapy, of which 11 females (45,8%), mean age 26,9 ± 7,7 years. The mean follow-up time was 167,3 ± 96,4 days. There were only 3 minor exacerbations after treatment, comparing to 32 in the previous year, of which 15 with hospital admission. After 12-24 weeks of ELX/TEZ/IVA we observed a significant improvement in FEV1 of 15,8% (95%CI 10,1 to 21,4; p < 0.001) and 0,57L (95%CI 0,34 to 0,78; p < 0.001). There was a significant decrease in chloride sweat test (CST) of 34,2 mmol/L

(95%CI -19,9 to -48,5; p < 0.001). The mean increase in Body Mass Index (BMI) in 24 weeks of treatment was 1.3 kg/m² (95%CI 0,8 to 1,8; p < 0.001). Although FEV1 improvement was greater in the heterozygous *vs.* homozygous group (+17,1 *vs.* + 14,0% and 0,61 *vs.* 0,52L), this difference was not statistically significant (p = 0.392). The same for BMI, which had a bigger increase in the heterozygous group (1,4 *vs.* 1,3; p = 0,355), whilst the CST had slightly better results in the homozygous group (-33,5 *vs.* - 35,3; p = 0.625).
Conclusions: Treatment with ELX/TEZ/IVA shows effective clinical improvement, in particular regarding FEV1, BMI and CST. No significant difference was seen between homozygous and heterozygous groups of patients.

Keywords: *Cystic fibrosis. CFTR modulator. Elexacaftor/tezacaftor/ivacaftor.*

PC 116. EFFECTS OF ELEXACAFTOR-TEZACAFTOR-IVACAFTOR IN THE RARE F598DEL/R334W GENOTYPE GROUP

K. Lopes, C. Custódio, C. Lopes, R. Bolas, P. Azevedo

Centro Hospitalar Barreiro Montijo.

Introduction: The new Cystic Fibrosis (CF) Transmembrane Conductance Regulator (CFTR) modulator, elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA) was approved for CF patients with at least one F508del mutation. The R334W is a rare mutation causing CF disease, thus the role of new modulators in this group is unclarified.
Objectives: Evaluate ELX/TEZ/IVA effects in patients with F508del/R334W genotype.
Methods: A retrospective analysis of CF patients under ELX/TEZ/IVA and with F508del/R334W genotype was performed (independent and paired t-test).
Results: Six patients with one F508del mutation and one R334W mutation were included, 3 were females (50%), mean age 28,7 ± 3,8 years. The follow up time was 174,5 ± 75,5 days. The number of exacerbations after starting ELX/TEZ/IVA was much lower (1 *vs.* 14 exacerbations) than in the previous year to start of treatment. The mean increase in BMI was 1.22 kg/m2 after initiation of ELX/TEZ/IVA (p = 0,164). Only 4 patients had chloride sweat test revaluation, with a mean decrease of 25 mmol/L (p = 0,143). A significant improvement of 16,2% (95%CI 5,2 to 27,1%; p = 0,013) and 0,54L (95%CI 0.11 to 0.98L; p = 0.24) in FEV1 was seen. When compared with a control group of F508del homozygous patients (n = 10), there were no significant differences in FEV1 baseline (47,3% in R334W group *vs.* 56,8% in the homozygous group; p = 0.341) as well as the consequent FEV1 improvement (14,0 *vs.* 16,2%, respectively; p = 0,752) after treating ELX/TEZ/IVA. Reported adverse events were self-limited and included headaches (3), rash (1), vision disturbances (1), testicular pain (1), wheezing (1) and neurologic symptoms (1).
Conclusions: Patients with the F508del/R334W genotype showed a very favorable response to ELX/TEZ/IVA, with few associated adverse events.

Keywords: *Cystic fibrosis. Elexacaftor-tezacaftor-ivacaftor.*

PC 117. CLINICAL AND IMAGING MONOTONY IN THE EXERCISE OF DIFFERENTIAL DIAGNOSIS – REGARDING A CLINICAL CASE

A. Craveiro, J. Barata, S. Martins, D. Rocha, D. Sousa, S. Lopes, E. Magalhães, M. La Salete Valente

Centro Hospitalar Universitário Cova da Beira.

Introduction: The accuracy of imaging exams has often abbreviated diagnostic delay. Nevertheless, the monotonous imaging translation of disparate conditions of severity (such as some infections or lung neoplasms) requires a proactive attitude in the exercise of differential diagnosis.
Case report: A 55-year-old man, self-employed in the ADLs, an office worker, living alone in his own home. Ex-smoker (about 3 years ago, with a CT of 70 UMA), no personal or family history of previous respiratory pathology, no risk contacts, and with personal history of HTA, Dyslipidemia, Obesity, Type 2 DM and Chronic Alcoholism. No known and chronically medicated drug allergies with sitagliptin, metformin, ramipril, rosvastatin and fenofibrate. The emergency department was used by left dorsolmbalgia, with irradiation to the homolateral lower limb and worsening of movement, with about 4 weeks of evolution. Without apparent alterations to the objective examination, he did an analytical and imaging study with Abdominal X-ray, with no alterations and discharged to domycilium under analgesia. After 1 month, due to the development of productive cough with sputum, easy tiredness, episodes of night sweating and weight loss objectification (estimated at 5 Kg), he was evaluated as an attending physician and conducted a directed study. By the chest CT-thorax of a consolidative area excavated in the left lower lobe (SLS), suggestive of neoplastic *vs.* inflammatory/infectious process, he was empirically medicated with antibiotherapy and corticosteroid therapy and was referred to a pulmonology consultation, which was performed 2 months later. In consultation, clinically improved (with reference to occasional emission of sputum of hemoptoic sputum – less than 1 episode/week) and without alterations to the objective examination. He performed analytical reassessment (without alterations) and videobronchofibroscopy (without endobronchial lesions), with bronchial washed and aspirate for cytological and microbiological evaluation (with research of *M. tuberculosis, Pneumocystis jiroveccii, Aspergillus fumigatus* and *Cytomegalovirus*). All studies were negative, so the patient was instructed to perform CT-guided Transthoracic Lung Biopsy, but that he did not perform at the time of imaging resolution in X-Thorax. Again reevaluated in a pulmonology consultation, he did a ventilatory functional study (which was normal in the various parameters evaluated) and repeated chest CT – where the emphyserate bubble was aimed at locating the previous Lesion of the SI. Assuming the diagnosis of emphysema bubble pneumonia, with clinical and imaging resolution, the patient was discharged to an assistant physician.
Discussion: The case is presented by the diagnostic suspicion that prevailed for neoplastic etiology of suspected excavated lesion (at the time of the clinic and risk factors of the patient) and to reinforce the importance of a top-down approach in the management of differential diagnoses.

Keywords: *Excavated lesion. Emphyseatosed bubble. Imaging.*

PC 118. A CASE OF INDOLENT NECROTIZING PNEUMONIA OR SOMETHING ELSE?

A.R. Costa Pereira, D. Silva Gomes, E. Seixas, B. Rodrigues, G. Teixeira, J. Coutinho Costa, M. Aurora Mendes

Centro Hospitalar do Baixo Vouga.

Introduction: Necrotizing pneumonia is a rare complication of lung parenchyma infection which has significant morbidity and mortality. Only half of the cases have microorganisms' identification. The typical clinical presentation is of pneumonia with rapid illness progression. However a more indolent presentation can delay diagnosis and treatment, increasing morbidity and mortality.
Case report: An 85-year-old man, ex-smoker (36 Pack Year), with atrial fibrillation medicated with warfarin came to the emergency department because of constitutional symptoms with four months of evolution. He denied respiratory symptoms. On physical examination he was normotensive, normocardic, apyretic, eupneic, with SpO2 (FiO2 0.21) 97% and no changes on pulmonary auscultation. In blood tests there was Hgb of 12.6 mg/dL without elevation of inflammatory parameters. Chest radiography showed a rounded hy-

potransparency with silhouette sign with the left heart border. Computed tomography of the chest showed a consolidation in the left upper lobe with air bronchogram and a central cavitation. Therefore, the main diagnostic hypotheses were necrotizing pneumonia or lung cancer. The constitutional symptoms with months of evolution, the good general state of health and the absence of alterations in the inflammatory parameters supported the possibility of malignancy. Flexible bronchoscopy was performed without evidence of microbiological isolations. Transthoracic biopsy (TTB) showed inflammation compatible with pneumonia without neoplastic cells. After TTB there was clinical worsening with fever, increase in inflammatory parameters and de novo pleural effusion. In this context, necrotizing pneumonia and probable intraparenchymal and intrapleural post-TTB hemorrhage with dissemination of the infectious process were assumed. It was not technically possible to perform diagnostic thoracentesis. He completed 21 days of meropenem and vancomycin (after three days of piperacillin/tazobactam with sustained fever) with clinical, analytical and imaging improvement. In reassessment consultation, five weeks later, there was an analytical and radiological worsening. A diagnostic thoracentesis was performed with pus outflow, so a chest tube was placed and intrapleural fibrinolysis was performed with alteplase and dornase alfa. A total of 1.44 L of pleural fluid was drained. Fulfilled 21 days of piperacillin/tazobactam with analytical and radiological improvement.

Discussion: This case reflects an uncommon presentation of necrotizing pneumonia. The diagnosis was established with a high degree of confidence after intrapleural dissemination of the infectious process by TTB. Adequate treatment of necrotizing pneumonia and empyema was only possible after intrapleural drainage, fibrinolysis and prolonged antibiotic therapy.

Keywords: *Necrotizing pneumonia. Empyema. Fibrinolysis.*

PC 119. THE ROLE OF MICROBIOME IN BRONCHIECTASIS

A.I. Santos, J. Cemlyn-Jones

Centro Hospitalar Universitário de Coimbra.

Bronchiectasis is one condition that lacks effective therapeutic options, beyond the treatment of respiratory tract infections with antibiotics. Due to the heterogeneity of clinical and radiological presentation, it is unlikely to find a "one size fits all" treatment for all the patients with bronchiectasis. Instead, personalized medicine might be the future of the treatment with bronchiectasis, as well as of other pathologies. The specific microbiome of patients with bronchiectasis has been suggested to be associated with their outcomes. Chronic bacterial infection is a feature of many patients with bronchiectasis. The microbiome of healthy individuals is influenced by several factors including food, environment and people or animal contacts. However, some individuals with bronchiectasis show differences in their microbiome, including the relative abundance of determined pathogens, that are not found in healthy individuals. The aim of our study was to evaluate microbiological isolation in the respiratory tract secretions of patients with bronchiectasis. We assessed data from the bronchiectasis appointment. From the total of 100 patients followed in the bronchiectasis appointment, 7 were excluded due to lack of data or absence of bronchiectasis. The remaining 93 patients were included. The mean age was 62.2 years ± 19.2, ranging from 18 to 90 years-old, and 71% were female. In 41 patients (44.1%), no microorganism was isolated during the period of follow-up in appointment. In the remaining 52 patients (55.9%), at least one agent was isolated in at least one sputum culture or by bronchial lavage or aspirate, and from those, 22 patients (42.3%) were considered chronically infected. From the microorganisms isolated, *Pseudomonas aeruginosa* was the most frequent (34.0%), followed by *Haemophilus influenzae* (25.5%). Non-tuberculous mycobacteria, *Staphylococcus aureus* and *Aspergillus* spp. (mainly *Aspergillus fumigatus*) were identified in 8.5% each. Eleven different bacteria were also identified in a lower percentage. Regarding chronic infections, the most frequent was *Pseudomonas aeruginosa* (14 patients), followed by *Haemophilus influenzae* (5 patients, one also chronically infected with *Moraxella catarrhalis*), *Staphylococcus aureus* (1 patient) and *Mycobacterium avium* (1 patient). Our study allows a better understanding of the bacterial communities in the lungs of our subgroup of patients, which is in agreement with studies that demonstrate that Pseudomonas and *Haemophilus* dominate the "dysbiotic" airways in bronchiectasis, and have been associated with more inflammation mediated by neutrophil and exacerbations. Furthermore, repeated antibiotic treatments may contribute to pathogenic changes in these patients' microbiomes. Beyond bacteria, fungi and mycobacteria also have an important role in these patients. In conclusion, the so-called precision medicine - the adaptation of treatment to patient characteristics, including its microbiome, - is promising, and hopefully will lead to new perspectives and prognosis to bronchiectasis patients.

Keywords: *Microbiome. Bronchiectasis. Chronic infection.*

PC 120. DESENSITIZATION FOLLOWING A SEVERE ADVERSE EFFECT OF TRIPLE THERAPY FOR CYSTIC FIBROSIS

A.I. Santos, J. Pacheco, J. Cemlyn-Jones, F. Gamboa

Centro Hospitalar Universitário de Coimbra.

Introduction: Cystic fibrosis (CF) is an autosomal recessive disorder of the CF transmembrane conductance regulator (CFTR) gene. CFTR modulators are novel approved therapies and triple therapy with elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA) is the current gold-standard for patients with at least one F508del mutation. CFTR modulators are usually well tolerated but some adverse effects may occur, including skin rash, that usually does not require drug discontinuation. Rash is more common in women, particularly those on hormonal contraception.

Case report: We report a case of a 38-year-old woman with the F508del/R334W CFTR genotype, with chronic bronchial infection by *Burkholderia cepacia* and *Pseudomonas aeruginosa*. She had no previous history of CFTR modulator therapy and she was started on ELX/TEZ/IVA with gradual improvement of breathless, a decrease in cough and fatigue and with remarkable improvement of respiratory function. However, eight days later she developed an erythematous rash, initially located in the abdomen and lower back but gradually becoming widespread, with immediate stop of both ELX/TEZ/IVA and oral contraception, and was started on corticosteroids and high dose antihistamine drugs. After eight days of discontinuing ELX/TEZ/IVA she relapsed to low energy, fatigue, headache, subfebrile temperature, and sputum reappeared, with an important decrease in lung function tests, and she started on antibiotics for exacerbation. One month later, after complete resolution of the rash, medication was gradually reintroduced. On the fifth day she developed a generalized skin rash and immediately stopped treatment again. The new rash was lighter and resolution was faster than the previous one. A week later, a new drug reintroduction was made combined with daily antihistamine drugs in the first few weeks, with good tolerance and without any side effects. The protocol used was the following: in the first 2 weeks 1 tablet ELX/TEZ/IVA each 4 days; then 1 tablet each 3 days for 1,5 weeks; and 1 tablet each 2 days for a week; then 1 daily tablet of ELX/TEZ/IVA for 5 days; followed by 1 daily tablet of ELX/TEZ/IVA plus 1 of IVA for 5 days; finally she took 1 or 2 tablets every other day of ELX/TEZ/IVA plus a daily tablet of IVA for a week; and then she fixed the full dose (2 tablets of ELX/TEZ/IVA plus a tablet of IVA) which she currently maintains.

Discussion: Around 90% of patients with CF carry at least one F508del mutation. Triple therapy with CFTR modulators has a sig-

nificative impact in lung function and in quality-of-life of these patients, justifying its reintroduction and desensitization even after a severe adverse effect.

Keywords: *Cystic fibrosis. CFTR modulators. Severe skin rash. Desensitization.*

PC 121. INVASIVE PNEUMOCOCCAL DISEASE – THE REALITY IN AN ICU

M. Alves, I. Gaspar, I. Simões, E. Carmo

Serviço de Pneumologia, Centro Hospitalar de Lisboa Ocidental.

Introduction: Invasive pneumococcal disease (IPD) results in high morbidity and mortality globally each year, though being a vaccine-preventable disease. This retrospective study aimed to analyse the clinical characteristics of patients with IPD in an intensive care unit (ICU) of a central hospital.
Methods: Retrospective study with the objective of analysing all cases of invasive pneumococcal disease in the ICU of a central hospital between 2008 and January 2022. We analysed demographic characteristics, comorbidities, need for EOT, days of invasive mechanical ventilation and outcomes.
Results: 36 patients were admitted in ICU with IPD between 2008 and January 2022. Of those, 43% (n = 17) were women and 57% (n = 19) men, with a mean age of 65 years (minimum of 20 years and maximum of 92 years). Pneumonia was the most frequent manifestation (n = 31, 86%), followed by meningitis (n = 8, 22%). Patients stayed hospitalized in ICU a median of 9 days (minimum 1, maximum 57 days). 72% of patients required EOT (n = 26), with a mean duration of IMV of 10 days. In total, 33% died (n = 12), with a mean age of 66 years (41-87 years). We analysed risk factors for a worse outcome and found that there was no statistically significant difference between patients who survive or die in relation to age, history of heart disease, chronic lung disease, chronic kidney disease, smoking, alcoholism or HIV infection.
Conclusions: Invasive pneumococcal disease, despite vaccine introduction in national vaccination program, remains a current problem, with a high mortality rate. Thought IPD is more frequent in children and adults >or = 65years and patients with risk factors such as chronic lung disease, heart disease, HIV, CKD, alcoholism, smoking, among others, it is essential to promote an invest on health, and in prevention, vaccinating the population at risk.

Keywords: *Invasive pneumococcal disease.*

PC 122. SIMEOX - A NEW PARADIGM IN SECRETION REMOVAL

B. Silva Freitas, R. Santos, R. Fonseca, R. Cantante, M. Duarte, C. Milene Esteves, C. Caneiras, J. Carlos Winck

Medical Division, Nippon Gases Portugal.

