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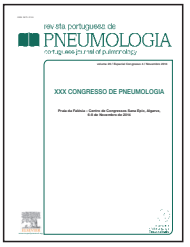

ORAL COMMUNICATIONS

XXX Congress of Pulmonology

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CO1. LUNG TRANSPLANT IN PORTUGAL - WHERE ARE WE, WHERE ARE WE GOING TO

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Introduction: Lung transplant in Portugal is an activity that has been developed for the last 13 years, with the 100th lung transplant being made in the current year.
Result evaluation is an important tool to acknowledge the clinical reality, with special importance in pathologies or activities less frequent, such as solid organ transplant.
Objective: Analyze the results of the Portuguese lung transplant center
Methods: The clinical data of the 102 patients (pts) submitted to lung transplant (LT) at Hospital de Santa Marta, between June 2001 and May 2014 was retrospectively reviewed. We analyzed demographics, diagnosis at referral and survival. The statistical analysis was made by STATA 12.0.
Results: Between June 2001 and May 2014, 102 pts were submitted to LT. The average age 44 ± 13 years [13-64]; 64% were male. Single LT was made in 56% and 46% were bilateral (3 of these, lobar transplants). The main cause for LT was interstitial lung disease (54%). The remaining pts were included in COPD (22%), cystic fibrosis (16%) and bronchiectasis non cystic fibrosis (9%). In the interstitial lung disease group, the most frequent diagnosis was idiopathic pulmonary fibrosis. In the COPD group, 7 pts had alfa1-anti trypsin deficit. In the initial phase of the LT program (2001 to 2008), 20 transplants were made. From 2008, with the reformulation of the team, protocol and with the increase referral of donors and receptors, the number has been increased, with over 10 LT per year. Nowadays the medial survival is 77.45 ± 8.55 months. The pt with longest survival has been transplanted 12 years ago.
The survival analysis shows a 3 month survival of 84.3%, 12 month of 72.8%, and 24, 36 and 60 month survival of 69%, 59% and 52%, respectively. If we consider only the period after 2008 (84 pts), the 3 month survival changes to 90.7%, 12 month to 82.4% and 24, 36 and 60 month survival to 77.4%, 68.2% and 61.4%, respectively.
Conclusions: The overall survival was 5.5 years, with better results seen after 2008. These results are identical do the last International Society for Heart and Lung Transplantation report. The team's restructuring and increasing experience has allowed the improvement of these results.

Key words: *Lung transplant. Results. Survival.*

CO2. LUNG SURGERY IN THE ELDERLY

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The aging process goes along with an inevitable physiological decline and considering the extension in overall life expectancy that we see nowadays, it is fundamental to adjust health care to this reality. Surgery as treatment of pulmonary diseases in this age group has a major role even with the risks that the aging process increase. When there is indication for surgery, it should represent the first line of therapy and evaluation should be made using biological and not age criteria. With this work we pretend to present our experience in patients with 70 years old or more submitted to surgery. In the period between July of 2012 and July of 2014, 105 patients, totalizing 120 procedures, with 70 years of age or more have been submitted to elective lung surgery, with an average of 75 years old, about 8% with 80 years old or more and 27% females and 73% males. Of the 120 procedures, 13% were submitted to videomediastinoscopy - diagnostic and staging - and 87% to lung surgery, of which 57% were submited to videoassisted thoracic surgery (VATS) and 43% toracotomies. The indications for lung resection were primary neoplasm in 32.5% of the cases and secondary neoplasm in 24.2%. There were also performed surgery for benign disease in 9.2%, diagnostic surgery in 17.5% and staging videomediastinoscopy in 7.5%. Of the 120 surgeries, there was need for reoperation in 2 cases, one of them in the immediate post-operative. The mortality in the first 30 days weas of only one case. By the end of the study period, 92% of the patients were alive. We believe that the benefits of surgery in this age group outweigh the risks when there is a careful evaluation. The benefits of minimally invasive surgery are more evident in this context and age alone shouldn't be a contraindication to surgery. Using adequate criteria, it's possible to obtain long-term survivals in this age group that don't seem to differ from global survivals.

Key words: *Lung surgery. VATS. Elderly. Surgical risk.*

CO3. SINGLE PORT VÍDEO ASSISTED LOBECTOMY WITH MEDIASTINAL LYMPH NODE DISSECTION FOR PULMONARY CANCER SURGICAL TREATMENT. FIRST YEAR EXPERIENCE

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Introduction: The mini-invasive surgery has gained increasing importance in the treatment of lung cancer in the last two decades. The use of single port video-assisted technique provides faster recovery with less pain and is the natural evolution of the classic anterior thoracotomy technique.
Objective: Analyze the initial experience in performing lobectomy with mediastinal lymph node dissection by single port vídeo-assisted surgery.
Methods: Retrospective review of patients undergoing lobectomy using single port surgery. Characterization by gender, age, procedure, surgical times, mediastinal nodal dissection, chest tube drainage time and pain, number of days of hospitalization presented as median or mean.
Results: Between November 2012 and November 2013, 37 lobectomies were performed by Single Port vídeo-assisted surgery. 2 cases (5.4%) required conversion because tumor dimensions do not allow an effective approach by thoracoscopy. Most patients were female (74%) with a mean age of 65 years. The procedures performed were: lower left lobectomy (8 cases - 22.8%), upper left lobectomy (7 cases), right upper lobectomy (7 cases), right lower lobectomy (7 cases), middle lobectomy (4 cases) and bilobectomy (2 cases). The average tumor size was 3 ± 2 cm (1 through 9.8 cm). The mean surgical time was 182 minutes and complete mediastinal nodal dissection was performed in all patients with a diagnosis of malignancy according to oncologic criteria already adopted in open surgery. The average number of explored nodal stations was 4.7 ± 1 (range 3-16), with a mean of 14.6 ± 6 (range, 5-38) lymph nodes resected. The average stay of chest tube drainage was 2 days (1-16 days) with a median of 3 days. Average stay in the ICU was 17.1 ± 5 hours with an average hospital stay of 4.64 ± 1.7 days. Patients had a low level of pain postoperatively with an average of 1.9 in analog scale. There was no mortality or any major complication in this series.
Conclusions: A video-assisted single-port surgery is safe and feasible in the treatment of lung cancer. We found a low degree of pain, faster recovery and reduced hospital stay for the patient, without increasing risk or efficacy of lymph node dissection. Regarding surgery times we have registered a progressively decrease with experience. Presents itself as a natural evolution for those already using the anterior thoracotomy in the classical approach to pulmonary pathology, with a short learning curve and easy to implement.

Key words: *Single port. Lobectomy. Lung cancer.*

CO4. CELLULAR AND MOLECULAR MECHANISMS OF RESPONSE TO X-RADIATION OF THREE HUMAN LUNG CANCER CELL LINES

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Introduction: Lung cancer (LC) is one of the leading causes of cancer-related death worldwide. In general, LC can be split into two main types: Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC). The NSCLC type includes such as adenocarcinoma, squamous-cell lung carcinoma, and large-cell lung carcinoma, each with subtypes. Although the number of studies discussing LC is vast, treatments efficacy is still suboptimal due to the wide range of factors that affect the patient's outcome.
Objective: To evaluate the effects of X radiation (X-rays) in three LC cell lines after irradiation, two of NSCLC (H1299 and A549 cells) and one of SCLC (H69 cells), viability, proliferation, type of cell death and cell cycle were studied. Additionally we also studied some of the mechanisms involved, namely P53 expression, the role of oxidative stress and mitochondrial membrane potential.
Methods: The assays were performed after the cell lines were exposed to 4MeV X-rays in the Varian 600C Linear Accelerator 12D10. Studies included control cells (absence of radiation) and cells irradiated with several doses of radiation from 0.5 to 60 Gy. Cell survival was studied by clonogenic assay, plated immediately after irradiation and incubated for 7 days. Measurement of X-rays impact on intracellular activities was achieved by using flow cytometry (FC) after an incubation period of 48 hours. Cell death was evaluated using double staining with annexinV (AV)/propidiumiodide (PI).. By using FITC-conjugated monoclonal antibodies BAX and BCL-2 were quantified and subsequently a BAX/BCL-2 ratio was calculated. To evaluate P53 levels western blot was performed, and oxidative stress was determined by FC through superoxide anion, peroxides and reduced glutathione levels using the following probes, dihydroethidium (DHE), 2',7'-dichlorofluorescin diacetate (DCFH-DA) and orange mercury (1-(4-chloromercuriophenylazo)-2-naphthol), respectively. We also evaluate mitochondria membrane potential by FC using the fluorescent probe JC1 (5,5',6,6'-tetrachloro-1,1',3,3'-tetraethyl benzimidazolcarbocyanine). Cell cycle was performed with PI/RNase assay
Results: We observed that X-rays induces a decrease in cell proliferation and viability in a dose, time and cell line dependent manner, inducing cell death preferentially by apoptosis. These antiproliferative and cytotoxic effects are in agreement with the observed cell cycle arrest. However, our results show that A549 and H1299 cells are more sensitive to cell death induced by radiation, being the H69 cells more resistant. These results may be related with differences in the P53 expression or stress oxidative response.
Conclusions: Our results suggest that X-rays leads to a decrease in LC cells viability inducing cell death mainly by initial apoptosis. However, the sensibility and/or resistance to radiation may be dependent on molecular LC characteristics which could influence the response to radiotherapy and consequently treatment success.