Introduction: Simeox is a medical device designed for airway clearance, aimed at people with chronic lung disease associated with chest congestion, as it mechanically liquefies bronchial mucus, facilitating its mobilization and transport from the most distal areas of the lung. It also provides expiratory assistance by optimizing bronchial emptying (of mucus and trapped air). Treatment is aimed at preventing stasis and associated mucus obstruction, airflow obstruction, and progressive lung damage. The main objective of the present exploratory study is to assess the effectiveness of Simeox in removing secretions in people with bronchiectasis, as well as to determine the patient's experience with this therapy.
Methods: Longitudinal exploratory experimental study. People with a confirmed diagnosis of bronchiectasis were referred from the Hospital. In the first week, an initial face-to-face visit was carried out with determination of the COPD Assessment Test (CAT) Score, installation, therapy teaching and two telephone follow-ups. In the remaining 3 weeks, therapy was performed autonomously by the patients. After 4 weeks, the CAT Score was evaluated and a questionnaire was applied regarding the experience with the therapy.
Results: Five people with bronchiectasis of post-infectious etiology (n = 5), female (n = 5), aged between 17 and 74 years were referred. They had COPD (n = 2), Asthma (n = 2) and Pneumotomy (n = 1) as comorbidities. All were undergoing pharmacological treatment with long-acting inhaled bronchodilators (n = 4), mucolytics (n = 5) and inhaled corticosteroids (n = 5). Three patients had no confirmed bronchorrhea. Three patients underwent Respiratory Rehabilitation. There was an average of 14 sessions in the 4 weeks of study, in Program 2 with Power between 25 to 50% and 6 cycles per treatment. The mean duration of treatment was 9 minutes. The average total CAT score had a difference of 2 points between the initial and final CAT (Initial CAT average 11 points; Final CAT average 9 points). In the questionnaire carried out, with a score from 0 to 10 (with 10 representing "I totally agree"), 9 out of 13 questions scored higher than 7 (69%). All people reported that they only needed 1 training session with a Physical Therapist to carry out the therapy, as well as all of them would recommend the use of Simeox to other people (n = 5). As strengths, ease of use (n = 4), efficient removal of secretions (n = 2), vibrations (n = 1) and respiratory well-being (n = 1) were mentioned. It was also noted, with the use of Simeox, less coughing (n = 2), less sputum (n = 2) and more fluid secretions (n = 1). As less positive points, they mentioned the size of the equipment (n = 1), the weight (n = 1) and the noise of the therapy (n = 1).
Conclusions: The present exploratory study is the first home use of this therapy in Portugal, with significant results regarding the initial CAT Score in these users. The people who had the greatest difference in the CAT Score also performed Respiratory Rehabilitation. Additionally, the patients' experience with this therapy was positive, highlighting the ease of use and efficient removal of secretions.

Keywords: *Bronchiectasis. Simeox. Secretions. Clearance.*

PC 123. MOLECULAR EPIDEMIOLOGY OF CARBAPENEMASE-PRODUCING ENTEROBACTERALES FROM A HOSPITAL CENTRE IN LISBON

G. Fernandes Mendes, L. Santos, J. F. Ramalho, E. Gonçalves, D. Ranhel, C. Conceição, A. Duarte, C. Toscano, C. Caneiras

Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab), Institute of Environmental Health (ISAMB), Faculty of Medicine, Universidade de Lisboa (ULisboa).

Introduction: Bacteria of the order Enterobacterales have emerged over the past decade as a major clinical and public health threat. Many carbapenemases have been identified worldwide, including KPC, VIM, IMP, NDM, and OXA-48-like carbapenemases. These enzymes hydrolyse most antibiotics, including carbapenems, leading to scarce therapeutic options. Carbapenemase-producing Enterobacterales (CPE) were considered as one of the top three pathogens of international concern, according to the World Health Organization's Global Priority List of antibiotic-resistant bacteria to guide research, discovery, and development of new antibiotics. In Portugal, after the discovery of the first carbapenemase in 2009, increasing trend of carbapenem resistance has been described, especially among Klebsiella pneumoniae, evolving from 3.4% in 2015 to 10.9% in 2019.
Methods: Between 2021 and 2022, CPE strains (n = 26) were collected from a Hospital Centre in Lisbon and sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. Antimicrobial susceptibility testing by disk diffusion test and PCR screening for produced carbapenemase genes were conducted. Molecular epidemiology and

antimicrobial resistance genes were further characterized by whole-genome sequencing (WGS).
Results: The 26 CPE strains were collected from different biological products, including urine (13/26; 50.0%), respiratory secretions (6/26; 23.1%), blood (3/26; 11.5%), biopsy (1/26; 3.8%) and catheter resulting products (1/26; 3.8%). The antimicrobial susceptibility profile results showed that 25/26 (96.2%) of the isolates were resistant to amoxicillin/clavulanic acid, 24/26 (92.3%) to ceftazidime, imipenem, cefotaxime and fosfomycin, 23/26 (88.5%) to aztreonam and ertapenem, 22/26 (84.6%) to cefoxitin, gentamicin and meropenem, 16/26 (61.5%) to ciprofloxacin, 12/26 (46.2%) to tigecycline and 1/26 (3.8%) to ceftazidime/avibactam (CZA), according to the EUCAST guidelines (v.12.0, 2022). WGS analysis identified 25 (96.2%) *K. pneumoniae* strains and one (3.8%) *Escherichia coli*. The most predominant carbapenemase produced was blaKPC-3 (20/26; 76.9%), followed by blaOXA-181 (2/26; 7.7%) and blaNDM-5 (both 1/26; 3.8%). Twelve isolates (12/26; 46.2%) co-produced the extended-spectrum beta lactamase blaCTX-M-5 and the carbapenemase blaKPC-3 (11/12; 91.7%) or blaOXA-181 (1/12; 8.3%). The metallo-β-lactamase NDM-5 was produced by the *E. coli* strain. The most prevalent clones for *K. pneumoniae* strains were ST17 (13/26; 50.0%) and ST13 (10/26; 38.5%), followed by ST405 and ST39 (both 1/26; 3.8%). Of note, all 6 strains collected from respiratory secretions belonged to ST13 and ST17, four of those strains produced the blaKPC-3 carbapenemase and two produced the blaOXA-181 carbapenemase.
Conclusions: Herein, we report the molecular characterization by whole-genome sequencing of 26 CRE strains collected from a single Hospital Centre in Lisbon. Most of these strains, including strains collected from respiratory secretions, were identified as *K. pneumoniae* and belonged to the high-risk clones ST13 and ST17. Furthermore, blaKPC-3 is the most predominant carbapenemase produced. These results are worrisome and emphasize the importance of performing continuous molecular surveillance to give the best therapeutic option to the patients infected with these bacteria.

Keywords: *Enterobacterales. Carbapenemases. Portugal.*

PC 124. EMERGENCE OF RESISTANT AND VIRULENT CLONES IN CARBAPENEMASE-PRODUCING *KLEBSIELLA PNEUMONIAE*. MULTI-CENTRIC STUDY IN PORTUGAL

G. Fernandes Mendes, L. Santos, J. F. Ramalho, A. Bruschy-Fonseca, L. Lito, E. Gonçalves, D. Ranhel, C. Conceição, A. Pedrosa, A.C. Silva, A. Duarte, J. Ferreira, L. Mendez, C. Toscano, J. Melo-Cristino, C. Caneiras

Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab), Institute of Environmental Health (ISAMB), Faculty of Medicine, Universidade de Lisboa (ULisboa).

Introduction: *Klebsiella pneumoniae* is a Gram-negative bacterium capable of causing severe organ infections and life-threatening disease, especially in hospital-acquired infections. This species has emerged as an increasingly resistant pathogen due to its predisposition to acquire multidrug and carbapenem resistance genes, restricting the therapeutic options. Furthermore, *K. pneumoniae* utilizes a variety of virulence factors, namely capsule polysaccharides, and iron-binding siderophores, such as aerobactin, salmochelin, and yersiniabactin for survival and immune evasion during infection, contributing to the pathogenic potential of this organism.
Methods: Between 2019 and 2022, carbapenemase-producing *K. pneumoniae* strains were collected from three different hospitals (n = 110): two Hospital Centres in Lisbon and one Hospital Centre in northern Portugal. All strains were sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. Antimicrobial susceptibility testing by disk diffusion test and PCR screening for produced carbapenemase genes were conducted. Molecular epidemiology, antimicrobial resistance genes and virulence genes were further characterized by whole-genome sequencing (WGS).
Results: The antimicrobial susceptibility profile results showed resistance to amoxicillin/clavulanic acid (110/110; 100%), ertapenem (109/110; 99.1%), ceftazidime (103/110; 93.6%), cefotaxime and aztreonam (both 100/110; 90.1%), imipenem (96/110; 87.3%), cefoxitin (91/110; 82.7%), gentamicin (90/110; 81.8%), meropenem (84/110; 76.4%), ciprofloxacin (78/110; 70.9%), tigecycline (47/110; 42.7%) and ceftazidime/avibactam (14/110; 12.7%), according to the EUCAST guidelines (v.12.0, 2022). The most prevalent carbapenemase identified was blaKPC-3 (66/110; 60.0%) and blaOXA-181 (27/110; 24.5%), followed by blaNDM-1 (4/110; 3.6%). No blaVIM gene was detected. Additionally, 5 strains (5/110; 4.5%) co-produced blaKPC-3 and blaOXA-181, and 1 strain (1/110; 0.9%) co-produced blaKPC-3 and blaOXA-48. The most predominant clones found were ST13 (33/110; 30.0%), ST17 (29/110; 26.4%) and ST147 (19/110; 17.3%). Regarding virulence genes, the yersiniabactin gene was present in 97 (97/110; 88.2%) *K. pneumoniae* strains and salmochelin in 31 (31/110; 28.2%) strains. No aerobactin or salmochelin genes were detected. Furthermore, 19 different capsular locus types were detected.
Conclusions: Herein, we report a multi-centric study of carbapenemase-producing *K. pneumoniae* strains in Portugal. The most predominant carbapenemase produced was blaKPC-3 and blaOXA-181, while the most prevalent clones were ST13, ST17 and ST147. The high predominance of these high-risk clones harbouring both multidrug-resistance genes and virulence genes, namely yersiniabactin and colibactin, is very concerning as it suggests the emergence of hypervirulent multidrug resistance strains in Portugal. The convergence of antimicrobial resistance and virulence in the same *K. pneumoniae* strains is worrisome and creates an even bigger challenge to public health and clinical practicians around the world, as it significantly decreases the therapeutic options.

Keywords: Klebsiella pneumoniae. *Carbapenems. Portugal.*

PC 125. FIRST DESCRIPTION OF CEFTAZIDIME/AVIBACTAM RESISTANT KPC-40 IN A *KLEBSIELLA PNEUMONIAE* ISOLATE FROM PORTUGAL

G. Fernandes Mendes, L. Santos, J. F. Ramalho, E. Gonçalves, D. Ranhel, C. Conceição, A. Duarte, C. Toscano, C. Caneiras

Microbiology Research Laboratory on Environmental Health, Institute of Environmental Health (ISAMB), Faculty of Medicine, Universidade de Lisboa.

Introduction: Ceftazidime/avibactam (CZA) is a recently developed drug, combining a third-generation cephalosporin (ceftazidime) and a non-β-lactam β-lactamase inhibitor (avibactam). CZA is approved for use in Europe since 2016 for the treatment of several infections, including complicated intra-abdominal infections (cIAI), complicated urinary tract infections (cUTI), hospital-acquired pneumonia (HAP) including ventilator-associated pneumonia (VAP), and infections due to aerobic Gram-negative organisms in patients with limited treatment options. Despite showing a high rate of clinical success and survival, CZA resistant strains that produce variants of KPC genes have already been reported worldwide, including the first description of a CZA resistance in Portugal, retrieved from a KPC-70 producing *K. pneumoniae* isolate identified at a Tertiary University Hospital Center in Lisbon.
Methods: In May 2021, a CZA-resistant isolate was collected from respiratory secretions from a single patient at the cardiothoracic surgery intensive care unit of a Hospital Centre in Lisbon and sent to the Microbiology Research Laboratory on Environmental Health (EnviHealthMicro Lab) for further genomic analysis. Antimicrobial susceptibility testing by disk diffusion test and PCR screening for

produced carbapenemase genes were conducted. Molecular epidemiology, antimicrobial resistance genes and virulence genes were further characterized by whole-genome sequencing (WGS).
Results: The antimicrobial susceptibility profile results showed that the isolate was resistant to ceftazidime-avibactam, as well as to ciprofloxacin, ceftazidime, cefotaxime, cefoxitin, gentamicin, amoxicillin/clavulanic acid, aztreonam, ertapenem and fosfomycin, while being susceptible to imipenem and tigecycline and presenting susceptibility with increased exposure to meropenem, according to the EUCAST guidelines (v.12.0, 2022). WGS analysis revealed the presence of a ST13 KPC-40-producing *K. pneumoniae*, a recent KPC variant differing from KPC-3 by two-amino-acid insertion in the Ω2-loop region (L167_E168dup) and a threonine-to-serine substitution at position 237 (T237S). Regarding virulence genes, we identified the iron uptake system, kfu, the siderophore enterobactin (ent) and an integrative and conjugative element (ICE) ICEKp10, harbouring the virulence factors yersiniabactin (ybt17) and colibactin (clb3). The isolate also presented the capsular locus KL3 and antigen locus O1v2.
Conclusions: Herein, we report the molecular characterization by Whole-genome sequencing of a CZA-resistant ST13 KPC-40-producing *K. pneumoniae* isolate in Portugal. To our knowledge, this is the first description of a KPC-40-producing *K. pneumoniae* in the world. The emergence of KPC- variants conferring CZA resistance is a serious threat to public health, demanding enhanced clinical awareness and epidemiologic surveillance.

Keywords: Klebsiella pneumoniae. *KPC-40. Ceftazidime/Avibactam resistance*.

PC 126. ELEXACAFTOR/TEZACAFTOR/IVACAFTOR SAFETY - BEYOND THE CLINICAL TRIALS

C. Custódio., K. Lopes, R. Bolas, C. Lopes, P. Azevedo

Hospital Beatriz Ângelo.

Introduction: Cystic fibrosis (CF) is a rare genetic condition caused by dysfunction on the CFTR (cystic fibrosis transmembrane conductance regulator) protein. The emergence of CFTR modulator therapies was a turning point in the treatment of CF. Although well-tolerated in clinical trials, there is scant report real-world data about adverse events of elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA).
Objectives: We aim to characterize the adverse events reported by patients on ELX/TEZ/IVA in daily clinical practice.
Methods: Retrospective study of patients followed at the CF Centre of Hospital de Santa Maria, Lisbon under treatment with ELX/TEZ/IVA. Reported adverse events were registered upon medical records revision.
Results: We studied 28 patients, 14 females (50%), mean age 28 years. Fourteen were F508del homozygous and 10 had prior exposure to modulator therapy. Adverse events were reported in 20 patients, mostly in the first week of treatment. The most frequent were headaches (12), rash (6), gastrointestinal symptoms (5), neurological symptoms (4), mental-health disorders (3), wheezing (3), testicular pain (2), xerostomia (2) and recurrent infections (3), namely amygdalitis, chalazion and bartholinitis. One patient had severe intracranial hypertension and died. Seven patients had asymptomatic changes in blood tests, namely elevation of transaminases (4), creatine kinase (2) and total bilirubin (1). None specific interventions nor dose adjustments were required in any other patients.
Conclusions: Although we have found more adverse effects than those reported on clinical trials, the majority of them were only minor, self-limited and did not impact treatment. Therefore, this early data supports the safety of ELX/TEZ/IVA.

Keywords: *Cystic fibrosis. Elexacaftor/Tezacaftor/Ivacaftor. Adverse events*.

PC 127. ELEXACAFTOR-TEZACAFTOR-IVACAFTOR IN ADVANCE PULMONARY DISEASE - THE FORGOTTEN GROUP

C. Custódio, K. Lopes, R. Bolas, C. Lopes, P. Azevedo

Hospital Beatriz Ângelo.

Introduction: Elexacaftor-tezacaftor-ivacaftor (ELX/TEZ/IVA) is a CFTR (cystic fibrosis [CF] transmembrane conductance regulator) modulator approved for CF patients with at least one F508del mutation. Patients with advanced disease (FEV1 < 40% predicted) were excluded from clinical trials leading to drug approval.
Objectives: Characterize the outcomes and adverse events of ELX/TEZ/IVA in advanced CF lung disease patients.
Methods: A review of CF advanced lung disease patients (FEV1 < 40%) followed at CF Centre Hospital de Santa Maria, Lisbon under ELX/TEZ/IVA was performed and analyzed with paired t-test.
Results: Eight patients were studied under a mean follow up time of 247,4 ± 109,2 days, 5 females (62,5%), mean age 30,3 ± 9,6 years. Four were F508del homozygous and only 1 had prior exposure to modulator therapy. After treatment, only 1 patient presented a minor exacerbation, whilst before there was a total of 24 exacerbations in the year before, including 6 with hospital admission. There was a significant increase in body mass index (BMI) of 2,1 kg/m^2 (95%CI 1,3 to 2,9; p = 0,001). A decrease in sweat chloride test of 17,0 mmol/L was also seen, although not significant (95%CI -3,7 to -37,7; p = 0,085). A significant improvement of 13,5% and 0,42L in FEV1 were seen after 12-24weeks of ELX/TEZ/IVA (95%CI 2,3 to 24,6%; p = 0,025 and 0,11 to 0,73L; p = 0,016, respectively). Adverse events most frequently reported included headaches (4), mood alterations (3) and rash (2). One patient presented asymptomatic elevation of transaminases and creatine kinase.
Conclusions: Although not included in clinical trials, patients with advanced disease treated with ELX/TEZ/IVA had a significant improvement, namely in FEV1 and BMI, without safety concerns.

Keywords: *Cystic fibrosis. Elexacaftor/Tezacaftor/Ivacaftor. Advance pulmonary disease*.

PC 128. THE LADY WINDERMERE SYNDROME

D. Silva Gomes, J. Cravo, L. Andrade

Baixo Vouga Hospital Center.

Introduction: Lady Windermere syndrome is seen typically in elderly white women, especially those who chronically suppress the normal cough reflex, and corresponds to a *Mycobacterium avium* complex infection. The typical manifestation is of bronchiectasis, usually nodular, localized in the middle lobe and/or lingula. Clinical presentation is nonspecific.
Case report: A 66-year-old woman, retired farmer, weighing 46 kilograms, with bronchiectasis diagnosed 8 years ago, was observed at an outpatient consultation. She had had a cough with little expectoration and fatigue for several years, and night sweats in the last 2 years. The previous year, she had pneumonia with clinical improvement to antibiotic therapy. At that time sputum examination for mycobacteria and interferon-gamma release assay were both negative, and no microorganism was identified. Months later, she got worse, with more frequent cough, asthenia, and night sweats again. Chest computed tomography revealed middle lobe and lingula nodular bronchiectasis, which were previously known, but with surrounding parenchymal densification. A scheduled bronchoscopy was performed. The mycobacterial polymerase chain reaction assay was positive on bronchoalveolar lavage and bronchial washing for non-tuberculous mycobacteria. Later, the cultural exam isolated a macrolide-susceptible Mycobacterium intracellular. The patient received an azithromycin, rifampin, and ethambutol daily

regimen for 14 months with substantial improvement, including a 10 kg weight gain, and no major side effects.
Discussion: Since Lady Windermere syndrome is rare and the clinical presentation is nonspecific, it requires a high level of suspicion. Nodular bronchiectasis, especially in the middle lobe and lingula, in elderly white women should prompt research for non-tuberculous mycobacterial infection. If a cough suppression history is present, the suspicion should be even higher.

Keywords: *Lady Windermere. Bronchiectasis.* Mycobacterium avium.

PC 129. CHRONICLE OF A DEATH NON FORETOLD

M. Santos, I. Macedo, M. Bragança, V. Maione, A. Lopes, S. Salgado, P. Esteves, C. Bárbara

Centro Hospitalar Universitário Lisboa Norte.

Introduction: A pulmonary cavity is an air-filled area of the lung in the center of a consolidation or mass. The main cause is infection and the most common agents are: *Staphylococcus aureus, Klebsiella* spp, *Streptococcus pneumoniae* and *Mycobacterium tuberculosis*. Risk factors include age, tobacco, alcohol, diabetes mellitus, and chronic lung or liver disease. However, it is essential to consider non-infectious causes of pulmonary cavitation in the differential diagnosis, especially malignant causes.
Case report: 66 year-old male. Previous medical history of arterial hypertension and smoker (100 pack-year). He presented dyspnea for progressively lesser exertion and non-productive cough over the previous week. On admission, he had spO2 of 80%, with need for increasing O2 supply and eventual intubation and invasive mechanical ventilation. The chest X-ray and CT showed a consolidation on the right lower lobe; amoxicillin/clavulanic acid and azithromycin were empirically initiated, but changed later to cotrimozaxol by isolation of *Klebsiella* aerogenes in bronchial secretions and bronchoalveolar lavage. Imaging reassessment was performed, which documented right necrotizing pneumonia with cavitations, and antibiotic therapy was changed to meropenem, vancomycin and ciprofloxacin. The case was discussed with Cardiothoracic Surgery, who performed a right lower lobectomy, allowing later extubation and transfer to the Intermediate Care Unit. There was a significant clinical and analytical improvement under antibiotic therapy, with the possibility of weaning and discontinuing oxygen therapy. One month after the lobectomy, the colleagues from Pathology reviewed the surgical samples (initially presumed necrosis from the infectious process) and reported that the lobectomy sample was actually pulmonary adenocarcinoma (papillary predominance). The case was discussed at a Multidisciplinary Meeting of Pulmonary Oncology and it was concluded that there was no indication to initiate therapy at that time due to the performance status. Hospitalization was prolonged due to severe intensive care myopathy and multiple infectious complications (Pseudomonas aeruginosa, MRSA, Klebsiella pneumoniae). About one month after entering this Unit, there was a need for oxygen therapy at progressively higher rates, maintaining severe respiratory failure, with no response to antibiotic therapy. Chest CT was repeated, revealing an increase in the area of consolidation on the right and evidence of probable endobronchial tumor dissemination. Tumor progression was admitted. The patient was not able to undergo any other procedures. He died about one week later.
Discussion: In this case, the patient had risk factors for necrotizing pneumonia with cavitation and the entire diagnostic process indicated an infectious etiology, and it was even identified a possible infectious agent causing the cavitations. However, other causes should not be ruled out, especially considering the patient's smoking history. One of the most important points in the differential diagnosis of cavitated lung lesions is the distinction between malignant and non-malignant etiologies. 7-11% of lung neoplasms show cavitation on chest radiography, reaching over 20% on chest CT. To complicate the differential diagnosis of cavitated lesions, the coexistence of pulmonary infection and malignant process is frequent. The presence of cavitation in neoplasms has been associated with a worse prognosis, as witnessed in this case.

Keywords: *Cavitation. Necrotizing pneumonia. Adenocarcinoma.*

PC 130. HIDDEN DEEP IN THE "FUNGUS"

M. Ferreira de Almeida, C. Couto, J. Portela

Hospital Garcia de Orta.

Introduction: The aspergillus fungus is a ubiquitous agent in nature, and disease development is associated with states of immunosuppression. Because symptoms of COVID-19 and pulmonary aspergillosis (PA) vary and overlap, diagnosis is challenging. Suspicion should be raised if imaging changes are suggestive and if the patient has recurrent respiratory failure, structural disease, or immunosuppressive states.
Case report: 69-year-old male, health inspection technician. Ex-smoker (CT 45 UMA). Relevant history of chronic kidney disease underwent renal transplantation and hypertension. The patient was referred to the emergency department (ER) in July 2021 for a 1-month history of self-limited odynophagia and nasal obstruction, with later recrudescence of symptoms, with fever (TT 39.9 ºC), fatigue and productive cough. Analyses showed an increase in inflammatory parameters and a positive SARS-CoV-2 virus test. He was hospitalized for SARS-CoV-2 pneumonia with partial respiratory failure. In the imaging study carried out, the CT scan of the chest revealed, in addition to alterations compatible with COVID-19 pneumonia, "a hypodense nodularity with regular borders near the right oblique fissure, of a liquid cisural enquistada nature". The patient evolved well, under corticotherapy, and was discharged to maintain evolutionary control. In consultation, the patient maintained only a dry cough, with no other symptoms, with a PET scan from October "with no clear metabolic suspicion of malignancy". He was discussed in a multidisciplinary consultation, with indication to maintain surveillance. Chest CT was repeated in March 2022, and the same image was identified in the same place, "showing dimensional increase, currently with 56x26 mm of major axes (previously with 47 × 3 mm in PET study and 32 × 18 mm in initial CT study), but without categorical suspicion criteria". He underwent bronchofibroscopy (BFO) in April 2022 revealing "ectasia of the anterior segment of the right lower lobar bronchus filled with purulent secretions". 2 weeks later, the patient went to the ER with fever, dyspnea, cough, and mucopurulent sputum. Analyses showed an increase in inflammatory parameters, including PCR 25.4. Pneumonia was assumed after BFO was performed on an immunocompromised patient, so he was started on Piperacillin-Tazobactam and hospitalized. During the hospitalization period, the results of the subsidiary BFO exams were negative for malignancy but, in the purulent secretion, there was histological evidence of the presence of septate hyphae with 45º angulation, consistent with *Aspergillus*". In view of this result, he was started on voriconazole, adjusted to renal function. Currently, the patient is being monitored in the pulmonology department on voriconazole 200 mg, 1 cp every 12 hours, denying any symptoms.
Conclusions: Solid organ transplantation, in this case kidney transplantation, is one of the best established risk factors for the development of aspergillosis. In addition a study showed that 20% of COVID-19 cases in a series of 45 patients showed positive histology for pulmonary aspergillosis and was associated with worse prognosis. As with the patient presented in the clinical case, it is essential that suspicion be high, so that therapeutic measures can be rapidly instituted to prevent potential complications.

Keywords: *SARS-CoV-2. Aspergillus. Immunosuppression.*

PC 131. THE ROLE OF PHAGOTHERAPY IN CHRONIC PSEUDOMONAS AERUGINOSA INFECTION – A CLINICAL CASE REPORT

D. Cora, D. Coelho, M. Ribeiro, J. Azeredo, A. Amorim

Lisbon Ocidental Hospital Center.

Introduction: Phagotherapy, or the use of bacteriophage viruses capable of infection and replication within bacterial cells in order to kill them, has been documented in the literature almost a century ago. Despite its less frequent use once with the success of antibiotic therapy in the 40´s, the last 15 years have been revealing as a promising treatment for multiresistent bacterial infections, such as *Pseudomonas aeruginosa* chronic infection.
Case report: A non-smoker, 45-year-old lady, with history of chronic pansinusitis and bronchiectasis secondary to primary ciliary dyskinesia. Clinically, she presented abundant greenish mucopurulent bronchorrhea (110-130 ml/day), difficult to expel, associated to moderate effort dyspnoea. She had chronic infection with a mucoid strain of *Pseudomonas aeruginosa*. Submitted to numerous iv and inhaled antibiotics, without succeeded bacterial eradication, nor symptomatic improvement, having a grate impact on daily life and work. Radiologically, varicose and cylindrical bronchiectasis with inferior lobes predominance have been described. Pulmonary function showed severe obstructive ventilatory pattern (FEV1/FVC 54.9, FEV1 0.93 L/min 37% pred). Taking into account the complexity of the situation and given the conventional therapeutic failure, she was proposed to phagotherapy. Once the effective bacteriophages against that specific strain of *Pseudomonas* have been identified, she completed 6 weeks of daily nebulisations and nasal showers of a cocktail of bacteriophages; daily monitoring of vital signs, symptoms, quantity, consistency and colour of expectoration, as well as possible adverse effects has been registered. During treatment period in the first week, there has been a diminishing tendency for cough and quantity of expectoration. Subsequently, a grater facility of secretion drainage and improvement of effort dyspnoea has been verified, with a certain variation of daily quantity of expectoration. No notably adverse effects were noticed. Once the treatment was completed, the patient referred significant improvement in quantity and sputum purulence (< 80 ml/day) with noticeable fatigue reduction, despite persistence of *Pseudomonas aeruginosa* in the expectoration.
Discussion: The new interest in phagotherapy has its origins essentially on the augmentation of multiresistent bacterial agents, not accompanied by efficient antibiotic therapies. Despite its difficult access, this therapy which legislation still needs to be regulated it´s a promising example of personalized medicine, especially in chronic pulmonary infection, where conventional therapeutic failed.

Keywords: *Phagotherapy. Bronchiectasis.* Pseudomonas aeruginosa.

PC 132. NOCARDIA SPP. ISOLATION IN CHRONIC LUNG DISEASES: ARE THERE DIFFERENCES BETWEEN PATIENTS WITH PULMONARY NOCARDIOSIS AND NOCARDIA COLONIZATION?

M. Serino

Pulmonology Department, Centro Hospitalar Universitário de São João.

Introduction: Chronic lung diseases are a recognized risk factor for *Nocardia* spp. Infection: *Nocardia* spp. isolation does not inevitably imply disease, and thus colonization must be considered. Here, we aimed to analyse the differences between pulmonary nocardiosis (PN) and *Nocardia* spp. colonization in patients with chronic lung diseases.
Methods and results: A retrospective study of patients with laboratory confirmation of isolation of *Nocardia* spp. in at least one respiratory sample was performed. Patients with PN and *Nocardia* spp. colonization were compared. There were 71 patients with Nocardia spp. identification, 64.8% were male, with a mean age of 67.7 ± 11.2 years. All patients had ≥ 1 pre-existing chronic lung disease and 19.7% patients were immunocompromised. PN and *Nocardia* spp. colonization were considered in 26.8% and 73.2% of patients, respectively. Symptoms and chest CT findings were significantly more frequent in patients with PN ($p < .001$). During follow-up time, 12 (16.9%) patients died, 6 in PN group. Immunosuppression, constitutional symptoms, haematological malignancy and PN diagnosis were associated with significantly shorter survival times, despite only immunosuppression (HR 3.399; 95%CI 1.052-10.989) and PN diagnosis (HR 3.568; 95%CI 1.078-11.910) remained associated with a higher death risk in multivariate analysis.
Conclusions: PN was linked to clinical worsening, more chest CT findings and worse clinical outcomes. Nocardia spp. isolation in chronic lung disease patients is more common than expected and the differentiation between colonization and disease is crucial.

Keywords: Nocardia *spp. infection. Pulmonary nocardiosis.* Nocardia *spp. colonization.*

PC 133. DIAGNOSTIC PROFITABILITY OF MEDICAL THORACOSCOPY – A 10 YEAR EXPERIENCE

M. Carvalho Silva, D. Pimenta, J. Naia, E. Padrão, R. Rolo, L. Ferreira

Serviço de Pneumologia, Hospital de Braga.

Introduction: Medical thoracoscopy (MT) is a pneumological technique used for diagnostic or therapeutic purposes in pleural diseases that allows the direct visualization of thoracic structures and can be performed in as endoscopy room and with conscious sedation.
Methods: retrospective analysis of the MT performed at Braga Hospital between 2011 and 2021.
Results: There were performed 44 MT. Patients had a mean age of 66 years (range 38-86) with a male predominance (69.2%) and history of smoking (52.5%). Most MT were requested by pulmonology (65.9%) followed by internal medicine (13.6%) and other hospitals (18.2%). Indications to the exam were pleural effusion (PE) (99.7%) and traumatic pneumothorax (2.3%) and the technique was performed at the bronchology room under conscious sedation, local anaesthesia except one case on mechanical ventilation. Most frequent endoscopic findings were nodular (n = 10) and micronodular lesions of the pleura (n = 9), diffuse infiltration (n = 8), extensive septation (n = 5), diffuse pleural thickening (n = 3) and inflammation (n = 3). Histologies of pleural biopsies (PB) (n = 38) were compatible with: lung adenocarcinoma (n = 11), epithelioid mesothelioma (n = 6), nonspecific pleuritis (n = 3), adenocarcinoma (n = 3), mesothelioma (n = 2), fibrosis (n = 2), fibrosis and inflammatory infiltrate (n = 1), malignant cells (n = 1), desmoplastic mesothelioma (n = 1), fibroleukocyte infiltrate (n = 1), gastric adenocarcinoma metastasis (n = 1), chondrosarcoma (n = 1), lymphocytic infiltrate (n = 1), granulomatous pleuritis with necrosis (n = 1), chronic pleuritis (n = 1), fibrin (n = 1) and nonspecific inflammation (n = 1). In the remaining patients (n = 6) biopsies were not performed due to the presence of extensive septation/clots/adhesions that prevented the identification of the thoracic structures, the occurrence of immediate and complete lung expansion and the need to interrupt the procedure due to complications. Pleurodesis with talc was performed in one case. Regarding complications there were two cases of altered consciousness level and one of subcutaneous emphysema and pleural fistula resolved with chest tube drainage. Final diagnosis were mostly malignant diseases (n = 29): lung adenocarcinoma (n = 15), epithelioid mesothelioma (n = 6), mesothelioma (n = 2), desmoplastic mesothelioma (n = 2), occult adenocarcinoma (n = 1), occult carcinoma (n = 1), gastric adenocarcinoma (n = 1) and chondrosarcoma (n = 1) followed by Infectious pathologies (n = 4): empyema (n = 2), tuberculosis (n = 1) and infectious PE (n = 1). The remaining corresponded to several conditions:

nonspecific pleuritis (n = 2), Dressler's syndrome (n = 1), asbestos PE (n = 1), septate traumatic pneumothorax (n = 1), iatrogenic haemothorax (n = 1), pleural fibrosis (n = 1), post-traumatic PE (n = 1), chronic pleuritis (n = 1), inflammation (n = 1) and extensive septation (n = 1). In malignant pathology (n = 29) MT presented an overall diagnostic yield of 86.2% being 86.7% for lung adenocarcinoma (n = 15) and 90% for mesothelioma (n = 10). In benign pathology results were nonspecific requiring a clinical, pathological and microbiological framework of pleural fluid to establish the diagnosis.
Conclusions: MT were performed with a diagnostic purpose mostly in PE without a defined aetiology after thoracocentesis and blind pleural biopsy and most frequent pathologies were malignant followed by infectious. In malignant pathologies of the lung showed a diagnostic yield of 86.7% and in the pleura of 90%, so given the low sensitivities described for PF and blind pleural biopsies we confirm the utility and safety of MT in the diagnosis of these conditions.

Keywords: *Medical thoracoscopy.*

PC 134. PLEURODESIS AND INFLAMMATION: DESIRED COMBINATION IN CONTROLLED DOSE - REGARDING 2 CLINICAL CASES

A. Craveiro, J. Barata, S. Martins, D. Rocha, D. Sousa, S. Lopes, E. Magalhães, M. La Salete Valente

Centro Hospitalar Universitário Cova da Beira.