Key words: *Lung cancer. X radiation. P53. Oxidative stress.*

CO5. CLINICAL CHARACTERIZATION OF NON-SMALL CELL LUNG CANCER PATIENTS WITH EPIDERMAL GROWTH FACTOR RECEPTOR

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Introduction: Somatic mutations in the epidermal growth factor receptor (EGFR) are associated with better clinical outcomes when patients are treated with tirosine kinase inhibitors (ITK). The determination of the mutational status of the EGFR is an unremarkable component of non-small cell lung cancer (NSCLC) patients' evaluation.
Objective: To characterize a Portuguese population with NSCLC and EGFR mutation.
Methods: Retrospective cohort analysis of the patients with NSCLC of Centro Hospitalar de S. João (Oporto, Portugal) that were screened for EGFR mutations (exons 18-21) between October 2009 and July 2013. Clinical and pathological characteristics, mutational EGFR results and clinical outcomes were evaluated.
Results: From the 285 patients that performed the screening for the EGFR mutation, 54 had EGFR mutations (18.9%). The most frequent mutations were in exons 19 (46.3%) and 21 (37%). These occurred more often in women ($p < 0.0001$) and non-smokers ($p < 0.0001$). Global mediansurvival was 10.0 months, with a better global survival in mutated than non-mutated patients (18.0 vs 9.9 months, $p = 0.011$).
Conclusions: The frequency of the EGFR mutation was 18.9% and was associated with longer survival. These data contribute for a better characterization of the Portuguese population concerning the mutational status of the EGFR in NSCLC.

Key words: *Lung cancer. Epidermal growth factor receptor. Epidermal growth factor receptor mutations. Non-small cell lung cancer.*

CO6. INTRATHORACIC LYMPH NODE STAGING OF POTENTIALLY RESECTABLE NON-SMALL CELL LUNG CANCER: IS PET-CT A GOOD BET?

R. Rosa[1], D. Maia[1], A. Alves[1], T. Lopes[1], I. Gonçalves[1], J. Reis[2], I. Bravio[2], P. Baptista[2], F. Martelo[2], J. Cardoso[1]

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Introduction: Integrated 18F-fluorodeoxyglucose (FDG) positron emission tomography and computed tomography (PET-CT) is a useful noninvasive technique for the intrathoracic lymph node staging of non-small cell lung cancer (NSCLC). However, invasive staging is usually recommended prior to any operative procedure.
Objective: To evaluate the accuracy of PET-CTin intrathoracic lymph node staging of potentially resectable NSCLC.
Methods: Fifty-six consecutive patients with NSCLCwho had staging PET-CT scans and pathological nodal sampling were included. The results of PET-CT were compared with histopathological findings. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of PET-CT in intrathoracic lymph node staging were determined.
Results: At pathological staging, 37 patients had N0 disease (66%), nine had N1 disease (16%), eight had N2 disease (14%) and two had N3 disease (4%). PET-CT correctly identified 28 of 37 patients with N0 disease (76%) and one of the nine patients with N1 disease (11%); none of the 10 patients with N2/N3 disease was correctly determined by PET-CT. PET-CT falsely understaged 17 patients (30.3%) and falsely overstaged 10 patients (18%). PET-CT overall sensitivity was 47%, specificity was 76%, PPV was 50%, NPV was 74% and its accuracy was 66%.
Conclusions: Our results show that PET-CT has a low sensitivity and accuracy in identifying intrathoracic lymph node involvement of NSCLC patients. This is in agreement with previous data and highlights the importance of an accurate invasive intrathoracic lymph node staging in order to choose the best treatment approach.

Key words: *Non-small cell lung cancer. Positron emission tomography.*

CO7. CLINICAL, METABOLIC AND PROTEOMIC PROFILE OF OSA PATIENTS

A, Feliciano[1,2,4], V. Bozanic[2], V.M. Torres[2], R. Matthiesen[2], A.S. Carvalho[2], A. Almeida[2], B. Alexandre[2], F. Vaz[2], A. Malhotra[3], P. Pinto[1,5], C. Bárbara[1,5], D. Penque[2]

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The real expression of obstructive sleep apnea (OSA) remains poorly defined, as the molecular mechanisms of OSA and its metabolic and cardiovascular consequences. In order to evaluate clinical, metabolic and proteomic profile of OSA patients, we recruited individuals from Sleep Clinic of CHLN. A database was developed to store clinical information and associated with that a biobank of biological samples was created. In total, we select 104 male patients, aged between 25-65 years old to perform polysomnography (PSG) and blood analysis to evaluate metabolic profile, homocysteine and urinary catecholamine. The control group of 30 snorers and the study group of 74 OSA patients were match for age, habilitations, smoking habits and diurnal somnolence. OSA patients showed higher prevalence of drinking habits, cardiovascular disease, dyslipidemia and diabetes, and also higher body mass index. In terms of PSG, controls showed respiratory disturbance index (RDI) < 5/h and lack of nocturnal desaturation, contrasting to OSA patients who showed a mean RDI of 27.3/h and significant nocturnal desaturation (7.1%). OSA patients presented an increase of insulin resistance, homocysteine and urinary catecholamine comparing to controls. A sample of 12 controls and 12 OSA patients (RDI > 15/h) were selected to perform proteomics-based evaluation by 2-DIGE (Difference Gel Electrophoresis) and mass spectrometry (MS) of red blood cells (RBC), at pre- (evening) and post- (morning) PSG so that proteome variations between these time points could be also assessed. The ultimately aim is to identify deregulated proteins that could be useful as candidate biomarkers of diagnosis/prognosis of OSA. RBC samples were randomized pooled (n = 4/pool) to constitute three biological replicates per group of individuals (patients/controls) and condition (morning/evening), in a total of 12 pools. Samples were lysated and the cytoplasmic fraction depleted of hemoglobin by HemovoidTM system and then were analyzed by 2-DIGE. The images were acquired in an Imager--Thyphoon and analyzed by Progenesis Same Spots software (Non Linear version 4.5). The results indicated the presence of 165 differentially expressed protein spots ($p < 0.05$) between OSA and snorers and/or at pre- and post-night PSG which were excised from a Coomassie-stained preparative gels and proteins identified by MS. From these, a total of 70 proteins were identified and the subcellular localization/functions investigated in DAVID 6.7, showing that these proteins are mainly involved in the RBC protector antioxidant system, i.e., O_2^- e H_2O_2 uptake, which seemed to be highly modulated in OSA (ex: catalase, peroxiredoxin-2, bisphosphglyceratomutase). Additionally, nucleoside diphosphate kinases 1, critical in erythroid development, CYB5R3, which is down-regulated in methemoglobinemia, and aldolase A, that is increased in myopathies and hemolytic anemia, are down-regulated in OSA patients (evening). The complete identification and validation of those proteins will provide better understanding of OSA pathology that ultimately can be translated into newly effective diagnosis/prognosis tools.

Key words: *OSA. Dyslipidemia. Diabetes. Homocysteine. Urinary catecholamine. Proteomic. 2-DIGE. MS. Antioxidant system. Catalase. Peroxiredoxin-2. Bisphosphglyceratomutase. Nucleoside diphosphate kinases 1. CYB5R3. Aldolase A.*

CO8. GARE PROJECTS 2015: COPD IN PORTUGAL

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Introduction: Chronic obstructive pulmonary disease (COPD) has been recognized as one of the main morbidity and mortality causes in Europe. Nowadays this disease is a major problem for individuals, societies and healthcare budgets, and it is expected that its impact will increase in the next few decades, in part due to the ageing of population and to the fact that those who live longer present a greater probability of being exposed to COPD risk factors. The assessment of COPD prevalence and of available and necessary resources for an optimized management of the disease, and the knowledge of clinical practice become essential factors to the evaluation of the disease's impact in terms of the incapacity that it can cause, the associated healthcare expenses, and the compromise of patient's quality of life. The same factors are also needed to inform and support governments and those responsible for healthcare planning in order to assess the needs and potential healthcare costs. Therefore, the *Gabinete de Monitorização das Doenças Respiratórias* (GARE), of the *Sociedade Portuguesa de Pneumologia* (SPP), is currently implementing two projects: the *EpiDPOCpt* study and the *DPOCevaluate* study. The main goal of the first study is to determine COPD prevalence in the Portuguese population. The second study focuses on the assessment of clinical practice in patients with COPD exacerbations admitted to Portuguese hospitals.
Methods: *EpiDPOCpt* consists of an epidemiological and transversal study of a representative sample of the Portuguese population aged 30 years or older (approx. 10,000 participants), through the implementation of a questionnaire and spirometry, subsequently reviewed and validated by a panel of physicians and cardiopulmonology specialized technicians. *DPOCevaluate* is an observational, transversal and multicenter study, with 90 days of follow-up, an estimated number of 15 Portuguese hospitals participating and approx. 1,200 patients recruited.
Conclusions: The studies presented and their outcomes data represent crucial and complementary tools, with an undisputed value and utility for individuals, healthcare and economic sectors in the country. It will be possible to determine the accurate and updated COPD prevalence in Portugal, and assess possible regional differences, which will provide reliable and useful information for the development of strategies and policies, both on a national and regional levels, that meet specific needs in what awareness, prevention, treatment and optimization of costs are concerned. Simultaneously, it will be possible to gather specific and updated information on clinical data of COPD patients, as well on the management and resources of each hospital. This gathered information will enable the comparison between hospitals and the definition of guidelines, leading to an optimized management of the healthcare provided, as well as the adequacy of available resources. All the information gathered will definitely contribute to enhance the quality and efficiency of healthcare provided and, therefore, to decrease related costs.

Key words: *COPD. Epidemiology. Hospital care. GARE. Projects. EpiDPOCpt. DPOCevaluate.*

CO9. ASSOCIATIONS BETWEEN ANXA11 *RS1049550* C/T, BTNL2 *RS2076530* G/A, HLA CLASS I AND II POLYMORPHISMS AND SARCOIDOSIS EVOLUTION

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Introduction: A genetic network of polymorphisms has been appointed as one of the possible causes for the sarcoidosis evolution discrepancy.
Objective: Analysis of associations between sarcoidosis evolution and ANXA11 *rs1049550* C/T, BTNL2 *rs2076530* G/A, HLA class I/II polymorphisms, including the potential interaction effect among them.
Methods: 138 unrelated Caucasian sarcoidosis patients were included, with a mean age of 37.2 ± 12.1 years and 56.5% (78) were women. Evidence of disease after 2 years was considered chronic sarcoidosis. Samples were genotyped for ANXA11 *rs1049550 C/T* and BTNL2 *rs2076530* G/A using real time PCR with TaqMan SNP genotyping assay. HLA class I/II genotyping was performed by PCR-SSP. Differences between groups were evaluated through χ^2-test (or Fisher exact test when appropriate) in univariate analysis and with logistic regression in multivariate analysis. Relative risk (RR) or Odds ratios (OR) and their 95% confidence intervals (95%CI) were also calculated. Correction for multiple comparisons was done through Bonferroni's method. P-values lower than 0.05 were considered statistically significant.
Results: 66 patients had disease resolution and 72 chronic disease. Comparison of ANXA *rs1049550* and BTNL2 *rs2076530* allele frequencies didn't show any significant differences. Regarding HLA allele frequencies, only DRB1*03 allele association with disease resolution remain statistically significant after Bonferroni correction (4.9% vs 21.2%; RR = 0.35; $p < 0.01$). In the logistic regression models to access the association of HLA alleles and chronic sarcoidosis, adjusted for the ANXA11 *rs1049550* and BTNL2 *rs2076530* SNP only DRB1*03 were significantly associated with disease resolution after Bonferroni corrections. No interaction terms were found statistically significant in any logistic regression analysis.
Conclusions: In this sarcoidosis cohort, only HLA DRB1*03 is associated with disease evolution, when ANXA11 *rs1049550*, BTNL2 *rs2076530* and HLA class I/II polymorphisms are considered either alone or in interaction.

Key words: *Sarcoidosis. Genetics. HLA.*

CO10. SPIROMETRIC PROFILE AND RESPIRATORY SYMPTOMS IN A SAMPLE OF ELDERLY PEOPLE WITHOUT RESPIRATORY DISEASE – GERIA STUDY

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Introduction: The respiratory system undergoes several changes due to aging which, associated to environmental and smoking exposure, may lead to the decline of respiratory function. The lung function tests contribute to a better airways disease diagnosis, where the advanced age could be a factor for a misperception of the symptoms.
Objective: To characterize the spirometric profile and respiratory symptoms in an elderly sample without respiratory disease from the GERIA study.
Methods: Between January and February 2014, the elderly care center residents with eligibility criteria for the GERIA study (n = 277) were invited to answer a questionnaire about respiratory disease and symptoms and to perform a spirometry with bronchodilation test (200 μg of salbutamol), if they showed cognitive capacity to understand the respiratory maneuvers. The residents' individual process was consulted and included in this study those that did not have a respiratory disease reported. Fixed values were applied for

the lower limit of normality for FVC, FEV1, FEV1/FVC e $FEF_{25\%-75\%}$. A descriptive analysis of the data was performed.
Results: 84 elderly were taken into account. The mean age was 85.0 ± 6.4 year, with a maximum of 101 years and a minimum of 68 years. 28.6% had worked one or more years in a dusty environment and 21.4% reported smoking history. Regarding to symptoms, 10.7% of the elderly referred to usually coughing, 8.3% sputum and 7.1% wheezing in the last 12 months. From the spirometry results, 50 (59.5%) presented ventilatory defects, where 38 were airway obstructions, 5 suggested a ventilatory restriction and 7 suggested a mixed defect. Concerning the elderly with airway obstruction, 79.0% presented a significant response to the bronchodilator.
Conclusions: In this sample was possible to verify a significant elderly proportion without documented respiratory disease that had ventilatory defects. This fact could be explained by the elderly's misperception of symptoms.
Granted by Fundação para a Ciência e Tecnologia – Projeto GERIA PTDC/SAU-SAP/116563/2010.

***Key words**: Elderly. Respiratory symptoms. Spirometry. Ventilatory defects.*

CO11. THE IMPORTANCE OF HYPERBARIC OXYGEN THERAPY IN THE TREATMENT OF CARBON MONOXIDE POISONING

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Introduction: Carbon monoxide (CO) poisoning remains a relevant public health problem, being responsible for many cases of annual deaths and serious neurological sequelae. The clinical picture presents different symptoms. Diagnosis is often difficult to establish. Hyperbaric oxygen therapy (HBOT) is an important therapeutic weapon and should be instituted early. In order to quantify its dimension in our clinical activity spectrum, AA analyse the profile of carbon monoxide poisoning cases, namely epidemiological data, origin of patients referral, time delay between the removal from exposure and the onset of HBOT, clinical symptoms, carboxyhemoglobin (COHb) tax, therapeutic tables and clinical evolution.
Methods: AA made a retrospective analysis of 566 carbon monoxide poisoning cases treated in this hyperbaric centre between September 2008 and March 2014. Statistical treatment of data was performed using the mean and standard deviation.
Results: Majority of the patients were women (62.1%). Average age was 29.61 ± 19.27 years. 536 patients (94.7%) came from Lisbon region hospitals and 30 from distant hospitals. 98% were treated during first 12 hours after rescue. Among most frequent causes of CO poisoning were water heaters (352), and charcoal heaters braziers (104). 8 domestic fires and 6 suicide attempts were reported. 263 patients (46.5%) had carboxyhemoglobin (COHb) tax between 10-20 and 218 patients (38.5%) had tax among 20-40%. Five were ventilated patients. Clinical findings showed that 81.4% of the patients presented multiple symptoms, mainly persistent headaches and neurologic symptoms (34.1% reported loss of consciousness). Most patients presented no symptoms after first treatment. Only 3 patients were send to our service to perform more hyperbaric oxygen therapy treatments (HBOT) after initial therapeutic session. Most cases (97.2%) occurred in autumn and winter seasons. CO poisoning represents 85% of all emergency treatments performed in our Centre.
Conclusions: Currently we discuss the role of HBOT versus normobaric oxygen therapy in the treatment of CO poisoning. Proper diagnosis and early treatment are critical for therapeutic success. In our Center CO poisoning is the leading cause of emergency treatments. In a vast majority of patients, a single HBOT was effective for resolution of symptoms. The scale of this problem justifies further studies to determine the importance of HBOT, compared with normobaric oxygen therapy in the treatment of CO poisoning.

***Key words**: Carbon monoxide poisoning. Carboxyhemoglobin. Hyperbaric oxygen therapy.*

CO12. NON-INVASIVE VENTILATION FOR TREATMENT OF ACUTE RESPIRATORY FAILURE AND EXACERBATION OF CHRONIC RESPIRATORY FAILURE: WHAT TO EXPECT OUTSIDE THE CRITICAL CARE UNITS?