Introduction: With a long tradition, Pleurodesis is a medical-surgical technique particularly indicated in malignant pleural effusion and pneumothorax – recurrent and secondary primary (right after the 1st episode). It involves creating an inflammatory response in the pleural space, in order to eliminate space between lungs and chest wall. Serious complications are rare, but not despicable – as demonstrable in two clinical cases.
Case reports: 1) Young male, 19 years old, university student, smoker sporadically who, by history of recurrent pneumonias (especially right) since 1 year ago, was evaluated in a pulmonology consultation. Ventilatory Functional Study (without alterations) and Chest CT was performed, in which soft tissue lesions were identified at the entrance of the Right Lower Lobe Bronchus (BLID) and adenopathies in the anterior mediastinum. With histological diagnosis of Broncofibroscopy Oral Cyst, he was the target of right Middle and Lower Bilobectomy. In the immediate postoperative period, development of kilo and pneumothorax as complications. He completed a respiratory rehabilitation program but, by maintaining extensive residual loca, 4 months after Bilobectomy, he performed Pleurodese with Talco – which he complicated with Systemic Inflammatory Syndrome, which implied long periods of corticosteroid therapy. Since then followed in consultation, with functional study compatible with stable restrictive pattern, but limiting in ADLs. 2) A 31-year-old administrative woman, smoker (CT~20 UMA) and no other pathological history of relief who, due to feeling of chest oppression, dry cough and dyspnea, beginning hours after vaccination at SARS-CoV-2, resorted to the emergency service. Primary spontaneous pneumothorax was screened on the right and placed chest drainage in active aspiration, with resolution. At early recurrence (< 1 month) of spontaneous pneumothorax, patient referred to thoracic surgery – with Pleurodesis. Keeping follow-up in consultation, he underwent imaging reassessment with several Chest CT, in which the maintenance of extensive fibrocicatricial areas on the right (especially in the Upper Lobe) was identified, with foci of homolateral calcification, thickening of the large cisura and exuberant calcification of the basal segment of the LID. Serial respiratory functional studies without functional repercussion, without interference in the day-to-day, without respiratory/other symptomatology.
Discussion: The two clinical cases are presented to highlight the importance of considering potential complications of globally safe medical-surgical acts, such as Pleurodese. It is also noteworthy the distinct functional and structural impact obtained and the imaging exuberance that involved both cases.

Keywords: *Pneumothorax. Surgical location. Pleurodesis. Complications. Restriction.*

PC 135. BILATERAL PRIMARY SPONTANEOUS PNEUMOTHORAX A RARE PRESENTATION OF SHORTNESS OF BREATH

B. Matos Gomes, R. Freitas, S. Ferreira, L. Andrade

Centro Hospitalar entre o Douro e Vouga.

Introduction: Pneumothorax is a common medical condition, it was first coined by Itard and then Laennec in 1803 and 1819 respectively. It is defined by the presence of air or gas in in the pleural cavity. Named spontaneous pneumothorax when it arises without trauma. Pneumothorax is primary if it occurs in the absence of lung disease. Simultaneous bilateral primary spontaneous pneumothorax (SBPSP) is an extremely rare presentation found in only 1% of all spontaneous pneumothorax
Case report: We report a case of a man with SBPSP. A 43-years-old man, active smoker (29 units/pack-year) with past medical history of a left spontaneous pneumothorax in 2018 and in the same year the diagnosis of a gastric carcinoma with local advanced disease treated with chemotherapy and currently with stable disease. The Chest-CT (computerised tomography) Scan from 2018 which the purpose was the cancer stratification had no signs of structural lung disease. Admitted in the ED (emergency department) for sudden dyspnoea and left-sided thoracalgia with pleuritic features. On initial presentation, his vital signs were blood pressure of 119/83 mmHg, tachycardic (105 bpm), tachypneic (18 cpm), and an O2 saturation of 97% on room-air. Laboratory study without relevant alterations. Chest-Xray (CXR) showed bilateral large pneumothorax(total in the left side and 1cm in the right side at the level of hilum and significantly compressed mediastinum to the right side). Chest tube was placed in the 5th left intercostal space and the patient was transferred to the intensive care unit with a high oxygen concentration mask as drainage adjuvant, and also as a conservative treatment to the right chest pneumothorax. It evolved with almost complete expansion of the left field with passive drainage and the pneumothorax on the right with slight reduction in size. The day later, after the insurance of hemodynamic and radiologic stability the patient was transferred to the ward. Between the 3rd and 4th day of admission, a clinical worsening occurred due to bilateral pleuritic chest pain and increased dyspnoea. The left chest drain was functional and no air leak was detected. An CXR was taken showing a worsening of the left and right pneumothorax and was decided to place in low pressure active drainage of left pneumothorax and a right chest tube was placed too. A Chest CT-Scan was performed and revealed subpleural blebs in both upper lobes. Since it was a recurrent bilateral pneumothorax and because the lack of resolution after 5 days of drainage, the patient was referred for thoracic surgery. The patient underwent bilateral video-assisted thoracoscopic surgery (VATS).
Discussion: Rarely spontaneous pneumothorax can occur bilaterally and spontaneously and thus leads to a more serious disease spectrum. Synchronous bilateral spontaneous pneumothorax is an indication of surgical treatment. There are two main objectives regarding the invasive approach in the surgical repair of persistent air leak and in the prevention of pneumothorax recurrence. Nowadays, less invasive procedures using VATS have become popular with reductions in length of hospital stay and lower morbidity. SBSP is a rare clinical condition and typically occurs in patients with underlying lung disease. It is a life-threatening event and an early diagnosis and appropriate treatment can save the patient's life.

Keywords: *Shortness of breath pneumothorax. VATS chest tube. SBPSP.*

PC 136. MALIGNANT PLEURAL EFFUSION: A RARE CAUSE

J. Vieira Naia, M. C Silva, D. Pimenta, M.J. Pereira, J. Filipe Cruz, L. Ferreira

Hospital de Braga.

Introduction: Malignant pleural effusions affect up to 15% of patients with malignant tumours. The neoplasms that most frequently involve the pleura are the ones from the lungs and breast, followed by lymphomas and gastrointestinal and genitourinary tumours. The majority of patients are symptomatic, with breathlessness being the most common symptom.
Case report: 74-year-old woman with a personal history of arterial hypertension, dyslipidemia, auricular fibrillation, hypothyroidism, asthma, and low-grade chondrosarcoma submitted to surgical removal of the left clavicle and scapula 20 years before and considered cured. The patient was admitted to the hospital due to progressively worsening exertional dyspnea, dry cough, and left posterior thoracic pain in the last 4 days. No fever, asthenia, anorexia, weight loss, or leg edema was reported. On auscultation, there was an absence of breath sounds on the left side. Lab tests were normal and excluded respiratory failure. Chest teleradiography revealed blunting of the left costophrenic angle with hypotransparency in the left hemithorax, and computed tomography (CT) of the chest showed a large volume of pleural effusion in the left hemithorax. A diagnostic and evacuating thoracocentesis was performed with removal of 1,500 mL of serohematic pleural fluid compatible with exudate. Pleural fluid cytology was inconclusive. Chest CT was repeated and revealed a partially calcified lung mass and left lung entrapment. Positron emission tomography was performed with metabolic hyperactivity of uncertain significance in the left lung, in the pleural effusion, in the left humeral head, and in the body of the sternum. Medical thoracoscopy was performed, which revealed "diffuse inflammatory signs of the parietal pleura, in the probable context of neoplasm, and signs of pulmonary incarceration". Biopsies of these lesions and transthoracic biopsy directed to the lung mass revealed chondrosarcoma metastases. The patient was referred for an oncology appointment and proposed therapy with pazopanib, but died before starting treatment.
Discussion: Chondrosarcoma is a rare tumor with an incidence of about 1/100,000 people and a high recovery rate after surgery. Recurrence is infrequent in low-grade chondrosarcomas, and distant metastases occurs in only about 6% of cases. The treatment of malignant pleural effusion depends on several factors, namely symptoms, general condition of the patient, type of primary tumor, tumor response to systemic treatment, and degree of lung re-expansion after the evacuation of pleural fluid. The finding of malignant pleural effusion implies a worse prognosis, indicating advanced and disseminated disease. This case is presented, as it is a rare cause of pleural and pulmonary metastases, particularly 20 years after surgical excision and meeting recovery criteria.

Keywords: *Malignant pleural effusion. Pleural metastases. Chondrosarcoma.*

PC 137. THORACIC ENDOMETRIOSIS WITH NON-CATHAMENIAL RECURRENT PNEUMOTHORAX

M. Conde, C. Parra, M. Brás, A. Vale, A. Loureiro

Serviço de Pneumologia, Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Catamenial pneumothorax is an entity that occurs in women of childbearing age in the perimenstrual period and is mainly related to thoracic endometriosis. It is estimated to account for 20-35% of pneumothorax occurring in young women. Alifano and colleagues divided pneumothorax related to thoracic endometriosis (PRET) into two entities: catamenial and non-catamenial, the latter arising in the intermenstrual period, accounting for one third of all PRET cases. Non-catamenial PRET is a rare entity whose pathogenesis is not yet fully understood.
Case report: We present the case of a 44-year-old female patient, non-smoker, with history of asthma and pelvic endometriosis as well as recurrent pneumothorax (3 previous episodes on the right lung). She was on continuous combined contraceptive medication. The patient presented to the ER for right posterior basal thoracalgia with pleuritic features, which started while she was sleeping, accompanied by dyspnea and dry cough with 48 hours of evolution. On admission she was eupneic, hemodynamically stable, without respiratory insufficiency. Chest radiography revealed a large volume right pneumothorax and a chest drain was placed. The patient was admitted and referred to thoracic surgery, taking into account the history of recurrent homolateral pneumothorax. She then underwent surgery using right uniportal VATS: a small apical bleb was identified, with atypical resection of the pulmonary apex, pleural abrasion and talc pleurodesis. During surgery, 3 diaphragmatic lacerations of about 1 cm were observed and diaphragmatic excision was performed in this location to exclude lesions. Pathology revealed pulmonary parenchyma in the pulmonary apex with emphysematous lesions of subpleural predominance; morphological aspects compatible with the diagnosis of endometriosis were observed in the sample taken from the diaphragm. The patient had no recurrence of pneumothorax since surgery.
Discussion: There are three theories proposed to explain non-cathamenial PRET: retrograde migration with endometrial seeding through diaphragmatic pores, lymphatic/vascular embolism of endometrial foci over the visceral pleura, and congenital metaplasia. Its pathogenesis is still unclear, with a need for further investigation. The VATS technique offers better visual definition, thus enabling better inspection of the diaphragm, pleural cavity and lung. Some authors have proposed that performing the procedure during the menstrual period could facilitate the detection of diaphragmatic lesions.

Keywords: *Thoracic endometriosis. Pneumothorax.*

PC 138. MICROBIOLOGY IN INFECTIOUS PLEURAL PATHOLOGY

S. Silva, J. Eusébio, M.A. Santos, V. Martins, M. Aguiar, F.T. Bom

Hospital de Loures, EPE.

Introduction: Empyema and complicated pleural effusions (CPE) often occur in patients hospitalized with pneumonia or through spread of abdominal or mediastinal infectious processes. The microorganisms vary according to site of infection, usually divided between community and nosocomial, the most frequent being *S. pneumoniae*, microaerophilic streptococci (*S. anginosus, S. intermedius, S. constellatus*) and anaerobes in the community. In a nosocomial context, *S. aureus, Escherichia coli, Pseudomonas aeruginosa* and *Klebsiella* spp. are the most frequent. This study aimed to identify the microorganisms responsible for empyemas and CPE acquired in the community and in a nosocomial context, as well as to assess the existence of differences in patients identified as having risk factors associated with health care.
Methods: Retrospective analysis of empyemas and CPE submitted to chest drainage during 10 years in a secondary hospital. Based on the clinical file, age, gender, etiology of CPE, microbiological results of pleural fluid and blood cultures were collected. Nosocomial pleural effusion was defined as acquired > 48 hours of hospitalization and as healthcare-associated in patients who had risk factors such as hospitalization in the last 3 months, chemotherapy, hemodialysis and continuing care units. Data were analyzed using SPSS version 23.0 (IBM Statistics®).
Results: A total of 126 patients were enrolled, 72.2% were male and ages ranged between 19 and 93 years, with a mean of 61.6 ± 17.2

years. 70.6% (n = 89) were classified as community-acquired, 14.3% (n = 18) nosocomial and 15.1% (n = 19) were community-acquired with risk factors to healthcare-associated infection. Within the community-acquired infections, 68.5% had no microbiological result and 2.2% had more than one microorganism. Among the isolated microorganisms, the most frequent was *S. pneumoniae* (32.1%), followed by microaerophilic streptococcal species (32.1%) and other streptococcal species in 10.7%. Other less frequent were *S. aureus* (7.1%), *Klebsiella* spp. (7.1%), *Escherichia coli* (7.1%), *Pseudomonas aeruginosa*, *Enterobacter cloacae* and *Citrobacter braaki*. Of the 15.1% with healthcare-associated infection, 36.8% did not obtain isolations and 8.3% were polymicrobial. It is worth noting the higher frequency of *S. aureus* (33.3%) than in community-acquired infections, with a similar prevalence of *Streptococcus* spp. Within the nosocomial cases, 50% had no isolation and 22.2% were polymicrobial. The most frequent bacteria were *Klebsiella pneumoniae* (44.4%), followed by *S. aureus* (33.3%), *Enterococcus* spp. (22.2%) and *S. pneumoniae* (22.2%).
Conclusions: Although empyemas and CPE are often polymicrobial, rarely was isolated more than one microorganism in our sample. The microorganisms found in the community and in the nosocomial setting matches with those described in the literature, making it relevant to distinguish cases with risk factors to healthcare-associated infections, due to higher prevalence of *S. aureus,* which may have an impact on empirically established antibiotic therapy. In community-acquired cases, a higher percentage of cases without isolation was obtained than described in the literature, which may be explained by the fact that pleural fluid was not always sent in blood culture bottles, according to studies that suggest increased microbial yield.

Keywords: *Empyema. Complicated pleural effusions. Microbiology.*

PC 139. REEXPANSION OEDEMA – A RARE BUT POTENTIALLY FATAL COMPLICATION

J. Tiago Felgueiras

Centro Hospitalar do Barreiro/Montijo-Hospital da Nossa Senhora do Rosário.

Introduction: the pulmonary reexpansion oedema is a possible yet rare complication of a thoracic drainage, particularly if a substantial volume is aspirated. A quick lung reexpansion might cause an interstitial oedema which could progress to severe hypoxemia and severe respiratory failure.
Case report: A young man, 35 years-old, who had recently travelled by airplane, with a known background history of asthma and pulmonary tuberculosis 10 years ago, treated with adequate antibacillary therapy with no sequels, reported to the emergency department with a thoracalgia on the right side, with a pleuritic character, dry cough and exertional dyspnea (mMRC 2) for 2 days. The patient denied having fever, myalgias, headache or odynophagia. On physical examination he was hemodynamically stable, apyretic, with a peripheral oxygen saturation of 98% and the pulmonary auscultation revealed absence of breath sounds on the right side of the thorax. He did full serum laboratory tests which were all within the normal range, as was a blood gas test. However, the chest radiograph showed a large pneumothorax on the right lung, with contralateral deviation of mediastinal structures and a massive bulla. A chest tube was placed on the 5th intercostal space, at the midaxillary line, and connected to a drainage system with a water sealing at a neutral pressure. The control chest radiograph showed a significant reexpansion and a diffuse pulmonary infiltrate on the right inferior third. Two hours later, the cough intensified, the peripheral oxygen saturation declined with the need to start external oxygen supplementation at a 15L/min rate and the blood pressure dropped to 78/50 mmHg, needing to be transferred to an intensive care unit. A thorax CT scan was performed revealing: "... a very large emphysematous bulla that occupies a large part of the right upper lobe... extensive areas of parenchyma densification, predominantly in ground glass...". The drainage system was removed on the 3rd day with and a new control radiograph was done. The pleural fluid had a cloudy orange appearance and had 1,100 nucleated cells/mm^3, 70% of which were polymorphonuclear cells, ADA – 10 UI/L, proteins – 5.5 g/dL and a LDH – 899 IU/L, resembling characteristics of an exudate by the Light criteria. Acid-alcohol resistant bacilli were not found, the microbiological tests were also negative. A new thorax CT scan was done, showing a resorption of the infiltrate and the patient was transferred on the 5th day to a pulmonology ward, being discharged on the 10th day, completely asymptomatic and referred for thoracic surgery and pulmonology appointments.
Discussion: The pulmonary reexpansion oedema must always be considered as a possible complication when a procedure that implies a pulmonary expansion is done, particularly if there is a large pleural effusion or pneumothorax. Both large dimensions and high drainage velocities seem to be associated with a bigger risk of reexpansion oedema. Prevention is paramount to avoid this complication – the system must be placed in neutral pressure, therefore with no negative pressure, which should be considered only if there is no reexpansion after 12 to 24 hours.

Keywords: *Reexpansion. Oedema. Pneumothorax. Chest tube.*

PC 140. INCIDENTALOMA IN PULMONOLOGY CONSULTATION: A BENIGN CAUSE OF PLEURAL THICKENING

A. Trindade, C. Roquette, R. Fortes, C. d'Araújo, F. Rodrigues

Pulmonology Department, Hospital Prof. Doutor Fernando Fonseca.