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Introduction: The non-invasive ventilation (NIV) is clearly one of the major advances in the management of patients with respiratory failure, over the last two decades. Its spectrum of indications has been expanded and is increasingly used outside the critical care units, with increasing experience with the technique.
Objective: To describe our experience with ward-based NIV in patients admitted to our Respiratory ward with acute and chronic exacerbated respiratory failure, during the period of two years.
Methods: A retrospective observational study was conducted to evaluate all inpatients who underwent a NIV trial at the Respiratory ward between January 2012 and December 2013. Demographic and clinical data collected were analyzed using descriptive and inferential statistical tests, assuming a level significance of 0.05.
Results: Altogether, 75 admissions to our Respiratory ward were included, corresponding to 62 patients, mostly male (54.7%) with mean age of 72 ± 11.3 years. At the ambulatory setting, 62.7% of patients were under long-term oxygen therapy (LTOT) and 17.3% under NIV. The main indication to NIV was acute exacerbation of COPD (56%), followed by exacerbation of overlap syndrome (16%), pneumonia (6.7%), obesity-hypoventilation decompensation (5.3%), cardiogenic pulmonary oedema (4%) and exacerbation of chronic respiratory failure in neuromuscular disease (4%). In 4% of cases, NIV was used in the weaning of invasive mechanical ventilation (IMV) and in 3.9% of cases in other conditions. Hypercapnic respiratory failure was predominant (90.7% of episodes). The median time under NIV was 9 days and the median hospital length of stay was 14 days. Eight patients (10.7%) had an adverse outcome (death or need for IMV), of which, four (50%) initiated NIV for COPD exacerbation. The mortality rate in the study sample was 8%. After discharge, 34.8% of patients started or remained under domiciliary NIV and 76.8% under LTOT. Among the variables studied (age, sex, pH and $paCO_2$ before NIV, FEV1 and number of exacerbations in the last year), none was predictive of prolonged ventilation time (equal or superior to 9 days) or adverse outcome (need for VMI or death) in the global sample of patients, and in the subgroup of patients with COPD exacerbation. No significant differences were found in length of stay or total number of days under NIV between the groups of indications mentioned.
Conclusions: The NIV brings unquestionable benefits in the management of patients with respiratory failure. In the present study, having focused on patients treated in a Respiratory ward, we observed a high success rate of NIV (89.3%). The main indication was acute exacerbation of COPD, with hypercapnic respiratory failure present in about 90% of all episodes. The heterogeneity of the sample, the low number of failures, unavailability of severity scores on admission and the lack of standardized protocols for the use of NIV in the wards, are factors that may have contributed to the inability ofidentifying clinical variables predictive of NIV failure.

***Key words**: Acute respiratory failure. Exacerbation of chronic respiratory failure. Non-invasive ventilation.*

CO13. SUGGESTIVE SYMPTOMS OF ASTHMA: RELATION WITH SMALL AIRWAY OBSTRUCTION, EOSINOPHILIC INFLAMMATION AND AIRWAY RESPONSIVENESS

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Introduction: Asthma is an inflammatory disease of the airways, with multiple dimensions and phenotypic expressions, and no exam is diagnostic per itself. Besides the pulmonary function testing, other exams complement the evaluation of a patient with symptoms suggestive of asthma, among them exhaled nitric oxide level (FeNO), the presence of small airway obstruction, through the value of forced expiratory flow between 25% and 75% of forced vital capacity (FEF_{25-75}), and the methacholine challenge testing. The relation between symptoms, small airways obstruction, FeNO and airway responsiveness in asthma is complex and of variable significance.
Objective: The objectives of this work were to, in patients with suspected, but not confirmed asthma: characterize symptoms (questionnaires CARAT and ACT), atopy presence, tobacco use, body mass index (BMI), FEF_{25-75}, FeNO and methacholine challenge testing's result; verify eventual associations between symptoms, FeNO and FEF_{25-75}; define predictive factors of methacholine challenge testing's result, with the construction of a model with discriminative power related to the positive or negative result; verify the association between the degree of airway responsiveness to methacholine, FeNO and FEF_{25-75}.
Methods: This study, transversal, descriptive, comparative, predictive and correlational, was based on a sample of 122 patients, 47 men and 75 women, aged among 7 and 75 years old (38 ± 18).
Results: Simple linear regression identified CARAT score ($\beta = 0.027$; $t(120) = 2.314$; $p = 0.022$) as significative predictor of small airway obstruction. Correlational analysis also stated a significative relation between ACT score and small airway obstruction ($r = 0.22$, $p < 0.05$). Relatively to the methacholine challenge test, it was found a very strong association with $FEF_{25-75\%}$ ($\eta^2 = 93.9\%$), strong with BMI ($\eta^2 = 84.6\%$) and moderate with FeNO ($\eta^2 = 59\%$). Binary logistic regression showed that the variables BMI, FeNO and FEF_{25-75} form a predictive model statistically significant for the result of methacholine challenge test, with global predictive success of 71%, sensibility of 42% for the positive exam and 86% for the negative exam (ROC curve with AUC = 0.76 for the negative result). Ordinal regression identified an association between FeNO and the degree of airway responsiveness (bFeNO = -1.946; p = 0.013). It was also found an association between FeNO and FEF_{25-75}in patients with negative methacholine challenge test ($r = 0.38$, $p < 0.01$).
Conclusions: This study outlines the relation between small airway obstruction and suggestive symptoms of asthma. When asthma is suspected, it is important to include BMI, FeNO and FEF_{25-75} values in the pre-test probability of methacholine challenge test. The predictive model that was found will be prospectively validated in future studies. This study also states that FeNO, beside its utility in the evaluation of airway eosinophilic inflammation, is also useful in the monitoring of the degree of airway responsiveness.

Key words: *Asthma. FeNO. FEF25-75. methacholine.*

CO14. SPIROMETRY EVALUATION COMPARING REFERENCE FIXED PERCENTAGE VALUES AGAINST LOWER LIMIT OF NORMAL

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Introduction: Current international guidelines recommend the use of lower limit of normal (5^{th} percentile) for lung function test evaluation. Using the reference fixed percentage values (FPV) gives rise to a high level of under diagnostic in young patients and over diagnostic in older patients.
Objective: Compare the results from spirometry in patients above 65 years old, using FPV method versus lower limit of normal (LLN) method, which is the current standard.
Methods: Retrospective analysis of spirometry tests performed in the physiopathology laboratory of CHUC-HG between January 2013 and May 2014. These tests were analysed using FPV and LLN, according to the following categories: normal; obstructive; restrictive and mixed abnormality. The cut-off parameters used were FEV1 and FVC < 80%; FEV1/FVC < 70% for interpretation using VPF method. Statistical analysis was performed with SPSS 20, using Cohen's Kappa test.
Results: The study included 548 patients, majority masculine (63%) with an average age of 75.8 ± 6.1 years. Spirometries were analysed using both FPV and LLN with the following results: 18.1% (FPV) and 17.5% (LLN) showed no alterations; in 23.5% (FPV) and 33.4% (LLN) showed obstructive abnormality; for the restrictive abnormality 17.3% (FPV) and 12.6% (LLN); mixed abnormality in 41.1% (FPV) and 20.3% (LLN) from the total spirometries. Further analysis within each type of abnormality obtained using the FPV method we verified that: of the spirometries categorized as obstructive abnormality, 24.8% of tests were normal when analysed with LLN; for the restrictive abnormality 43.2% were normal with LLN; of the patients that were classified as mixed abnormality, 39.9% showed to be obstructive abnormality, 8.0% were restrictive abnormality and 7.1% showed no alterations. The concordance level between both methods was kappa = 0.527 ± 0.026 (p = 0.0005).
Conclusions: We have verified a statistically significant difference between both methods. Of particular interest is the great number of spirometries categorized as with alterations according to FPV that revealed to be normal by LLN (19.8%) as well as the exaggerated number of mixed abnormality diagnosis that showed to be obstructive by LLN. Despite current international recommendations, many continue to use FPV as the preferential method which may lead to the over diagnostic of several pathologies in patients aged above 65.

Key words: *LLN. Spirometry. Overdiagnostic.*

CO15. CHARACTERISTICS AND AGGRAVATING FACTORS OF SEVERE ASTHMA

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Introduction: In 2011, in Portugal, asthma was responsible for approximately 2.5% of all hospitalizations for respiratory disease. It is known that, in our country, 5% of the population has a very symptomatic form of disease, poorly controlled, despite receiving an optimized treatment and often associated with co-morbidities leading to a greater difficulty in achieving control.
Objective: Characterize the population of patients being followed at severe's asthma consultation as well as determine the prevalence of comorbidities in this population and the impact of these on the control of asthma. Compare individuals with early onset asthma and late onset asthma.
Methods: We conducted a retrospective study by consulting the medical files of patients followed at severe's asthma consultation in years 2012-2013. We included all patients with more than 18 years with a diagnosis of asthma who fulfilled the defining criteria of severe asthma based on the ERS/ATS recommendations of 2014. Statistical analysis was performed using the 20th version of SPSS® program.