Introduction: Schwannoma is a slow-growing neurogenic tumor that originates from Schwann cells, present in the sheath of peripheral nerves. In the thoracic cavity, it typically arises from an intercostal nerve in the posterior mediastinum, and pleural involvement is extremely rare. Generally, it is asymptomatic, causing symptoms due to extrinsic compression or invasion of adjacent structures. The authors present a case of a pleural schwannoma in the right lateral thoracic wall, identified after a comparison of sequential computerized tomography (CT) in the Pulmonology consultation.
Case report: A 55-year-old male, active smoker of 20 pack-years, is followed in Pulmonology consultation due to an obstructive sleep apnea diagnosis and 6 mm subpleural nodules under surveillance. A comparison of CT images obtained within a 24-month interval revealed a thickening of the parietal pleura, in the middle third of the posterolateral segment of the right hemithorax. There was no evidence of other thickening regions in the costal or mediastinal pleura. There was no pleural effusion or axillary, mediastinal, or hilar adenopathies. During the discussion in the lung multidisciplinary team meeting, the irregularity of the right costal pleura was confirmed to be present in 2016, but with an indolent thickness increase and a nodular aspect de novo in 2021. Due to suspicion of malignant etiology, a transthoracic needle biopsy was performed in the nodular region. Pathologic Anatomy analysis revealed neural proliferation without nuclear atypia, with diffuse and strong S100 immunohistochemistry expression, without CD34 expression, fitting schwannoma diagnosis. After discussion with thoracic surgery, the patient was proposed for the lesion excision through video-assisted thoracoscopic surgery.
Discussion: Typically, reported cases of pleural schwannoma were identified when patients became symptomatic, or when the lesions occupied a considerable volume in the thoracic cavity. In this case, the schwannoma was identified soon in its course after a pleural thickening investigation, having an atypical localization. This case

also underlines the importance of including benign etiologies in the differential diagnosis of pleural proliferation.

Keywords: *Pleural schwannoma. Benign pleural proliferation. Pleural thickening.*

PC 141. PIGTAIL CATHETER IN THE TREATMENT OF EMPYEMA

R. Rodrigues, C. Veríssimo, M. Cruz, M. Carvalho, A.I. Loureiro, J. Silva, R. Noya

Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Tube thoracostomy is the standard treatment for empyema. Nevertheless, the pigtail catheters are less invasive with potentially less morbidity. Some studies suggest that these small-bore catheters have the same effectiveness and are less traumatic than conventional chest tubes. The aim of this study was to compare the effectiveness of pigtail *versus* chest tube for empyema drainage in our department.
Methods: We retrospectively collected data from 37 consecutive patients with empyema treated in our department, from January 2018 to December 2021. Prior to July 2018, we managed patients only with conventional tube thoracostomy (TT). After that, patients were treated by either an intercostal tube or pigtail catheter (PC) depending on the judgment of the treating physician. Outcomes of interest: success rate, duration of drainage, hospital stay, complications, pain, and need for analgesia. Success was defined as the evacuation of fluid, albeit slowly, confirmed by chest X-ray or US, and no need for further intervention. Failure was defined as the persistence or increase in the amount of fluid, requiring another chest tube or catheter or surgery.
Results: A total of 37 patients, 29 (78,4%) male, with a mean age of 70,5 ± 12,1 years, were enrolled. Twenty pigtail catheters and 17 chest tubes were placed. There was no statistically significant difference in baseline parameters between the two groups, including age, sex, Katz Index, amount of fluid, US pattern, loculation or time from hospital admission to drainage. The difference in the size of catheters (12,0 [1]) and tubes (20,0 [4]) was statistically significant. In the PC group, the success of drainage occurred in 17 patients (85,0%) and in 11 (64,7%) in the TT group, with no significant difference (p = 0,251). There was also no statistically significant difference in duration or the total amount of effusion, fibrinolytic use or hospital stay between groups. The PC group had significantly less pain (50,0 *vs.* 82,4%, p = 0,04), less need for non-opioid analgesia (30,0 *vs.* 70,6%, p = 0,014), but no difference in the need for opioids (5,0% in PC *vs.* 29,4% in TT, p = 0,075). There was no statistically significant difference in complication rate between PC and TT (25,0 *vs.* 35,3%, p = 0,495).
Conclusions: There was no significant difference in success rate, duration or amount of drainage, hospital stay or complication rates between the PC and TT groups. Pigtails were better tolerated, with less pain and the need for non-opioid analgesia. Despite the small sample size, this study suggests that pigtails can be an effective, safe and less invasive alternative to large bore tubes for the evacuation of empyema.

Keywords: *Pigtail catheter. Empyema. Tube thoracostomy. Chest tube. Drainage.*

PC 142. A DIFFERENTIAL DIAGNOSIS NOT TO BE FORGOTTEN

C. Pimentel, D. Amorim, A.C. Ferreira, C. Santos, S. Feijó

Centro Hospitalar de Leiria.

Introduction: Medical thoracoscopy is a highly effective and safe technique, being an extremely useful procedure in the study of pleural pathology. Although some imaging characteristics may be suggestive of specific pathologies, only direct visualization of the pleural cavity and directed biopsies allow a definitive diagnosis in certain cases.
Case report: The authors present the case of a 39-year-old female patient, with a history of anemia secondary to abundant catamenia, medicated with desogestrel, who was evaluated in the ER for asthenia and weight loss for 4 months. She performed a chest CT that showed right supradiaphragmatic nodules, with diaphragmatic implantation, suspected of neoformative etiology, nodulariform pleural thickening, substantial bilateral pleural effusion and ascites. To clarify the diagnosis, thoracentesis and paracentesis were performed, showing macrophages with intracytoplasmic hemosiderin pigment in the cytology of both fluids. A chest MRI was performed, which confirmed the presence of pleural effusion with hypersignal on T1 images. Given the nonspecific findings, a medical right thoracoscopy was performed, and there were observed lesions with diaphragmatic implantation, where aspiration biopsy was performed, which later revealed to be liver parenchyma. It was also observed thickening of the parietal pleura with some neovascularization and micronodulation, and the direct pleural biopsies showed lymphoplasmohistiocytic inflammatory infiltrate and macrophages with intracytoplasmic hemosiderin pigment and there were no other cell types (as endometrial epithelium or stroma) and no malignant signs. From the macroscopic findings and the anatomopathological study, thoracic endometriosis was suspected, therefore the patient was evaluated by Obstetrics and went through surgery with excision of suspicious lesions in the rectovaginal septum, on the surface of the uterus and adjacent structures. The pathological anatomy of the surgical specimens was compatible with endometriosis, thus giving a definitive diagnosis. Afterwards, she underwent left uniportal VATS (video-assisted thoracoscopic surgery) with atypical resection of 2 suspicious lesions with stapler and electrocautery followed by mechanical pleurodesis. The patient had a good clinical evolution, maintaining her follow-up in consultation.
Discussion: Endometriosis is a benign, estrogen-dependent disease, characterized by the presence of endometrial tissue outside the uterine cavity, with consequent chronic inflammatory reaction. Ectopic implants at the diaphragmatic level can cause their dehiscence with possible eventration of infradiaphragmatic organs through these fenestrations. Its nodular imaging appearance can mimic neoformative nodular changes, and its differential diagnosis is mandatory. Thoracic endometriosis is a rare pathology and requires a multidisciplinary approach from diagnosis to treatment.

Keywords: *Thoracic endometriosis. Thoracoscopy.*

PC 143. PLEURAL IRRIGATION IN COMPLICATED EMPYEMAS AND EFFUSIONS - BETTER OUTCOMES?

S. Silva, J. Eusébio, M.A. Santos, V. Martins, M. Aguiar, F.T. Bom

Hospital de Loures, EPE.

Introduction: Empyemas and complicated parapneumonic pleural effusions (CPPE) often occur in patients hospitalized with pneumonia. Treatment consists in chest drainage (CD) and antibiotic therapy, however about 30% need a surgical treatment. Studies suggest that pleural irrigation can increase the amount of fluid drained and decrease the need for surgery. The aim of this study was to analyze whether intrapleural irrigation in these patients improves their outcomes, in particular the need for thoracic surgery, hospital mortality, days of hospitalization and on CD.
Methods: Retrospective analysis of empyemas and CPPE undergoing CD, over a period of 10 years in a secondary hospital. CPPE was defined as pH < 7.2, LDH > 1,000 UI/L or glucose < 60 mg/dL in pleural fluid (PF), echographic signs of septation or bacteriological isolation. Patients transferred to other hospitals and with mediastinitis and/or esophageal perforation were excluded. Patients were

divided into two groups: group 1, those who did not undergo intrapleural irrigation between 2012 and 2017, and group 2, from 2018 to 2022, who performed manual irrigation once daily with 100 to 200 mL of 0.9% saline solution, as tolerated. Based on the clinical file, age, gender, pH, LDH, glucose, total proteins, PF cell count and predominance, microbiological isolations in the PF and blood cultures, days under CD, intrapleural fibrinolysis, surgery and mortality were collected. Quantitative variables with normal distribution were expressed as mean and standard deviation and the others as median and quartiles (P25-P75). Outcomes between the two groups were compared, namely days on CD, hospitalization duration, need for thoracic surgery and/or fibrinolysis and mortality.
Results: In group 1, 75 patients were included, 76% male with a mean age of 62.35 ± 17.5 years. In group 2, 44 patients were included, 68.2% male, with a mean age of 59.7 ± 17.1 years. There was no statistically significant difference regarding the need for thoracic surgery (17.3 *vs*. 20.5%, p-value 0.672) or in-hospital mortality (10.7 *vs*. 11.4%, p-value 0.906). Considering the patients who did not undergo surgical treatment and who did not die during hospitalization, there was no statistically significant difference in terms of hospitalization days (mean 28.3 *vs*. 25.5 days, p-value 0.277). In group 2, patients remained on chest tube for more days (mean 7.5 *vs*. 13 days, p-value < 0.001).
Conclusions: In our sample, intrapleural irrigation did not reduced the need for thoracic surgery or hospital mortality. The significant increase in days on CD can be explained by the lower frequency of drain obstruction and by the fact that irrigation might have increased the amount of PF drained, prolonging the time on CD, without increasing in hospitalization days. However, this hypothesis would need imaging confirmation and quantification of the volume drained by chest computed tomography.
Further studies are needed to analyze the benefit of intrapleural irrigation in these patients.

Keywords: *Empyemas. Parapneumonic pleural effusions. Pleural irrigation.*

PC 144. SHOULD MOLECULAR DIAGNOSIS TECHNIQUES BE ROUTINELY USED IN THE MICROBIOLOGICAL DIAGNOSIS OF EMPYEMA?

A. Nunes, P. Benjamim, F. Paula, F. Félix, F. Froes

Serviço de Pneumologia, Centro Hospitalar do Oeste-Unidade de Torres Vedras.

Introduction: Community-acquired pneumonia (CAP) is an important cause of hospitalization and admission in intensive care units (ICU), being *Streptococcus pneumoniae* the most frequently involved pathogen. Parapneumonic pleural effusion is a possible complication of CAP and one that can increase the mortality rate. However, despite its importance to the therapeutic approach, the microbiological diagnosis of the pleural fluid is difficult due to the low yield of the conventional culture methods.
Case report: We present the case of a 74-year-old male, autonomous, with no known respiratory comorbidities, no anti-pneumococcal vaccination, and heavy smoking habits, which presented to our emergency room with complaints of dyspnea, productive cough and fever with 4 days of evolution. Left lower lobe pneumonia accompanied by partially loculated pleural effusion of moderate volume was diagnosed. Pneumococcal and Legionella urinary antigen testing were negative. Due to progressive worsening of the hypoxemic respiratory failure, the patient was admitted to the ICU. A diagnostic and evacuator thoracocentesis was performed with drainage of about 800 ml of a non-purulent pleural fluid, with biochemical characteristics of exudate and a pH of 7.24. The microbiological exam of this fluid was negative. Due to maintaining progressive clinical worsening, a chest CT was performed 5 days after admission with the identification of a loculated pleural fluid of large volume, with radiological characteristics suggestive of empyema. The patient was submitted to an urgent pleural debridement, presenting progressive clinical improvement in the postoperative period. The microbiological exam of the pleural fluid which was collected during the surgery was once again negative, however, the polymerase chain reaction molecular technique allowed the identification of a serotype 3 *Pneumococcus*.
Discussion: We present the case of a CAP complicated with empyema, whose rapid evolution could have been fatal, had it not been for the timely intervention, reinforcing the importance of the control of the infectious foci. This case allows us also to ponder on the relevance and importance of molecular diagnosis techniques. Without the PCR, the etiological diagnosis would not have been possible, despite the ample use of conventional microbiological diagnosis methods. How many parapneumonic pleural effusions and empyemas are not correctly diagnosed due to negative cultural results? Some studies suggest that up to 30% of the culture-negative pleural effusions could have a diagnosis of the etiological agent with the use of molecular methods. With the advent and widespread generalization of molecular diagnostic techniques due to the COVID-19 pandemic, we should consider and take the opportunity of adding these methods to our diagnostic armamentarium. More studies are needed, but these methods could allow us a faster and more precise diagnosis, with potential impact on the rational use of antibiotics and clinical outcomes.

Keywords: *Empyema. Pleural effusion. Community-acquired pneumonia. Thoracic surgery. Molecular diagnosis.*

PC 145. "I'VE GOT AIR UNDER MY SKIN" – LUNG PARENCHYMATOUS FISTULA TO THE SUBCUTANEOUS TISSUE

A. Nunes, P. Benjamim, D. Cabral, F. Paula, F. Félix, F. Froes

Serviço de Pneumologia, Centro Hospitalar do Oeste - Unidade de Torres Vedras.

Introduction: A fistula is defined as an abnormal communication between two structures and can result from trauma, infections, neoplasia, surgical interventions, or others. Thoracic fistulas can involve different structures. Persistent air leak is a possible consequence of the establishment of a fistula and is defined as an air leak that persists for more than 5-7 days. It occurs more frequently in the post-surgery context, however, it can also occur after a spontaneous pneumothorax. Persistent air leak is associated with increased morbidity and mortality, a bigger duration of chest drain usage, and longer hospital stay.
Case report: We present the case of a 56-year-old female, in follow-up for a lung adenocarcinoma, that was admitted in the context of a secondary spontaneous pneumothorax. After chest drain placement, a partial lung expansion with persistent air leak was observed. The patient was submitted to a video-assisted thoracic surgery (VATS) during which a pulmonary laceration was detected. Talc poudrage and replacement of the previous chest drain by two other drains was performed. In the postoperative period, the patient developed exuberant subcutaneous emphysema that extended from the face to the inguinal region. Simultaneously, the chest drains were nonfunctioning. A chest CT allowed us to observe that a fistulous tract had been established between the lung parenchyma and the subcutaneous tissue, resulting from the location of the initial chest drainage. After a multidisciplinary discussion of the different possible approaches, the patient was submitted to a new surgical intervention to seal the fistulous tract with Tisseel® (a fibrin-derived adhesive), with total resolution of the subcutaneous tissue.
Discussion: This case illustrates a possible complication of chest drain placement – the establishment of fistulas between the lung parenchyma and the subcutaneous tissue. It also reinforces the im-

portance of the multidisciplinary approach to complex cases and the enrichment that comes with it. In this case, we should also highlight the importance of the chest CT that allowed the construction of a pathophysiological model that allowed us the comprehension of the cause of the subcutaneous emphysema and, thus, the planning of the subsequent approach.

***Keywords**: Subcutaneous emphysema. Respiratory tract fistula. Spontaneous pneumothorax. Thoracic surgery.*

PC 146. THE IMPORTANCE OF A MULTIDISCIPLINARY APPROACH TO BOERHAAVE SYNDROME

V. Maione, M.J. Santos, M. Bragança, I. Macêdo, M. Guia, P. Pinto, A. Dias, C. Bárbara

Centro Hospitalar de Lisboa Norte.

Introduction: Spontaneous esophageal rupture (Boerhaave syndrome) is a rare condition, but with very high mortality if not treated precociously and should be excluded in the event of severe chest pain after episodes of profuse vomiting.
Case report: Male patient, 84 years old, with history of arterial hypertension and dyslipidemia. Ethanol habits with consumption of 60-80 g/day. Regularly medicated with telmisartan and pravastatin. The patient came to the Emergency Department due to severe epigastric pain radiating to the back, associated with nausea and vomiting. He denied fever and other complaints. At the initial evaluation, he was hemodynamically stable, with stained, hydrated skin and mucosae. On objective examination, a decrease in vesicular murmur in the lower half of the left hemithorax should be highlighted. Laboratory tests showed a slight elevation of inflammatory parameters (leucocytes 12,100/mL, CRP 2.5 mg/dL. Chest radiography showed hypotransparency of the left base and an area of superior hypertransparency with air-fluid level, suggesting left hydropneumothorax and pneumomediastinum. Suspecting an esophageal perforation, a chest CT with oral contrast was performed, showing extravasation of oral contrast into the pleural cavity, corroborating the hypothesis of loss of continuity of the esophageal wall at the level of its distal third. There was also evidence of the coexistence of pneumomediastinum and emphysema along the intermuscular planes of the base of the neck on the right. Upper digestive endoscopy was performed, which revealed a small hiatal hernia, identifying a deep longitudinal laceration of about 15 mm on the gastric side of the cardia. A metallic prosthesis was placed at the distal end of the esophagus, with good imaging control in the reassessment esophagoscopy obtained 2 days after the procedure. To control local complications, left pleural drainage was initially placed with air and food content outlet, and empiric treatment with piperacillin-tazobactam and fluconazole was started. The patient was admitted to maintain the treatment. Despite the measures taken to control the focus, on the 3rd day of hospitalization due to clinical and analytical worsening, a second chest CT scan showed worsening of the left pleural effusion with a loculated appearance, suggestive of empyema. In view of these findings, the patient progressed to the surgical approach with pleural decortication, after which clinical improvement was observed, and the patient was discharged on the 23rd day of hospitalization.
Discussion: The early diagnosis and management of Boerhaave syndrome are essential for the success of the treatment and the positive evolution of the clinical picture. According to the literature, endoscopic treatment of esophageal perforation is associated with a low success rate and high need for reintervention, with the surgical approach being the most indicated. In this case, the endoscopic treatment proved to be effective, without the need for reintervention to correct the esophageal rupture, with the use of surgical treatment being necessary only to control local complications.