Results: We consulted 122 medical and included 83 patients in the present study. The majority was female (75.9%). The mean age of the sample was 60.5 ± 12 years, with diagnosis, on average, at the age of 24.5 ± 17 years and with 9.7 ± 6.9 years of follow-up. Most of them were non-smoker (83.1%) and had atopy (69.3%). In relation to the control in the last year, 45.8% were controlled and 18.1% were not controlled. Thirty-two percent of the sample was performing Anti-IgE treatment and 21.7% were corticodependent. During the follow-up there was an average of 9.2 ± 7.8 exacerbations (7.1 ± 7.5 and 5.7 ± 5.1 with need of systemic corticosteroids and antibiotics, respectively) and 3.3 ± 4.1 severe exacerbations with hospitalization (4.8% with mechanical ventilation). The most frequent comorbidities were: chronic rhinosinusitis (65%), gastro-esophageal reflux (44.6%), bronchiectasis (25.3%), obesity (25.3%) and psychiatric disease (15.7%). The presence of gastro-esophageal reflux and bronchiectasis documented by chest CT were associated with a greater number of exacerbations with need of corticotherapy (8.8 ± 1.3 vs 6.49 ± 1.2, p = 0.048) and antibiotic therapy (7.6 ± 1.5 vs 5.3 ± 0.6, p = 0.048) respectively. When compared individuals with early onset asthma (n = 31) with individuals with late-onset asthma (n = 52) it was found that the first ones had more often chronicrhinosinusitis (71% vs 48.1%, p = 0.042), previous history of mechanical ventilation for acute exacerbation (75% vs 25%),positive skin prick tests (89.3% vs 60.9%, p = 0.009), awareness for greater number of allergens (3.4 ± 0.5 vs 1.9 ± 0.3, p = 0.009) and higher absolute value of IgE (445 ± 124 vs 200 ± 47, p = 0.005). The individuals with late onset asthma were mainly women (78.8% vs 71%) concomitantly showing hypersensitivity to drugs (85.7% vs 14.3%, p = 0.05) with worse control in the last year (73.3% vs 26.7%), with a higher rate of corticodependence (26.9% vs 12.9%) and obstruction at pulmonary function testing (73.7% vs 26.3%).
Conclusions: The presence of comorbidities leaded to an increase in the number of exacerbations. The onset of symptoms in childhood was associated with an increased prevalence of atopy and nasal complaints.

Key words: *Severe asthma. Early onset asthma. Late onset asthma. Atopy.*

CO16. ASTHMA AND NORMAL SPIROMETRY: WHEN TO TEST REVERSIBILITY?

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Introduction: Lung function tests play a fundamental role in an asthmatic patient evaluation. Reversibility and variability are key concepts in this context. Reversibility after bronchodilation, in particular, gives strength to the diagnosis. Nevertheless, and in the situation of a clinical suspicion of asthma and a normal lung function test, we should ask if it is of worth or not to perform bronchodilation test. The aim of this study is to analyse the proportion of patients with positive bronchodilation and normal lung function test in patients with clinical suspicion of asthma and to evaluate if there is any predictor variable of a positive response.
Methods: All lung function tests performed in our Lung Function Laboratory between April-June 2014 were prospectively analysed and normal lung function tests with bronchodilation test were included (n = 118). Two groups were created: with positive response after bronchodilation (gBDp) and negative response (gBDn). Demographic variables, FENO(exhaled nitric oxid level) and previous results of bronchial challenge (with methacholine or running) were analysed. Statistically, central tendency measures were applied and Mann-Whitney, chi-square e Fisher exact test were performed. A significance level of $p < 0.05$ was determined. The software utilized: Microsoft® Excel and IBM® SPSS® version 22.

Results: The gBDp had n = 12 (10.2%) and the gBDn n = 106 individuals (89.8%). In gBDn 60 were females (56.6%) vs 6 in gBDp (50%) (p = 0.67). Median of ages were 22 years (min-max = 5-78) in gBDn and 16 years (min-max = 8-61) in gBDp (p = 0.38); median body mass index was 23.4 Kg/m^2 (min-max = 13.4-42) in gBDn and 19.7 Kg/m^2 (min-max = 15-36.3) in gBDp (p = 0.32). There was no single smoker on gBDp. For statistical purpose, smokers and ex-smokers were grouped together; in gBDn 84.9% were non-smokers vs 91.7% in gBDp (p = 1.0). FENO was measured on 83% of gBDn and 91.7% of gBDp; median levels were 23.5 ppb in gBDn (min-max = 6-141) and 60 ppb (min-max = 11-125) in gBDp) (p = 0.002). Being aware of the reference levels based on age and performing a subgroup analysis, patients above 12 years of age in gBDp had significantly higher levels than gBDn (p = 0.005). In the group below 12 years of age because of the small sample representing these ages, there was no statistical difference in FENO levels between groups (p = 0.143). Only 4 patients had already performed bronchial challenge with methacholine and 5 with running, all of them within gBDn; because of this, no statistical inference were performed.
Conclusions: In the context of a clinical suspicion of asthma and in the presence of a normal lung function test, bronchodilation test was positive only in 10% of patients. In children above 12 years of age and in adults the patients with positive responses had a significantly higher level of FENO. Perhaps FENO could be used to determine in whose patients should be of worth to perform bronchodilation to prove reversibility.

Key words: *Asthma. Spirometry. Bronchodilation. Reversibility.*

CO17. CHARACTERIZATION OF HOSPITALIZATIONS FOR ASTHMA IN SOUSA MARTINS HOSPITAL

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Introduction: Asthma is a chronic disease with exacerbation episodes that lead patients to resort to emergency department and, according to their severity, may require hospitalization for their control and stabilization of the disease, leading to the consumption of health care resources.
Objective: To characterize hospitalizations for asthma in Sousa Martins Hospital between January 2010 and December 2012.
Methods: Retrospective observational study (01/01/2011 to 31/12/12). Sample: 54 admissions for asthma. Statistical Analysis with *IBM SPSS Statistics 19®*.
Results: During the study period, there were 54 admissions with a primary diagnosis of asthma, a total of 52 patients (66.7% female). The average age was 62.7 years and the majority were rural workers (48.3%). Regarding the age of onset, 64.0% reported childhood onset. Regarding the type of asthma, 73.7% had extrinsic asthma and 26.3% intrinsic asthma. There was a history of atopy in 26.9%, and the most frequent was grasses (13.5%) and mites (13.5%). The majority of patients (55,8%) was followed in hospital consultation. Regarding the presence of comorbidities, 36.5% had other lung disease. Of hospitalized individuals, 10.7% were former smokers and 21.4% were smokers with a mean smoking history of 36.6 pack-year (± 22.1). Regarding to prior therapy, the most prevalent treatment was inhaled corticosteroids (48.1%), followed by long-acting β_2 agonists (40.4%) and leukotrienes (21.2%). Regarding vaccination status, only 7.7% were vaccinated against influenza and 1.9% against *Streptococcus pneumoniae*. Most patients (92.9%) were admitted to the Pulmonology Service, with an average duration of 9.8 days (± 3.9). Regarding the cause of exacerbation, the most prevalent

was respiratory infections (56.7%), followed by exposure to allergen/irritants (20.0%) and therapeutic failure (10.0%). In 40.4% of admissions were used antibiotics and the most used was macrolides (76.2%). There was need for oxygen therapy in 37.0% of patients. Of the 54 admissions, there were 2 complications (a pneumothorax and a nosocomial pneumonia), there have been no recorded deaths. Regarding guidance after discharge, the most (82.1%) were oriented to general pulmonology consultation.
Conclusions: Most hospitalized patients were female, in the 6th and 7th decades of life with a clear predominance of extrinsic asthma. The main causes of exacerbation were respiratory infections and exposure to allergens. There was a significant exacerbations due to therapeutic failure (10%). Despite the considerable number of hospitalizations, there were no deaths or major complications.

Key words: *Asthma. Exacerbation. Hospitalization.*

CO18. OMALIZUMAB, PORTUGUESE EXPERIENCE IN A COHORT OF SEVERE ASTHMA PATIENTS

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Introduction: Omalizumab is a recombinant humanized monoclonal antibody approved as an add-on therapy in both adults and children over 12 years old (6 in Europe) with uncontrolled severe persistent allergic asthma. Its' use has been associated with decrease in asthma exacerbations and improvement of asthma symptoms, as well as quality of life.
Objective: Assess Omalizumab's effect on a cohort of patients with severe asthma.
Methods: Retrospective study of all the patients with severe asthma who underwent treatment with Omalizumab for a period ≥ 6 months in our Department. Demographic data were described. Assessment of asthma control by Asthma Control Test (ACT) and spirometry performed at regular intervals. Exacerbations and need for systemic steroids were evaluated.
Results: Seventeen patients (pts) were treated with omalizumab (dose was calculated according to total IgE and body weight), 82% were females, mean age 47.94 ± 19.31 yrs (12-78 yrs). Treatment period ranged from 7 to 65 months. Mean ACT scores at the beginning of treatment, 4 months, 6 months and last evaluation were 13.35; 19.81, 19.93 and 21.54 respectively. A significant decrease between ACT scores at the beginning of treatment, 6 months and last evaluation was observed ($p = 0,028$ and $p = 0,002$, respectively). Mean FEV_1 at beginning was 58% and no changes were observed throughout the treatment. General improvement in all pts was noted after omalizumab have been initiated: no hospital admissions due to asthma, decrease in the number of exacerbations and systemic steroids were discontinued. Comorbidities also improved. In six pts treatment with omalizumab was stopped after a mean of 27.83 ± 19.11 months due to general improvement of asthma symptoms and reduction in asthma therapy. One patient moved away and couldn't afford the monthly visits in order to continue treatment. No serious adverse effects were observed; only 2 pts reported myalgia the day after administration, with no need for specific treatment.
Conclusions: In this cohort omalizumab revealed clinical benefit with improvement in ACT scores, reduction of asthma exacerbations and allowed discontinuation of systemic steroids, with no serious adverse events. Our data support that omalizumab is a safe and clinically relevant drug in the treatment of severe asthma.