***Keywords**: Boerhaave. Hydropneumothorax. Esophageal rupture.*

PC 147. RECURRENT CHYLOTHORAX – A CASE OF DISSEMINATED TUBERCULOSIS

R. Fernandes, A. Trindade, M. Anciães, F. Rodrigues

Hospital Prof. Doutor Fernando Fonseca.

Introduction: Chylothorax consists in the accumulation of chyle in the pleural space resultant from an obstruction or disruption of the thoracic duct or its tributaries. With the exemption of traumatic events, the main cause for this condition are hematologic cancers. Chylothorax due to granulomatous infections like tuberculosis is very rare clinical condition that has only been documented in a few cases.
Case report: This case describe a 33-year-old female, African native, sent from Cape Verde to Portugal with the clinical query of disseminated tuberculosis (miliary pulmonary, pleural, ganglionary and hepatosplenic involvement). The diagnosis was confirmed by a culture test and was treated during 9 months with anti-tuberculous drug therapy (ATT) with proven sensitivity. Because of a presumable ganglionary relapse (cervical lymphadenopathy with granulomatous necrotizing lymphadenitis) the patient repeated ATT for an additional 12 months. The follow-up thoracic CT scan, performed one year after ATT, showed that the mediastinal lymphadenopathies with a necrotic center persisted along with pleural effusion and splenic nodules. The patient was submitted to a thoracentesis with pleural fluid consistent with chylous pleural effusion – chylothorax (triglycerides 2,016 mg/dL: cholesterol 104 mg/dL). EBUS-TBNA was performed, which showed the presence of necrosis and epithelioid histiocytes and lymphocytes without monoclonal characteristics. Both follow-up lymphangiographies showed non-conclusive results. The patient did not perform any ATT again. In the thoracic CT scan done one year after, the adenopathy's were not evident, but the pleural effusion and thickening persisted, as well as fibrorectratile densifications with traction bronchiectasis. During that period, the patient presented the clinical need of undergoing therapeutical pleural aspiration twice, for symptom management and relief. The microbiological studies performed to the obtained fluids were negative (direct microscopy, polymerase chain reaction and culture). During consultation, the patient did not present with any clinical irregularities other than the known pleural effusion on the right. From the blood tests, we could identify a normocytic anemia (Hb 11 g/dL), high erythrocyte sedimentation rate (ESR 56 mm/h) and a positive antinuclear antibodies (ANA) and anti-PM-Scl titles on autoimmune assessment. The immunoglobulin assay was normal, and patient revealed to be HIV negative. Also, the parasitological stool examination was negative. The unresolved right pleural effusion, despite its small volume, was leading to a restrictive pulmonary function. Therefore, after discussion with the Thoracic Surgery colleagues, the patient was referred to respiratory rehabilitation and dietary advising. For the following 12 months the patient did not require any further therapeutical pleural aspiration due the resolution of the pleural effusion, confirmed by thoracic ultrasound.
Discussion: Chylothorax is very rare but well-described complication of tuberculosis. Normally it is associated to lymphadenopathies and extensive pleural disease, but it may also develop as part of an immune reconstitution inflammatory syndrome. This condition is known for its slow resolution; therefore, it is common to consider other medical scenarios on diagnosis approach. Conservative treatment is associated with good prognosis leaving surgery to be needed in rare occasions.

***Keywords**: Chylothorax. Tuberculosis. Lymphadenopathies.*

PC 148. WHAT IS BEYOND AN EXTENSIVE PLEURAL EFFUSION?

A.S. Gonçalves, J. Jacinto, R. Freitas, J. Carvalho, P. Mendes, V. Teixeira

Hospital Marmeleiros, Funchal.

Introduction: Hemangioma is a benign vascular neoplasm of genetic origin that expands through the proliferation of endothelial

cells. It can be found in bone, liver, soft tissues, skin and, rarely, in the lung. Hemangiomas are classified as cavernous or capillary, depending on the diameter of the blood vessels that constitute them.
Case report: The case of a 61-year-old non-smoking female, with a personal history of obesity, type 2 diabetes mellitus and arterial hypertension stands out. She went to the emergency department for fever (tympanic temperature 38.1 ºC), pain in the left hypochondrium and asthenia with two weeks of evolution. Objectively, to highlight in pulmonary auscultation, vesicular murmur abolished on the left. Regarding complementary means of diagnosis, arterial blood gas test (FiO2 to 21%) revealed hypoxemic respiratory failure (PaO2 56.1 mmHg, SpO2 90%) and analytically without leukocytosis, but with neutrophilia and C-reactive protein of 119 mg/dL. Chest X-ray showed extensive pleural effusion on the left. She was hospitalized in the internal medicine service and started empirical antibiotic therapy with amoxicillin/clavulanic acid and clarithromycin. Blood cultures and antigenurias were negative. Thoracic computed tomography (CT) was performed, which described "voluminous pleural effusion on the left, with deviation from the mediastinum to the right; in the left upper lobe, suspicious nodular area, of 45 mm". Subsequently, observation was requested by the pulmonology service and diagnostic and therapeutic thoracentesis was performed with 1,850 cc output of serous-looking liquid, with cytochemical examination of exudate characteristics, negative bacteriological exam, and absence of malignant cells. A repeat of the CT after two weeks demonstrated "lower volume of pleural effusion on the left and nodule in posterior left paramediastinal topography of heterogeneous uptake measuring about 4.8 × 4 cm, an injury that appears to originate at the pleura level". Cardiothoracic surgery was scheduled, where the excision was performed, after the opening of the parietal pleura, of a partially capsulated tumor, with hard-elastic consistency, located in the posterior mediastinum, near the aortic cross, very vascularized. The anatomopathological study identified cavernous hemangioma, without signs of malignancy. After surgical intervention, the patient presented favorable clinical evolution, maintaining follow-up in a pulmonology consultation.
Discussion: Pleural hemangioma is a rare identity that may manifest asymptomatically or constitute an accidental finding. Pleural effusion may be one of the first manifestations of this pathology, and effectively, this case alerts to the benign neoplastic etiology that an extensive and recurrent pleural effusion may represent. Due to the location of the lesion, surgical treatment proved to be the most appropriate option for this patient.

Keywords: *Pleural effusion. Respiratory failure. Cavernous hemangioma.*

PC 149. A CASE OF PULMONARY TUBERCULOSIS: MUCH MORE THAN JUST ONE CAVITY.

A. Vital, E. Santana, M. Urbano

Serviço de Radiologia, Centro Hospitalar Universitário Lisboa Central-Hospital Santo António dos Capuchos.

Introduction: Rasmussen's aneurysm is an inflammatory pseudoaneurysmal dilatation of a branch of the pulmonary artery, in close contact with or within a previous tuberculosis (TB) cavitation. It typically occurs during the resolving phase of TB due to the fragility of the vascular wall of the involved vase. They are more common in the upper lobes and at the periphery of the lung. Only 10% of cases have their origin in brunches of the pulmonary artery. Despite consisting of a rare complication, clinical presentation can occur with profuse and potentially life-threatening hemoptysis.
Case report: We present the case of a 42 years old male patient, autonomous and native from Guinea-Bissau, with a past medical history remarkable for bronchiectasis after cavitating pulmonary TB, malaria and chronic osteomyelitis. He was admitted in the emergency department due to abundant hemoptysis. He denied having had chest pain, fever, cold chills, night sweats or anorexia. Also, there weren´t any complaints regarding other organs or systems. He didn´t do any recent travel. On clinical observation, the patient was vigil and oriented, apiretic, with blood pressure values of 90/50 mmHg, cardiac frequency of 120 bpm, eupneic while resting and with oxygen peripheral saturation of 97%. There were frequent productive coughing fits and hemoptoic sputum. Laboratorial results showed Hb of 8,9 g/dL, C-reactive protein of 24 mg/dL and a concomitant acute renal lesion. Medical treatment was optimized and the patient started on aminocaproic acid. The subsequent clinical investigation included a chest angiography CT, which revealed the presence of hemorrhage in an extensive area of a cavitation in the left upper lobe with signs of active extravasation, suggesting the diagnosis of a Rasmussen's aneurysm. Given the imagiological findings and the risks inherent to them, the case was discussed with the interventional radiology team, which performed a catheterization and subsequent superselective embolization of the upper lobar branch of the left pulmonary artery. Control pulmonary arteriography confirmed the selective exclusion of the vessel, which was followed by clinical stabilization of the patient during internment, without any recurrence of hemoptysis. After 2 years of follow-up, the patient continued to maintain clinical and imagiological stability.
Discussion: This clinical case seeks to raise awareness about a rare but potentially fatal complication associated with TB cavitations in the resolving phase. Rasmussen's aneurysm should be considered if there is a history of TB associated with abundant hemoptysis and CT angiography is the exam of choice to be done during evaluation. Selective embolization of the involved vessel, if technically possible, is the preferred treatment, allowing clinical remission in most cases.

Keywords: *Pulmonary tuberculosis. Rasmussen's aneurysm. hemoptysis. pulmonary artery. embolization.*

PC 150. BCG, ANOTHER GREAT COPYCAT? CLINICAL SERIES OF BCGITES

D. Noivo Gomes, M. Conde, R. Ferro, P. Ferreira, I. Ladeira, A. Santos Silva, R. Duarte

São Bernardo Hospital, Setúbal.

Introduction: Intravesical instillation of bacillus Calmette–Guérin (BCG) is the recommended treatment for bladder cancer after transurethral resection in order to prevent recurrence or progression. It is estimated that approximately 3% of patients undergoing this procedure develop genitourinary or systemic infection. Systemic involvement, however, is rare and delay in diagnosis is quite common.
Case report: Male, 75 years old, history of urothelial carcinoma submitted to transurethral resection (TUR-V) in 2019, followed by adjuvant intravesical BCG for 6 months. Referenced to Gaia's CDP in May 2021 due to a history of recurrent orchiepidermitis since then requiring multiple cycles of antibiotic therapy. No systemic or respiratory clinic. Sputum and urine were collected. In sputum, the nucleic acid amplification test for *Mycobacterium tuberculosis* and the mycobacteriological, microbiological and mycological cultures were negative, but in the urine it showed isolation in BCG culture. He started isoniazid, rifampicin and ethambutol (HRE) with good clinical response. Male, 82 years old, with a history of chronic obstructive pulmonary disease and superficial bladder urothelial carcinoma under intravesical BCG for 10 months. He reported dyspnea on progressively lower exertion, weight loss of 4 kg in 2 months, hypersweating and subfebrile temperature in the last month. A computed tomography (CT) of the chest was performed, which revealed centrilobular emphysema and multiple nodular opacities in the left and right upper lobes associated with traction bronchiectasis. He collected sputum that showed isolation of BCG in culture. He started HRE with good clinical and imaging response. Male, 67 years old, history of bladder urothelial carcinoma submitted to TUR-V in April 2021, under month-

ly intravesical BCG since May 2021. Since the second treatment he reported self-limited fever after instillation. In March 2022, hematuria started after instillation and dry cough in the morning. In April, he performed a new instillation with subsequent constant fever, which did not give in to antipyretics, prostatitis was assumed and medicated with levofloxacin. Given the worsening of respiratory symptoms, he went to the emergency department and was diagnosed with COVID-19. Subsequently, the symptoms worsened, associated with weight loss and marked asthenia. He went to the emergency department again, where a chest X-ray revealed a bilateral micronodular pattern that was confirmed by CT-thorax, without cavitated lesions, adenopathies or other alterations. He was admitted to the Pulmonology Department and underwent bronchoscopy with bronchoalveolar lavage, which revealed negative sputum smears, nucleic acid amplification test for *Mycobacterium tuberculosis*, mycobacteriological, microbiological and mycological cultures. Given the suspicion of disseminated BCG infection, HRE was initiated. After initiation of therapy, he showed evident clinical improvement with resolution of the fever.
Discussion: The administration of intravesical BCG is effective in preventing recurrence of bladder neoplasms, alternative therapies imply the administration of local chemotherapy (such as mitomycin C). Despite being a live attenuated strain of *Mycobacterium bovis*, BCG has the potential for local or disseminated infection. This series of clinical cases highlights the importance of clinical history and highlights the need to increase the recognition by the medical community of this pathology whose diagnostic confirmation is extremely difficult.

***Keywords**: BCGitis. Bladder cancer. Tuberculosis.*

PC 151. ERYTHEMA INDURATUM OF BAZIN- A CLINICAL CASE

M. Vasques Osório, C. Alves, M.M. Silva, S. Silva, C. Gomes, F. Rodrigues

Hospital Prof. Dr. Fernando Fonseca.

Introduction: Erythema Induratum of Bazin corresponds to a non-infectious form of panniculitis resulting from an immune-mediated hypersensitivity reaction to *Mycobacterium tuberculosis* antigens (tuberculide), which may exist in the presence of active tuberculosis, but mainly in the form of latent infection. In addition, but less commonly, it can be associated with other autoimmune pathologies such as systemic lupus erythematosus or Takayatsu arteritis, viral infections (hepatitis C or B), hematological diseases, namely CLL or AFS and as a paraneoplastic syndrome of lung cancer, between others. It corresponds to an inflammatory condition of panniculitis characterized by firm, painful and sometimes ulcerated nodules in the posterior portion of the legs, more common in adult women. Its diagnosis and association with the tuberculous etiology is based on the correlation of suggestive clinical signs, histopathological alterations of the characteristic lesions (lobular panniculitis, predominantly lymphocytic and eosinophilic inflammatory infiltrate, tuberculoid granulomas and signs of vasculitis) with a cultural study of the respective biopsy negative, coupled with evidence of infection (active or latent) with *Mycobacterium tuberculosis*. A favorable response of the skin lesions to anti-bacillary therapy supports this diagnosis.
Case report: I bring a case of an 80-year-old woman, autonomous, with a personal history of diabetes, NIT and hypothyroidism, and without a history of tuberculosis in the past, who since 2021 reports the appearance of multiple flat, erythematous, hard lesions, with subcutaneous nodules of 1 to 2 cm in diameter. diameter, painful and non-ulcerative in the posterior region of both lower limbs. After evaluation at a health center, she is referred to a dermatology consultation for the etiological study of the lesions, highlighting an unaltered chest X-ray, venous and arterial echo-doppler of the lower limbs, also without alterations, and analytical evaluation without an increase in inflammatory parameters, infectious serologies for HIV 1 and 2, negative syphilis, hepatitis B and C, negative ACE and autoimmune study (ANAs, anti DS-DNA, anti-SSA, anti-SSB, anti-SM, anti-RNP, anti- HS70 and anti-JO1) were also negative. Due to suspicion of nodular vasculitis *vs.* erythema induratum of Bazin, she performs a skin biopsy, starts a trial of therapy with indomethacin and elastic stockings and is referred to the CDP of Vendas Novas for screening for latent TB or diagnosis of active TB. At the CDP, a chest CT without significant pleuroparenchymal changes or adenopathies with pathological criteria is performed, associated with a 13 mm Mantoux test and IGRA with a positive result. Skin biopsy revealed predominantly lobular panniculitis compatible with the diagnosis of Erythema induratum de bazin. The patient starts therapy for latent tuberculosis with Isoniazid plus vitamin B6 on 06/2022, with progressive improvement of the skin lesions.
Discussion: Erythema induratum de bazin corresponds to a rare form of tuberculid characterized by the existence of a cutaneous hypersensitivity reaction to the antigens of *Mycobacterium tuberculosis* present latently or in an extracutaneous infectious focus.

***Keywords**: Tuberculosis. Tuberculide. Erythema induratum of bazin.*

PC 152. BCG: THE VACCINATION STRATEGY AFTER 2016 AND THE REALITY OF ACES OESTE SUL

R. Conceição Aafonso, C. Rôlo Silvestre, J. Ferreira, R. Farinha Marques

Unidade Cuidados Saúde Personalizados-Mafra Leste ACeS Oeste Sul.