Key words: *Severe asthma. Omalizumab.*

CO19. SEVERE EXACERBATIONS OF ASTHMA IN A HOSPITAL SETTING

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The difficulty in treating and preventing exacerbations of asthma is a growing problem, given the significant costs, mortality and morbidity associated with this disease. Therefore it is essential to define the concepts of severe asthma and exacerbation of asthma in order to address them as efficiently as possible. This study aimed at evaluating severe exacerbations of asthma, as well as their recurrence after one year follow-up in two groups of patients: those treated with inhaled corticosteroids (ICS) and those who were not (non ICS). The processes of all patients aged > 15 years who were admitted in 2012 for asthma exacerbations (38) were analyzed as well as the data of 1 year follow up (ER visits and inpatient admissions) by dividing the two groups above mentioned (both groups with 19 patients). In the ICS group there was lower proportion of smokers as well as shorter duration of complaints prior to hospitalization than the other group. There were no differences in the need of ventilation (either mechanical or non-invasive) between the two groups (4 patients per group - 21.1%). There was one fatal exacerbation in the ICS group. In spite of being a small series of patients, the higher prevalence of exacerbation associated with respiratory tract infections and longer duration of hospitalization in the ICS group of suggests the need for vaccination in this group. The greater proportion of smoker and ER vist is and hospitalizations in 1 year follow-up in the non ICS group might be explained by poor compliance to treatment in these patients. The fact that both groups had the same number of patients suggests that there is a subgroup in which the disease is not controlled despite the correct therapeutic approach according to the most recent evidence. It is thus essential to establish a consensual definition of the various severe exacerbating phenotypes.

Key words: *Severe exacerbation of asthma. Inhaled corticosteriods. Recurrence. Respiratory tract infection.*

CO20. IMPORTANCE OF THE FEV3/FVC RATIO IN EARLY DETECTION OF AIRWAY OBSTRUCTION (PRELIMINARY RESULTS)

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Introduction: The presence of an obstructive ventilatory pattern is defined by the ratio FEV1/VC. But, the first obstructive disease alteration occurs in the small airways and is not detected by the ratio FEV1/VC. The decrease in expiratory flow rates at low lung volumes occurs earlier in the natural history of the disease, but the reduction of these values is not specific when assessed in the individual context. Several articles have been published by proposing the Forced Expiratory Volume in 3 second/Forced Vital Capacity (FEV3/FVC ratio) as an indicator of obstruction of small airways.
Objective: To determine whether the reduction in the ratio FEV3/FVC ratio is related with changes in other functional parameters in individuals with FEV1/FVC ratio within the range of normality.
Methods: Performed cross-sectional study by selection of lung function tests (LFT) performed during one month (June/2014). Were included all studies that fulfilled the criteria of acceptability and reproducibility, having been excluded those that had total lung capacity (TLC) less than 80% and/or below the lower limit of normal (LLN). Were used NHANES III reference equations for the calcu-

lation of LLN for FEV1/VC and FEV3/FVC ratios.The statistical analysis was performed with SPSS® v20.
Results: We included 221 LFT. Sample made up mainly by Caucasian subjects (98.6%) and female (57%). As regards smoking habits, 65.3% of the sample was non-smoking and 21.3% ex-smoker. The mean age was 56 ± 16 years. The sample was then divided into four groups according to the table. In the group of patients with diminished FEV3/FVC, 56.5% belonged to the male gender. When comparing groups 1 and 2, it was found that individuals with decreased FEV3/FVC, but normal FEV1/VC had greater intrathoracic gas volume (ITGV: 3.28 ± 0.06 L and 4.27 ± 0.4L, p = 0.011), greater TLC (5.91 ± 1.2 L and 7.03 ± 1.44 L, p = 0.028), lower maximum mid-expiratory flow (MMEF 75-25: 2.25 ± 1.14 L/s and 1.24 ± 0.3L/s, p < 0.000) and lower FEV1/FEV6 (79.4 ± 5.6% and 73.4 ± 1.7%, p < 0.000). Upon comparison of groups 2 and 3, it was observed that the group 3 (decreased FEV1/VC) presented lower FEV1 (2.64 ± 0.53 L and 1.8 ± 0.72 L ,p = 0.022), lower inspiratory capacity (2.76 ± 0.8L and 1.99 ± 0.58L, p = 0.034), greater airway resistance (0,22 ± 0,1 $cmH_2O/L*s$ and 0,52 ± 0,18 $cmH_2O/L*s$, p = 0.02) and lower specific conductance (1,07 ± 0,29 cmH_2O* s and 0,55 ± 0,19 cmH_2O* s, p < 0.000).

Table - CO20

Group	N	Functional characteristics
Group 1	163	FEV1/VC > LLN and FEV3/FVC > LLN
Group 2	6	FEV3/FVC < LLN and FEV1/VC > LLN
Group 3	12	FEV1/VC < LLN and FEV3/FVC > LLN
Group 4	40	FEV1/VC < LLN and FEV3/FVC < LLN

Conclusions: This study demonstrated that individuals with decreased FEV3/FVC feature functional differences, higher values of ITGV and TLC, compared to the group with both ratios within the normality. The increase of TLC and ITGV can, in this context, correspond to an initial phase of pulmonary inflation by commitment of the small airways. One of the study limitations is the small sample size in some groups that can affect the results obtained showing the need for larger samples to verify that the changes found may in fact have clinical impact, with the early detection of the commitment of small airways.

Key words: *Obstructive ventilatory change. FEV1/VC. FEV3/FVC.*

CO21. INDOOR AIR QUALITY AND HEALTH EFFECTS

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Introduction: Air pollution is a problem of public health and children being the most vulnerable, we must take special attention to air quality both of the buildings where they spend most of their time (schools), and of outdoors air.
Objective: So for the protection of children's health it is imperative to appraise the impact that the quality of indoor and outdoor air has on children attending 1st cycle of education, both in public and private schools in the area of Coimbra as compared to law regulations, namely for pollutants such as carbon monoxide, carbon dioxide, ozone, nitrogen dioxide, sulphur dioxide, volatile organic compounds and particulate matter as well as levels of temperature and humidity.
Methods: The study was classified Level II, observational and transversal. The sampling was not probabilistic in type for convenience sake. To accomplish this, we proceeded to the evaluation of quality air, as well as the lung capacity of first and fourth grade children in six schools of the Coimbra district. The sample consisted of two classrooms in each of the six schools located in the Coimbra area with a total of 157 children with an average of 7.4 (SD = 1.54) years of age. The data collected was then processed using the statistical software SPSS version 15.0. The interpretation of statistical tests were performed using a significance level of p = 0.05, confidence interval 95%.
Results: The results demonstrated that the mean concentrations of the pollutant carbon dioxide recorded in the sampled schools exceeded the maximum concentration of reference. Although we noticed that the concentration of air pollutants was not influenced by the location, it has been found that the school located in the industrial area had higher mean analytical concentrations of carbon dioxide and volatile organic compounds pollutants. The symptom/disease with higher prevalence were sneezing crisis, followed by allergies and headaches.
Conclusions: It has been found that the raising concentration of some pollutants was related with greater number of children with altered respiratory patterns, and symptoms/diseases.

Key words: *Indoor air quality. Children. Schools. Symptoms and respiratory diseases.*

CO22. BODY FAT DISTRIBUTION, HYPOPHARYNX DIAMETER AND CARDIOVASCULAR RISK IN OBSTRUCTIVE SLEEP APNEA SYNDROME - PRELIMINARY RESULTS