Introduction: Tuberculosis has a high rate of mortality and morbidity worldwide. In some countries, such as Portugal, there has been a progressive decrease in the number of tuberculosis cases. Considering the cost *versus* benefit and the associated adverse reactions, in June 2016 the BCG vaccination strategy was changed in Portugal, with only children with individual or community risk factors being vaccinated.
Objectives: To characterize the BCG vaccination in the area of influence of the Group of Health Centers (ACeS) Oeste Sul.
Methods: Retrospective and descriptive study of children flagged for BCG vaccination, between June 2016 and May 2019, based on information in the Public Health Unit database.
Results: A total of 1,149 children were referred for vaccination in this period, with greater number in 2018 (432 referrals). Of the total number of referrals, 950 children were vaccinated (82.68%) and 52.84% were male. "Parents, cohabitants or cohabitants with HIV infection", was the most representative eligibility criterion: 60.21%; followed by "Population belonging to communities at high risk of tuberculosis". It was also found that in 10.63% of the cases the reason for referral was "Unknown". From the analysis of the parents of vaccinated children, 59.58% had Portuguese nationality, followed by Brazilian nationality with 17.05%. The majority were residents in Mafra county, 47.47%, followed by the county of Torres Vedras (30.95%), the two counties of ACeS Oeste Sul with population growth above the national average. In the current vaccination protocol, children over 12 months of age need to undergo a tuberculin skin test prior to vaccination. The same was done to 156 children, 1.28% (n = 2) had a positive test and were referred for confirmation. During the study period, there were 64 cases of tuberculosis reported in the ACeS Oeste Sul. Of these, 4 were children aged between 1 and 17 years.
Conclusions: In Portugal, the vaccination strategy with BCG was changed, moving from a universal to a selective strategy. Maintaining this strategy implies the identification of children eligible for vaccination and population clusters in need of vaccination coverage. Vaccination strategies for children from risk groups are defined at the regional level. This definition is made by the Regional Responsible for Vaccination integrated in the Public Health Departments of the ARS in conjunction with the Regional Coordinators of the National Program for Tuberculosis. In order to analyse the national and regional health implications of this selective vaccination measure, a reassess-

ment of the epidemiological situation is important. With this study, it was intended to make this analysis at the local level, whose strategies were defined with the regional alignment. With the aim of optimizing the control of tuberculosis infection in Portugal, one should focus on the analysis and rigorous recording of the defined eligibility criteria, as well as the identified population clusters and the follow-up of identified tuberculosis cases.

Keywords: *Tuberculosis. BCG. Vaccine. Risk groups.*

PC 153. THE GREAT IMITATOR - TUBERCULOSIS

F. Neri Gomes, R. Sérvio, T. Lopes, V. Martins, P. Rodrigues, F. Todo Bom

Hospital de Loures, EPE.

Introduction: Tuberculosis (TB) is still a prevalent disease in the XXI century. It can manifest in any organ, the lung being one of the most affected (65%), while lymph nodes contribute to 15% of the cases. In the latter, it affects young adults predominantly, while the cervical region is the most commonly involved, followed by mediastinal and axillary regions. The differential diagnosis is extensive and includes cancer, other infections, auto immune or other granulomatosis diseases. We present a clinical case of a young female in whom the TB diagnosis was long and in need of multiple complementary exams.
Case report: Female, 39 years, non-smoker, who worked in retail, without any previous disease. She was evaluated in November 2021 due to dry cough and fever, and was medicated with amoxicillin clavulanate without resolution of her symptoms. Additionally, she referred weight loss and anorexia for months. Thoracic CT scan revealed a paramediastinic lesion near the superior left lobe and multiples enlarged lymph nodes. She was referred to the pulmonology department and a bronchofibroscopy (BF) with EBUS was performed. BAL revealed a lymphocytic alveolitis (25%), CD4/CD8 1.6, and bacteriologic, micobacteriologic and mycologic exams of BAL and bronchial secretions were negative. Transbronchial lung biopsies did not reveal granulomas or malignant cells. Fine needle aspiration of 4R and 7 didn't show granulomas nor malignant cells, and *Mycobacterium tuberculosis* (Mt) PCR as well as cultural exam for Mt were negative. PET-CT was performed in December that reveled hypermetabolic lymph nodes in multiple zones, above and under the diaphragm, including cervical and supraclavicular, without involvement of other organs. She was submitted to excisional biopsy of a supraclavicular node in January 2022, that reveled a granulomatous lymphadenitis, with PCR of Mt and atypical mycobacteria negative as well as cultural exams for those microorganisms. A new biopsy of the paramediastinic lesion was performed, again without any microbiological isolations. Because the patient maintained fever and systemic symptoms, she repeated BF with EBUS in March 2022 and the lesion was approached by fine needle aspiration. This time, PCR of Mt was positive, as well as the cultural exam for Mt. The patient started antituberculosis drugs and had resolution of her symptoms.
Discussion: Due to multiple differential diagnosis, TB can be a real challenge and sometimes it takes a lot of time to identify the microorganism. In this particular case, the patient performed an extended number of exams, and it took 4 months for the definite diagnosis of TB. This clinical case shows how complex it is to make a diagnostic when the cultural examinations are negative in the beginning.

Keywords: *Tuberculosis. Endobronchial ultrasound.*

PC 154. A TOUGH NUT TO CRACK...

M.M. Carvalho, H. Cabrita, R. Duarte

Centro Hospitalar de Trás-os-Montes e Alto Douro.

Introduction: Osteoarticular tuberculosis is responsible for 10 to 35% of cases of extrapulmonary tuberculosis. The most common form is Pott's disease. The second most common form is tuberculous arthritis, followed by extraspinal tuberculous osteomyelitis.
Case reports: Case 1: female, 74 years old, dependent for ADLs. History of ischemic stroke and vascular epilepsy. Followed by an orthopedic consultation due to septic arthritis, having undergone several surgeries in the last 5 years. In 2019, there was clinical worsening with joint effusion and abscess. Local drainage, antibiotic therapy, immobilization were performed, without significant improvement. In December 2021, a CT of the elbow joint was performed, revealing a massive joint effusion, with signs of pronounced erosion in the joints, associated with loss of joint congruence – suggestive of inflammatory arthritis. In January 2022, a joint ultrasound showed extensive bone destruction, associated with a large fluid collection, probably abscessed or associated with gouty arthritis. A new percutaneous drainage was performed with pus outflow, whose microbiological analysis revealed positive MT PCR with MT growth in culture, sensitive to first-line antituberculosis drugs. Chest X-ray was requested, where a slight infiltrate in the right upper lobe was evident. In this context, a thoracoabdominal CT was performed - micronodular infiltrate and numerous partially necrotic adenopathies with extensive calcifications were identified in the right upper lobe, reflecting involvement by tuberculosis. Due to inability to collect sputum and refusal by the patient to perform bronchofibroscopy, a mycobacteriological study of gastric juice was performed: direct and cultural examination were negative. Patient starts treatment with HRZE, without toxicity to date. Case 2: male, 51 years old. Smoker. Personal history of chronic osteomyelitis of the left proximal humerus. In 2009, MRI of the left shoulder showed heterogeneous joint effusion, of large volume, extending to the subdeltoid subcromial bursa and exuberant medullary edema and fragmentation of the articular surfaces of the humeral head and neck, as well as the glenoid cavity, with several free osteochondral fragments. In this context, the patient underwent 3 surgeries: in 2009, 2010 and 2011 (at which point he lost follow-up). In 2013, the patient came to the ER for large volume hemoptysis, coughing with mucus-purulent sputum with about 3 months of evolution. He also reported weight loss > 10 Kg. On physical examination, he had pulmonary auscultation with few bibasal crackles and some wheezing in the left hemithorax. A chest X-ray was performed, where condensation was evident in the left upper lobe. Chest CT showed a heterogeneous parenchymal infiltrate in the LSL and apical segment of the LLL, with some thick-walled cavitations and associated micronodules, with a "tree-in-bud" distribution. He collected sputum whose mycobacteriological examination had a positive direct examination and MT growth on cultural examination, sensitive to first-line anti-bacillary drugs. Patient started HRZE with good clinical response, without toxicity. Reviewing the clinical file, it was found that MT had already been isolated in a mycobacteriological examination of pus collected from the left shoulder in 2011 (osteoarticular involvement by tuberculosis).
Discussion: The great challenge of tuberculous osteomyelitis begins with thinking about the diagnosis.

Keywords: *Tuberculosis. Osteoarticular tuberculosis. Osteomielitis.*

PC 155. THE GREAT IMITATOR - A DIAGNOSIS OF EXCLUSION

A. Simas Ribeiro, J. Carvalho, S. Carreira, T. Mourato, D. Ferreira, A. Pais, M.C. Gomes

Centro Hospitalar Barreiro Montijo.

Introduction: Although tuberculosis is one of the oldest known human diseases, its treatment and follow-up remain a challenge due to the multiplicity of clinical presentations and treatment complications.
Case report: A 34-year-old woman, born in India, residing in Portugal for 2 years, was admitted with a one-month history of cough,

fever, asthenia and weight loss. A computed tomography (CT) scan of the chest, abdomen and pelvis revealed right upper lobe (RUL) condensation with areas of cavitation and ganglionar extension with necrotic appearance, micro and centrilobular pattern in both upper lobes and right lower lobe (RLL), as well as destructive aspects of the right sacroiliac joint, right psoas-iliac muscle abscess and synovitis of the left acetabulofemoral joint. The smear microscopy of the sputum was positive for acid-alcohol-fast-bacilli (AAFB) and the culture revealed the presence of *M. tuberculosis.* She underwent drainage of exudate from the psoas-iliac muscle, with the detection of AAFB and positive nucleic acid amplification test for *M. tuberculosis*. Serology for human immunodeficiency virus (HIV) was negative. A diagnosis of disseminated tuberculosis was made, with pulmonary, ganglionar and osteoarticular involvement. The patient was treated with isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E). After hospital discharge, she was referred to the Pulmonology Diagnostic Centre for further treatment. Due to clinical improvement and demonstrated sensitivity to first-line antibacillary drugs, the patient was switched to the continuation phase with HR after 3 months of therapy. At 5 months of treatment, she developed a large right supraclavicular mass. A cervico-thoracic-abdominal-pelvic CT was performed and revealed a 49 mm nodular solid lesion in the middle lobe (ML), extending from the periphery to the lower portion of the hilum, with multiple cervical, supraclavicular and mediastinal adenopathies. The patient was submitted to bronchofibroscopy, revealing cicatricial bronchial stenosis of the right upper lobe bronchus and severe stenosis of the middle lobe bronchus. Bronchoalveolar lavage was negative for neoplastic cells, bacteria, mycobacteria and fungi. Fine-needle aspiration of a supraclavicular adenopathy was also performed, whose analysis was also negative for neoplastic cells and microorganisms. In this context, a paradoxical reaction to the antibacillary therapy was assumed and therapy with prednisolone 0.75 mg/kg/day was initiated. A progressive improvement of the lesions was observed and the patient underwent a total of 18 months of antibacillary therapy and 6 months of corticotherapy. At the end of treatment, the CT scan demonstrated small calcified mediastinal ganglia, ML atelectasis and partial atelectasis of the RUL associated with bronchiectasis.
Discussion: Paradoxical reactions to antibacillary therapy are well documented in the literature. However, their diagnosis in clinical practice is not easy and requires a high level of suspicion, being essential to exclude therapeutic failure and alternative pathology, namely neoplastic.

Keywords: *Tuberculosis. Antibacillary drugs. Pulmonary mass.*

PC 156. A DIAGNOSIS THAT REMAINS OFTEN OVERLOOKED

D. Amorim, C. Pimentel, S. Silva, S. Feijó

Serviço de Pneumologia, Centro Hospitalar de Leiria.

Introduction: The diagnosis of pulmonary metastasis is often based on imaging findings, confirmed by histology. However, these findings are often confounding, as the presence of multiple pulmonary nodules can have several etiologies. Most of the time, these nodules represent secondary lesions of a distant tumor, but we must always keep in mind the possibility of inflammatory or infectious diseases that may go unnoticed.
Case report: We present a case of a 77-year-old male, former smoker, with a history of penile cancer 9 years ago (no recurrence so far), heart failure, pulmonary hypertension, diabetes mellitus, epilepsy and obstructive sleep apnea under nocturnal CPAP. He went to the emergency department referred from cardiology appointment, after performed a cardiac MRI that revealed numerous pulmonary nodules in both lungs, raising the hypothesis of pulmonary metastasis. When questioned, the patient complained of asthenia, anorexia and weight loss (20 Kg) with 2-3 months of evolution. He denied dyspnea, cough, sputum, hemoptysis, fever, night sweats or other complaints. On physical examination, he was eupneic on room air, with SatO2 92% and bibasal crackles on pulmonary auscultation. Analytical study showed marked leukocytosis (25,000/μL) and CRP 113 mg/L, with no other relevant changes. A chest X-ray was performed, which showed multiple bilaterally dispersed nodular images and then lung computed tomography was made, revealing mediastinal and hilar adenopathies, elevation of the left hemidiaphragm and the presence of countless nodular formations dispersed in both lung fields. The most likely hypothesis was pulmonary metastasis. Even so, not being able to completely rule out the hypothesis of infection and considering the increase in inflammatory parameters, antibiotic therapy with amoxicillin/clavulanic acid + azithromycin was started. The patient was hospitalized to continue the study of an occult neoplasia, namely with urological evaluation based on the patient's history. Considering the imaging findings, bronchoscopy was also performed, which identified lumpy purulent secretions, without other endobronchial alterations. Transbronchial lung biopsies were performed and bronchial aspirate and bronchoalveolar lavage were collected for microbiology, mycobacteriology, mycology and cytology. The microbiological examination of the bronchoalveolar lavage and aspirate ended up revealing a positive NAAT for *Mycobacterium tuberculosis* and identification of alcohol-acid resistant bacilli on the direct exam, with a negative cytological examination for malignant cells. Diagnosis of pulmonary tuberculosis was made and treatment was initiated.
Discussion: Pulmonary tuberculosis remains a very prevalent diagnosis in Portugal. This case reminds that tuberculosis can often be a forgotten diagnosis due to the many similar features with other pathologies, namely with pulmonary metastization. Therefore, it should always be considered as a differential diagnostic hypothesis.

Keywords: *Pulmonary tuberculosis. Pulmonary metastasis. Lung cancer.*

PC 157. POTT´S DISEASE? OH IT´S "POTT´SIBLE"

M. Ferreira de Almeida, A.C. Vieira, J. Portela, I. Estalagem, D. Silva

Hospital Garcia de Orta.

Introduction: Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* (MT), primarily affecting the lung, but in 15% of cases it has extrapulmonary involvement. In 1-2% it presents as spondylitis; or Pott's Disease (PD). PD has a varied spectrum of clinical presentations, as involvement of the parral spaces, vertebral body, posterior region or non-osseous involvement in the form of an abscess.
Case report: Female, 65 years old, melanodermic, ex-bank employee, born in Angola. Ex-smoker (20 ONE). Known hypertension, insulin-dependent diabetes mellitus (DM) and chronic kidney disease. She was referred to the emergency service (ER) in February/2022 with weight loss quantified at 10 kg within 2 months of evolution. Chest CT identified "solid perihilar lung lesion in the apico-posterior segment of the upper left lobe, associated with multiple pulmonary nodules bilaterally, multiple confluent adenopathies and probably secondary lesion of the 10th costal arch to the left". She underwent bronchofibroscopy, without endoluminal changes, with subsidiary tests negative for malignancy. MT was isolated in the broncho-alveolar lavage. An ultrasound-guided percutaneous biopsy of the lesion on the 10th left costal arch was performed: histology identified a necrotizing granulomatous inflammatory process. Antibacillary therapy was initiated with the classical scheme (isoniazid, rifampicin, pyrazinamide, ethambutol). The patient evolved with respiratory worsening, vomiting, and lumbar pain, and was referred to the ER in March 2022, showing hepatotoxicity, and images of "frank pulmonary aggravation with a miliary pattern" and documented "somatic compressive fracture of D12 and abscessed collection (involving the left rib of D10), suggestive of tuberculosis infection with spondylitis in

D12", leading to a new hospitalization. A diagnosis of multi-organ tuberculosis with pulmonary and bone extension was accepted, due to costal fracture and PD in D12. The case was discussed with neurosurgery, which ruled out the possibility of surgery, and the patient should rest in bed, undergo analgesia and then be elevated with a Jewett-type orthosis. The anti-bacillary regimen was changed to non-hepatotoxic with levofloxacin, ethambutol, and amikacin, with normalization of transaminases. Renal function deteriorated due to amikacin-related toxicity, requiring discontinuation of this medication and pyrazinamide was introduced. After normalization of the transaminases and progressive reintroduction of the drugs of the initial regimen, hepatotoxicity secondary to isoniazid was noted, and a regimen with ethambutol, rifampicin, pyrazinamide, and levofloxacin was chosen. Dexamethasone was initiated due to meningeal involvement. The patient evolved with renal failure in the context of nosocomial urinary infection, and consequently the need to adjust corticotherapy. Antibacillary therapy was maintained (ethambutol, rifampicin, pyrazinamide and levofloxacin), with clinical and imagiological improvement. She became dependent for daily living activities, mobilizing herself with a wheelchair and lifting with Jewett's vest.

Discussion: The authors highlight the case by the extent of tuberculosis, with special focus on PD and the complexity of managing the side effects of therapy. Drug therapy has shown efficacy in the treatment of PD in the absence of neurological complications. Early diagnosis and treatment are of special importance in the prognosis of this severe form. However, despite adequate therapy, there was a worsening of the patient's functional status.

Keywords: *Pott's disease. Side effects.*

PC 158. BCGITIS – RARE BUT POSSIBLE COMPLICATION OF INTRAVESICAL TREATMENT WITH BCG

A. Vasconcelos, A. Araujo, V. Fernandes, A. Mendes, B. Rodrigues

Centro Hospitalar do Baixo Vouga.

Introduction: Bacillus Calmette-Guérin (BCG) has been widely used as an intravesical immunotherapy in the treatment of superficial urothelial carcinoma of the bladder after transurethral resection (TUR). Although generally well tolerated, there are reports in the literature of localized or systemic dissemination of the bacillus *Mycobacterium bovis* (Mb), called BCGitis. This is a possible and serious complication of this therapy.