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Introduction: Body fat and hypopharynx diameter are risk factors for obstructive sleep apnea (OSA), which is associated with increased prevalence of coronary artery disease (CAD).
Objective: Evaluate the relation between body fat distribution (cervical and abdominal) and hypopharynx diameter with OSA severity (apnea-hypopnea index (AHI) and percentage time of O_2 saturation less than 90% ($TsatO_2$ < 90%)), as well the association between OSA severity and subclinical coronary atherosclerosis.
Methods: Patients with suspected OSA and without previous history of CAD, observed in our outpatient consultation of OSA, were included in this prospective study. Polysomnography (PSG) and computed tomography (CT) of neck (cut at hyoid bone level – measure of maximum and minimum hypopharynx diameter, cervical fat area and cervical and airway perimeters); abdomen (cut at navel level - measure of total, visceral and subcutaneous fat areas) and heart (measure of coronary calcium Agatston score (CCAS)) were performed. This study was approved by the Ethics Research Committee of the institution and all patients signed an informed consent. One-way analysis of variance was used to compare neck, heart and abdominal CT values between patient groups (snorers and OSA classes). Pearson correlation analysis was used to correlate AHI and $TsatO_2$ < 90% with the same variables.
Results: 61 patients were included and, so far, 37 had completed the study (24 men, 13 women; 53.7 ± 10.8 years old) whose results were analyzed. Patients were divided into 4 groups according PSG result: 11 (29.7%) snorers (AHI < 5); 8 (21.6%) with mild OSA (AHI ≥ 5 < 15); 9 (24.3%) with moderate OSA (AHI ≥ 15 < 30) and 9 (24.3%) with severe OSA (AHI ≥ 30). Moderate and severe OSA groups showed higher values of total (p = 0.001), subcutaneous (p = 0.016) and visceral (p = 0.010) abdominal fat areas compared to other groups. No significant differences were observed in cervical CT measures and CCAS values between groups. AHI was correlated with total (r = 0.617, p = 0.001), visceral (r = 0.457, p = 0.004) and subcutaneous (r = 0.456, p = 0.005) abdominal fat areas. $TsatO_2$ < 90% was correlated with cervical perimeter (r = 0.416, p = 0.034),

cervical fat area (r = 0.397, p = 0.045) and visceral fat area (r = 0.549, p = 0.002). No statistically significant association were found between AHI or $TsatO_2$ < 90% and hypopharynx diameter or CCAS values.
Conclusions: According this study, increased abdominal fat (total, visceral and subcutaneous) is associated with greater OSA severity. Moreover, cervical perimeter and fat area were associated with higher $TsatO_2$ < 90%, contributing to increased cardiovascular risk. The small sample size may explain the lack of statistically significant association between OSA severity and hypopharynx diameter or CAD presence.

Key words: *Obstructive sleep apnea syndrome. Cardiovascular risk. Body fat airway.*

CO23. DIAGNOSTIC EVALUATION OF SLEEP APNEA SYNDROME THROUGH ELECTRONIC DEVICES AND THERAPEUTIC POTENTIAL

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Introduction: sleep apnea syndrome (SAS) is a very prevalent disorder, with significant social and economic impact, according to their proven cardiovascular morbidity and mortality. Cornerstone in the treatment of obstructive sleep apnea syndrome (OSAS) is the CPAP, with proven effectiveness. However, the patients' therapy adherence and even its initial acceptance is sometimes difficult. Some studies have attempted to demonstrate the diagnostic capability of SAS through electronic cardiac devices (pacemakers, cardiac resynchronization systems).
Objective: To diagnose SAS through heart implanted electronic devices, confirming this diagnosis with simplified sleep screening.
Methods: Descriptive epidemiological study involving 20 patients with cardiac electronic Sorin® and Boston ®devices and followed in cardiology consultation/pacing of the CHAA and follow-up by telemedicine, wherein said device has detected high number of apneas. All patients underwent screening of SAS with Apneialink plus® and those who revealed OSA were treated with CPAP/APAP. The statistical evaluation of the data was carried out by the program SPSS®.
Results: Of patients evaluated, 5 were female and 15 male. According to the electronic devices, only 1 presented normal results. Of the remaining patients, 5 presented with mild SAS, 3 moderate and 11 severe SAS. By screening, 2 patients with normal results, 6 with mild SAS, 5 SAS moderate, and 7 severe. Of sleep disorders diagnosed by screening 60% were OSA and 40% SAS with central respiratory pattern cheyne.-stokes taking these cases to confirm the diagnosis by polysomnography. Two patients did not require any ventilatory therapy while the others started CPAP/self-adaptive servoventilation.
Conclusions: Although this is a small sample, these results demonstrate the high sensitivity and specificity of certain electronic cardiac devices in the diagnosis of SAS, allowing the diagnosis of this highly prevalent disease in this population, allowing also assess the adherence of patients to ventilation.

Key words: *Breathing sleep disorders. Cardiac electronic devices.*

CO24. COMPARISON OF EXACERBATIONS RATE IN PATIENTS STARTING HOME MECHANICAL NON-INVASIVE VENTILATION: TELEMONITORING VS USUAL CARE - A RANDOMIZED STUDY

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Introduction: Exacerbations of respiratory disease have a significant impact on the natural history of chronic respiratory failure of several etiologies. Telemonitoring patients starting Home Mechanical Non-invasive Ventilation (HMNIV) and its impact on exacerbations rate, isn't established.
Objective: Assess the impact of telemonitoring tools in the frequency and severity of respiratory exacerbations of patients starting HMNIV for controlling chronic respiratory failure of several etiologies.
Methods: 39 patients with criteria for HMNIV were randomized into 2 groups: Usual Clinical Care (UCC, n = 19) and Telemedicine Clinical Care (TCC, n = 20), 4 abandoned the study. UCC patients were reassessed 3 months later and could always contact Health Care Providers if necessary. TCC patients were assessed on 3rd day, 1st week, 1st, 2nd and 3rd month.
Results: No significant differences in demographics and exacerbations in previous year to the start of HMNIV were found between the 2 groups. Obesity hypoventilation syndrome was the most frequent disease (UCC 50% vs TCC 42%). Adherence to HMNIV: mean percentage of use≥4 h/night UCC 51.6% (SD 40.3), TCC 88.2% (SD 12.9), p = 0.003 and mean duration of use/night UCC 3.9 (SD 2.9), TCC 7 h/night (SD 1.5), p = 0.001. Exacerbations after HMNIV: ambulatory treatment (UCC 25% vs TCC 15.8%), and as inpatient (UCC 18.8% vs TCC 15.8%), both p≥0.05. Intermediate Care Unit treatment requirement: UCC 6.3% vs TCC 26.3%, p ≥ 0.05. No hospitalizations in the Intensive Care Unit were observed in both groups. Mean hospital stay: UCC group 9.5 (SD 5.7) vs TCC 15 days (SD 10.2), p ≥ 0.05. Mean time to 1st severe exacerbation after starting HMNIV requiring hospitalization: UCC 99.3 (SD 117.8) vs TCC 52.7 days (SD 44.5), p ≥ 0.05. Patients with chronic obstructive pulmonary disease (COPD) or overlap syndrome: UCC (n = 4), TCC (n = 7). There were no statistically significant differences in pre and post exacerbations after starting HMNIV in both groups. The table shows exacerbations in these patients after starting HMNIV.

Table - C024

Exacerbations in COPD patients or overlap syndrome or after starting HMNIV.

Variables	UCC group (n = 4)	TCC group (n = 7)
Exacerbations with ambulatory treatment (n) (n/patient)	6	5
	1,5	0.7
Exacerbations with treatment as inpatient (n) (n/patient)	2	6
	0.5	0.9
Exacerbations with Intermediate Care Unit treatment (n) (n/patient)	2	7
	0.5	1
Mean hospital stay (days)	10.0 (SD 6.9)	15.0 (SD 10.2)

Conclusions: Telemonitoring patients starting HMNIV had a positive impact on patients' adherence to treatment. However, this intervention did not affect the reduction in the number of exacerbations, which may be related to the small size of our sample.

Key words: *Telemedicine. Home mechanical NIV. Exacerbation.*

CO25. OBSTRUCTIVE SLEEP APNEA IN PORTUGAL: HOW ARE WE?

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Introduction: Obstructive sleep apnea (OSA) is a breathing disorder with serious socio-economic consequences, being currently considered a public health problem, with patients at increased risk of cardiovascular diseases and traffic accidents.
Despite the high prevalence of OSA reported in the literature is unknown the magnitude of OSA in Portugal, in particular, the number of cases currently diagnosed.
Objective: 1. To estimate the prevalence of OSA in the population of sentinel general practitioners (GP); 2. To identify factors potentially associated with severe forms of OSA; 3. Characterize the diagnosis and treatment of OSA.
Methods: Cross-sectional observational study in which sentinel physicians were invited to participate, by reporting all cases with a diagnosis of OSA (ICPC2 P16) registered on their lists of users until 31st December 2013. The scientific protocol and questionnaires were sent to physicians who agreed to participate.
Results: A sample of 29 sentinel GP participated, with a population under observation of 46.685 users. 311 patients were identified with OSA (76.2% male) with a mean age of 62.8 years. No statistically significant differences between genders were observed. In the population under observation, the prevalence of OSA was 0.67% (95%CI: 0.60 – 0.74), being higher in males (1.07%). In the population aged above 25 years, there was a higher prevalence of OSA in both genders (0.89%), emphasizing the differences between genders (1.47% in males and 0.39 in female). The highest prevalence was observed in the age group 65 to 74 years (2.35%), being higher in males (4.02%). 97.7% of patients underwent sleep study, which 56.2% performed polysomnography, the latter has been largely carried out in public institutions (89.1%). The average waiting time in public institutions was 6.8 months (0-36 months), compared to 1 month in private institutions (0-9 months). According to the severity of OSA, almost half of the patients (48.4%) with information on the apnea hypopnea index or respiratory disturbance index had severe OSA. Obesity (84.6%), hypertension (74.8%) and diabetes mellitus (38.7%) were the most frequent co-morbidities in these patients, verifying that being male (OR: 2.6) and having obesity (OR = 4.0) was associated with an increased risk of having severe OSA for all ages. 89.6% of patients were being treated with nasal CPAP, of which 96.1% had severe OSA and 85.2% had mild-moderate OSA, with a statistically significant difference. Among patients on CPAP, 62.8% were followed in specialized sleep consultation, and only 26.7% of patients who were not under CPAP were being followed in sleep consultation.
Conclusions: In this population, the prevalence of OSA was similar to that reported in the literature in older age groups. Male gender and obesity were associated with an increased risk of severe OSA in all ages.