Case report: A 55-year-old male diagnosed with urothelial carcinoma for ~1 year, who underwent vesical-TUR, mitomycin and later intravesical BCG. He went to the ER 5 days after the last instillation of intravesical BCG, due to pollakiuria, dysuria, hematuria, suprapubic discomfort and fever. The diagnosis of pyelonephritis was assumed and he was medicated with cefuroxime at home. However, the patient did not comply with antibiotic therapy because no microorganism was isolated. Due to persistence of fever (already with > 10 days of evolution, with a daily peak mainly in the afternoon, maximum temperature of 39 ºC, under paracetamol), greater tiredness, dry cough and peripheral saturation (SpO2) of 46% in room air (home oximeter), the patient went to the ER again. He was sweaty, with fever (temperature of 38.2 ºC, polypneic with SpO2 of 91% under supplemental oxygen through nasal glasses at 4 L/min. Analytically he presented mild leukocytosis, CRP 26.46 mg/dL and cytocholestasis (AST 84 U/L, ALT 131 U/L, LDH 362 U/L, Alkaline Phosphatase 512 U/L, Gamma-G.T. 1,129 U/L) with hyperbilirubinemia and severe type 1 respiratory failure (RI) (PaO2/FiO2 177). He underwent chest CT which showed a bilateral micronodular pattern associated with ground-glass densification, mainly in the upper lobes. HFNC (50 L/70%) was started with improvement in RI, and the patient was admitted to the intensive care unit. A multidisciplinary discussion way held and BCGitis was admitted (disseminated disease). Sputum, blood and urine samples were collected to identify Mb and rifampicin, ethambutol, levofloxacin, amikacin and methylprednisolone 60 mg id were started. Patient showed clinical improvement with progressive weaning of oxygen therapy debit, with the HFNC withdrawn on the 7th day of anti-bacillary treatment; analytically he evolved with normalization of liver enzymes, so pyrazinamide and rifampicin were progressively added to the treatment, and levofloxacin, amikacin and corticosteroid therapy were suspended. Due to negative direct examination and sputum PCR, the patient was also submitted to bronchoscopy with bronchoalveolar lavage. Given the maintenance of a favorable clinical evolution, the patient was discharged 22 days after admission, with no adverse effects of the medication. At the time of this abstract, the cultural examinations were still ongoing.

Discussion: Although BCG immunotherapy is relatively safe and most patients have only local side effects, there are several reported cases of BCGitis, with more serious complications in ~3% of cases. In most, the diagnosis is one of exclusion and supported by a clinical history with a suggestive causal and temporal relationship. This case is intended to highlight the need for close surveillance of patients undergoing intravesical BCG, alert to the potential local and systemic complications of BCG therapy, as well as the symptoms/signs that should lead to its suspicion in order to be recognized early and treated properly.

Keywords: *BCGitis.* Mycobacterium bovis. *Intravesical BCG.*

PC 159. DISSEMINATED TUBERCULOSIS – ABOUT A CLINICAL CASE

A. Vasconcelos, E. Tinoco, A. Silva, R. Duarte

Centro Hospitalar do Baixo Vouga.

Introduction: Tuberculosis (TB) remains an infectious disease with a significant worldwide prevalence, being pulmonary TB the most common form of presentation. About 5 to 45% of TB cases have extrapulmonary manifestations, and in these, 30 to 40% of cases involve the genitourinary system. Genitourinary TB (GUTB) is defined as an infection of the urinary system or genitals by *Mycobacterium tuberculosis* complex bacilli. Clinical presentation can range from asymptomatic to nonspecific symptoms, however it should be considered in recurrent urinary tract infections that do not respond to antibiotic therapy. It is often diagnosed late and can lead to complications such as urethral or ureteral stricture, kidney failure and infertility.

Case report: A 68-year-old female, non-smoker, retired (previously a counter clerk) and with no relevant history, went to the ER due to abdominal discomfort, especially in the suprapubic region and in the hypogastrium, dysuria and urinary frequency for 2 months, with no constitutional complaints or other signs/symptoms. She underwent uro-CT where a right ureterohydronephrosis was identified and afterwards ureteroscopy. Urethral biopsies were performed and a urine sample was sent for microbiological study. The direct urinalysis was positive for alcohol-acid resistant bacilli as well as the DNA investigation of *Mycobacterium tuberculosis*; urethral biopsies revealed chronic inflammation with ulceration and granulomas. In view of these findings, she was referred to the Centro de Diagnóstico Pneumológico with the diagnosis of GUTB, having excluded pulmonary TB and HIV infection. The molecular test to search for rifampicin (R) and isoniazid (H) resistance mutations was negative, and anti-bacillary therapy with H, R, pyrazinamide and ethambutol was initiated. After initiating treatment, there was an improvement of complaints, however, abdominal discomfort remained. Due to the persistence of the complaints and the appearance of night sweats, it was decided to perform a reno-vesical ultrasound, which showed moderate pyelocaliceal dilatation of the right kidney, without evident obstructions, and an abdominal CT, which revealed calcified granulomas in segment VIII of the liver, diminished right kidney and dilation of the ureter to the terminal portion. In view of these findings, disseminated TB was admitted and the treatment was ex-

tended to 12 months. She completed treatment with complete disappearance of symptoms and absence of adverse effects. At the end of the treatment, a new abdominal CT was performed, which showed only sequelae in the kidney and ureter.
Discussion: Due to its varied presentation, the diagnosis of GUTB is often late and its diagnostic course is difficult. The authors present this clinical case to highlight the challenge in the diagnosis of GUTB, since the clinical manifestations, imaging and laboratory tests are often nonspecific; and to highlight the importance of excluding the involvement of other abdominal organs by TB as it has implications for treatment duration.

Keywords: *Extrapulmonary tuberculosis. Genitourinary tuberculosis. Disseminated tuberculosis.*

PC 160. JUST AN OSTEOMYELITIS CASE?

I. Filipa C. Estalagem, J. Portela, M. Almeida, J. Silva, D. Lages, D. Silva, C. Barroso

Serviço de Pneumologia, Hospital Garcia de Orta.

Introduction: Bone tuberculosis constitutes 10-35% of cases of extrapulmonary tuberculosis. However, sternal tuberculosis is an infrequent entity (0.3% of tuberculous osteomyelitis) and its diagnosis is often difficult and prolonged. The main differential diagnosis is a malignant lesion, such as an osteosarcoma. Radiological examinations can help in the diagnosis.
Case report: 32-year-old female, melanodermic, who presented to the emergency department (ER) with sternal swelling of soft consistency, painful to palpation. Clinically, she presented with low sternal pain that worsened with respiratory movements, associated with night sweats and weight loss of 6 Kg. In the ER the mass was drained and the drained material sent for culture and histological examination, and was empirically treated with flucloxacillin. She was discharged and referred to Thoracic Surgery. The lesion and sternal pain persisted, despite antibiotic and no culture results were found. New punctures of the mass/sternum were repeated, but without obtaining a sufficient sample. Meanwhile, a histological result was obtained, which revealed the presence of necrotizing granulomas. The patient was referred to the Pulmonary Diagnostic Center. A review of the slides was requested, and the material was sent for *Mycobacterium tuberculosis* (MTB) and non-tuberculosis PCR. Assuming a probable diagnosis of bone TB, the patient was started on first-line antibacillaries. Due to lack of clinical improvement and negative MTB PCR, the antibacillary therapy was discontinued and a new cycle of antibiotic therapy with flucloxacillin was started, the most likely etiology being bacterial osteomyelitis. The patient followed this therapy for 2 months, but without symptom resolution. Mycobacteriological culture was later positive for MTB. She re-started treatment for tuberculosis and her swelling improved significantly in the second month of treatment.
Discussion: This case report demonstrates the difficulty in obtaining an etiologic diagnosis, requiring multiple punctures and multiple laboratory techniques. Thus, when there is a high degree of suspicion, it is important to obtain new material until the diagnosis is reached.

Keywords: *Tuberculosis. sternum.*

PC 161. TUBERCULOSIS IN YOUNG PATIENTS WITH A CHALLENGING DIAGNOSIS

S. Pipa, B. Conde, A. Maia, A. Raquel Afonso, L. Ribeiro, J. Eira, F. Salvador, A.I. Loureiro

Pulmonology Department, Centro Hospitalar de Trás-os-Montes e Alto Douro/Hospital de Vila Real.

Introduction: Tuberculosis is an infectious disease with a significant worldwide prevalence. Pulmonary tuberculosis (TP) is the most common form of presentation, while extrapulmonary tuberculosis (TBEP) is rarer. The association of these two forms of the disease occurs in only about 10% of the cases. We present two cases of young patients where the diagnosis was challenging.
Case reports: Case 1. Female, 36 years old, with occasional consumption of tobacco and inhaled narcotics. She lived in American and Asian countries where she had risky contact with a case of TP and was not screened. She presented necrotizing otitis media evolving over five months, leading to a mastoidectomy. Pathological anatomy analysis showed necrotizing inflammatory lesion (without mycobacteriological analysis). She later developed respiratory and constitutional complaints leading to the diagnosis of cavitated TP. The surgical specimen was further studied with a positive result for DNA of *Mycobacterium tuberculosis* complex (MTC), confirming the diagnosis of tuberculous otitis media. Case 2. Male, 31 years old, previously healthy. In June 2021, he had a necrotizing granulomatous epididymitis that underwent surgical excision, with negative acid-fast bacilli smear, without follow-up (in a private hospital). He had some sporadic fever episodes, treated with antipyretics. In April 2022, he went to the ER with respiratory and constitutional complaints, febrile, tachycardic, with elevated transaminases. Chest CT showed bilateral micronodular pulmonary infiltrate and areas of cavitation, having been diagnosed with COVID19 and TP. Concomitantly, he developed migratory polyarthralgia of the large joints. Autoimmune study showed positivity for ANAs (anti-dsDNA, anti-nucleosomes and anti-DFS70), raising the suspicion of Systemic Lupus Erythematosus (LES). He started treatment with prednisolone. After initiating antituberculous drugs, the patient presented clinical worsening with general malaise, diffuse desquamative rash, pancytopenia, adenomegaly, hematoproteinuria, and maintained a moderate elevation of transaminases. The treatment was suspended and reintroduced, but it was not possible to reintroduce Rifampicin due to skin toxicity. A larger study was performed with lymph node biopsy showing necrotizing chronic granulomatous lymphadenitis. He maintained a regimen with isoniazid, ethambutol and pyrazinamide, with improvement of pancytopenia and other alterations, except for the renal ones, also maintaining therapy with prednisolone with control of joint symptoms. In summary, this is a case of disseminated tuberculosis with confirmed pulmonary and lymph node involvement, and probable hepatic, spinal and testicular involvement, with a concomitant diagnosis of a possible inaugural autoimmune disease. He maintains follow-up in Medicine/Autoimmune Disease consultation and study of proteinuria in Nephrology consultation.
Discussion: TBEP is a rare entity, and its diagnosis is challenging, especially if the extrapulmonary manifestations anticipate the pulmonary ones. A detailed clinical history with an emphasis on epidemiological factors can increase the index of suspicion. These cases reinforce the importance of an adequate follow-up in case of a suspicious lesion without a clear diagnosis.

Keywords: *Pulmonary tuberculosis. Bone tuberculosis. Miliary tuberculosis. Lymph node tuberculosis.*

PC 162. POST-TUBERCULOSIS BRONCHIAL STENOSIS: A COMPLICATION FROM OLDEN TIMES?

A. Nunes, L. Mateus, M. Cavaco, R. Cordeiro, C. Silvestre, J. Ferra, D. Duarte, C. Cardoso, P. Raimundo, N. André, A. Domingos

Serviço de Pneumologia, Centro Hospitalar do Oeste - Unidade de Torres Vedras.

Introduction: The diagnosis of endobronchial tuberculosis is challenging and frequently done late. Clinical manifestations are not distinct from pulmonary tuberculosis' manifestations and radiological findings can be scarce. Despite challenging, it is of the utmost importance since it can lead to the development of tracheobronchial stenosis. The prevalence of this complication is variable,

reaching values between 10 to 40% of the patients with pulmonary tuberculosis. Although we have witnessed a decrease in the number of cases of this important complication due to the advent of more efficacious antibacilary drugs, it is necessary to have it in mind when approaching patients with pulmonary tuberculosis so that its consequences can be avoided or mitigated.

Case report: We present the case of a 51-year-old male, autonomous, non-smoker, with a clinical condition with 6 months of evolution of non-productive cough and progressive weight loss. He had a chest CT done which revealed "multiple zones of bronchopneumonic consolidation of the left lung, in the inferior zone of the left upper lobe, lingula and upper segment of the left lower lobe, with 'tree-in-bud' infiltrates suggestive of pulmonary tuberculosis with bronchogenic dissemination". He was referenced to our Unit of Pneumological Techniques to have a flexible bronchoscopy performed (which did not reveal any endobronchial changes) and aspiration of bronchial secretions with later confirmation of the diagnosis of pulmonary tuberculosis. He was referenced to the CDP for treatment and fulfilled 6 months of antibacilary treatment. About 1 year later he had another chest CT performed in which there was atelectasis of the left upper lobe and lingula, coexisting with bronchial obliteration, reason for which he was again referenced to our Unit to have another bronchoscopy performed. In this one, we observed stenosis of the left main bronchus, unsurpassable by the bronchoscope and not allowing observation of the bronchial apertures. Bronchial biopsies of the mucosa were performed at this level. The diagnosis of bronchial stenosis sequelar to pulmonar tuberculosis was made.

Discussion: This case illustrates a complication of pulmonary tuberculosis that, despite being less commonly observed due to the efficacy of the newer antibacilary schemes, should be present in our mind when approaching these patients. Given the nonspecific clinical manifestations, as well as the paucity of radiological findings, it is essential to have a high degree of suspicion for this diagnosis. The treatment of endobronchial tuberculosis includes an effective antibacilary scheme that allows the control of the bacillary load. However, this does not seem to be efficacious in preventing stenosis. Corticosteroids are frequently used in an attempt to decrease the inflammatory response that induces fibrosis and subsequent stenosis, despite their use being controversial. After the establishment of the stenosis, a bronchoscopic or even surgical intervention may be needed.

Keywords: *Bronchial stenosis. Pulmonary tuberculosis. Endobronchial tuberculosis.*

PC 163. PYRAZINAMIDE MONO-RESISTANCE - THE IMPORTANCE OF GENOTYPING

I. Filipa C. Estalagem, T. Nunes, J. Lourinho, D. Lages, D. Silva, R. Magano, C. Barroso

Pulmonology Department, Hospital Garcia de Orta.

Introduction: It is estimated that approximately 3.3% of new cases of tuberculosis and 18% of previously treated cases are caused by multidrug-resistant tuberculosis (TB) or by strains with mono-resistance to rifampicin. In Africa, Asia and Eastern Europe, there are regions with a high incidence of resistance to pyrazinamide and quinolones. The prevalence of pyrazinamide resistance is in the range of 50% in cases of multidrug-resistant TB and 5% in cases of susceptible TB. However, since in most laboratories it is not routinely tested, knowledge about resistance to this drug is limited. The authors present 2 cases of pirazinamide resistance.

Case reports: We first present a 33-year-old male, originary from Nepal, that came to the emergency department (ER) due to afternoon fever, weight loss, accompanied by lumbar abscess. The patient underwent drainage and material was sent for microbiology and mycobacteriology. The patient returned to the ER due to local recurrence of the abscess and appearance of new abscesses, namely in the perineal and right gluteal region, with spontaneous outflow of purulent content. A CT scan of the pelvis showed evidence of inter-gluteal, scrotal, right ischial, sacral and L4 involvement with osteomyelitis and anal fistulization, as well as multiple bilateral inguinal adenopathies. He was admitted to General Surgery and started antibiotic therapy with meropenem. A mycobacteriological result was obtained during hospitalization: *Mycobacterium tuberculosis* (MTB) resistant to pyrazinamide (Z). The patient was started on rifabutin (out of stock rifampicin - R), isoniazid (H) and ethambutol (E) with clinical improvement. Later, due to hepatotoxicity, it was necessary to start an alternative regimen (levofloxacin, amikacin, ethambutol). After the resolution of hepatotoxicity, first-line drugs were gradually reintroduced with tolerance, and the patient was discharged and referred to the Center for Pulmonary Diagnosis (CDP). The second case is a 44-year-old female, melanodermic, original from São Tomé, with approximately 3 years of evolution of low back pain, incapacitating in recent months, weight loss (3kg in 6 months) and night sweats. In this context, a dorsolumbar CT was performed, revealing spondylodiscitis from D3 to D6, D10 to L2 and S1 to S4, and pre-sacral collection involving the psoas muscle on the right, suggesting a possible neoplastic etiology due to the extent of the involvement *vs.* infectious. She was hospitalized for investigation. MRI findings were more suggestive of an infectious etiology. She underwent percutaneous drainage of the collection with positive PCR for MTB and a sensitive molecular resistance test to first line drugs. In this context, antibacillary therapy was initiated with HRZE while awaiting mycobacteriological examination, which subsequently revealed pyrazinamide-resistant MTB. In view of the pyrazinamide resistance, both patients were required to undergo genotyping and antibiotic sensitivity test was reassessed for first- and second-line drugs. Pyrazinamide mono-resistance was confirmed in the first case but not in the second one.

Discussion: The importance of antibiotic susceptibility testing and genotyping in cases of resistance should be emphasized. It is not only important for species confirmation, but also as a complement in epidemiological studies and follow-up of outbreaks in the community.

Keywords: *Tuberculosis. Resistance. Pirazinamide.*