Key words: *Sleep apnea. Prevalence.*

CO26. CARDIO-VASCULAR RISK PROFILE OF PATIENTS WITH MODERATE TO SEVERE OBSTRUCTIVE SLEEP APNOEA SYNDROME

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Introduction: The association between obstructive sleep apnea syndrome (OSAS) and cardiovascular (CV) disease has been widely discussed. In patients with OSA without significant comorbidities the risk should be reviewed.
Objective: To characterize the CV risk of patients with moderate or severe obstructive sleep apnoea syndrome (OSAS); to verify if the pulse wave velocity (PWV) is greater when OSAS associates with high blood pressure (HBP).

Table - C026

Median (P25-P75)	SAOS	SAOS+HT	Valor p
Age	48 (40.3-57.3)	52 (49.0-64.0)	0.172
BMI, Kg/m^2	31.5 (28.8-35.1)	29.5 (26.9-33.0)	0.392
Waist circumference, cm	102 (91-127)	100 (92-106)	0.585
SBP medium, mmHg	121 (117.5-123.8)	133 (126-135)	0.005
DBP medium, mmHg	74.5 (70.8-77.8)	84 (75-87)	0.035
VOP C-F	11.3 (11.0-11.7)	11.4 (10.3-13.5)	0.611
HDL, mg/dl	36 (33-53.5)	48.5 (42.3-62.5)	0.081
Dyslipidemia n (%)	4 (66.7)	11 (78.6)	0.613
Smokers n (%)	2 (33.3)	2 (13.3)	0.544
Average O_2 sat.	68 (65-77.3)	81 (70-85)	0.042
Minimum O2 sat.	92.2 (90.4-93.9)	92.8 (91.6-94.2)	0.640
ODI	32.9 (22.1-48)	17.9 (9.9-45.7)	0.161
IAH	43.9 (32-60.4)	33.9 (24-50.4)	0.350
Epworth	10.5 (5.5-14)	8 (5-11)	0.258

Methods: 21 consecutive patients were included, between February 2013 and May 2014, male, who underwent a polygraphic study data in our sleep unit and were diagnosed with moderate to severe OSA. Patients with serious chronic illness, diabetes or vascular disease beyond hypertension (HT) were excluded. From the average 24-hour blood pressure values obtained by ABPM, we identified individuals with hypertension (controlled or not) and normotensive. Arterial stiffness was assessed by measuring the PWV (cf-PWV) carotid-femoral. CV risk factors were considered: smoking, dyslipidaemia, waist circumference, BMI, glucose intolerance; CV risk was calculated (Joint ESC Guidelines 2012). In polygraphic study were considered parameters: AHI, sat. Min. and average O_2 and O_2 desaturation index (ODI).
Results: Complete evaluation was available for 21/23 patients, 6 without HBP and 15 with HBP (71%; 95%CI 49.8-87.5), 11 had non controlled HBP (1 case presented HBP despite three hypotensive drugs) and 4 had HBP controlled with hypotensive drugs. The identified comorbidity were: hyperuricemia (4), benign prostate hyperplasia (2), bronchial asthma (2), glucose intolerance (5) and diabetes (1). In 12 patients, metabolic syndrome is diagnosed (57%). The calculated CV risk was moderate (1-5%) in 19 patients (90%), but considered of very high risk in 2 patients. Concerning to the prevalence of the CV risk factors, we only found significant differences in HDL-C, higher in hypertensive group. Among the sleep polygraphy parameters, the average oxygen saturation was higher in patients with HBP (median 81% vs 68%, p = 0.042). The pulse wave velocity was high (> 10 m/s) in every patient, with no significative differences between patients with or without HBP.
Conclusions: Approximately 70% of patients with moderate to severe OSA have presented in consultation HTA, generally uncontrolled or without prior diagnosis. All patients studied had increased arterial stiffness, even those without hypertension.

Key words: *Obstructive sleep apnea. Hypertension.*

CO27. IMPACT OF NONINVASIVE VENTILATORY SUPPORT IN AMYOTROPHIC LATERAL SCLEROSIS: FROM NOCTURNAL USAGE TO CONTINUOUS DEPENDENCE

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Introduction: Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disorder. Neuromuscular respiratory failure is the main cause of death, usually within two to five years of the disease onset. Supporting respiratory function with mechanical ventilation may reduce hypoventilation symptoms, improve survival and quality of life. Noninvasive management has been proved to be efficient, even in patients with high ventilatory dependence, however in patients with severe bulbar muscle dysfunction, the outcomes are unsatisfactory.
Objective: To describe the impact of Non Invasive Ventilation (NIV) up to continuous ventilator support and tracheostomy rate to prolong survival in ALS.
Methods: ALS patients with specific criteria for NIV in an outpatient setting were retrospectively studied. Ventilatory dependency data was analyzed as a function of pulmonary deterioration and respectively according to NIV daily use (4-8 hours, 8-16 hours and 16-24hours). According to disease progression, survival and tracheostomy rate was also recorded.
Results: A total of 55 patients (24 females) with a median age of 61.4 years (range 20-85) at diagnosis were included. At presentation, 33 patients (60.0%) had slow bulbar-onset and 22 patients (40.0%) rapid bulbar-onset.Thirty nine patients started NIV from 4 to 8 hours daily (mean vital capacity at the start of 2,003.3 ± 612.9 mL), 26 patients (including 17 that increased dependence) started NIV from 8 to 16 hours daily (mean vital capacity at the start of 1427.6 ± 461.1 mL) and 32 patients (including 25 that increased dependence) started NIV from 16 to 24 hours daily (mean vital capacity at the start of 895.2 ± 447.8 mL).Five of the 7 patients that started NIV from 16 to 24 hours daily initiated after an episode of acute respiratory failure. Ventilatory support through tracheostomy was performed in 13 patients (9 rapidly bulbar at diagnosis), after a mean time of 17.2 ± 14.5 months under NIV.Thirty seven patients died (23 with respiratory failure), which includes 28 NIV users (mean time of 30.4 ± 26.5 months under NIV, 17 continuous NIV) and 9 tracheostomized (mean time of 18.3 ± 17.3 months under continuous NIV; mean time of 23.9 ± 21.6 months under tracheostomy ventilation). The median overall survival was 49 months (95%CI 27.7-70.3): 52 months in tracheostomized patients (95%CI 7.8-96.2) and 46 months in NIV users (95%CI 16.1-71.9).
Conclusions: The level of ventilatory dependence is according to ventilatory dysfunction and can progress up to continuous usage in ALS patients. In our group of patients, NIV, even at continuous ventilatory support (16 to 24 hours), as well as tracheostomy ventilation have a significant impact on survival rate.

Key words: *Noninvasive Ventilation. Amyotrophic Lateral Sclerosis.*

CO28. SLEEP-DISORDERED BREATHING IN ACUTE STROKE IS HIGHLY PREVALENT AND IS ASSOCIATED WITH STROKE SEVERITY

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Introduction: Stroke represents the first (independent) main cause of mortality and morbidity in Portugal. Sleep apnea syndrome (SAS) has been frequently diagnosed in stroke patients.
Objective: Determine the incidence of SAS in the first 48 hours of acute stroke and compare subjects with and without SAS.
Methods: Consecutive patients with acute stroke (n = 34) admitted to a stroke unit were prospectively evaluated for sleep cardio-respiratory indices using portable monitoring (Embletta, Embla Systems, Broomfield, CO) within 48 hours following physician confirmation of the diagnosis. All studies were scored manually for respiratory events according to AASM (2007) criteria using RemLogic (Embla Systems, Inc, Broomfield, CO). SAS was defined when

Table - C027

	Patients (no.)	Age began (years)	Vital Capacity (mL)	Duration of NIV (months)
< 8 hours daily	39	63.7 ± 12.1	2003.3 ± 612.9	17.5 ± 9.0
8-16 hours daily	26	68.0 ± 9.9	1427.6 ± 461.1	9.9 ± 6.1
> 16 hours daily	32	62.9 ± 9.5	895.2 ± 447.8	18.7 ± 22.8

the apnea hypopnea index (AHI) was ≥ 5 events per hour. Body Mass Index (BMI), Neck Circumference (NC), stroke severity measured with NIH Stroke Scale (NIHSS), glycemia (mg/dl), Cheyne Stokes Breathing% (CSB%) were analyzed.
Results: Incidence of SAS was 61.8% (21 of 34 subjects) with81% of the SAS patients having predominantly obstructive sleep apnea (OSAS) and the other 19% central sleep apnea (CSAS). Independent t-test showed that the BMI (p = 0.027), NC (p = 0.002) and NIHSS (p = 0.011) were significantly reduced in subjects without SAS. The average of CSB% in all SAS patients was 25.9% while in the OSAS patients was 19.1% and in the CSAS patients was 56.4%. There was a trend towards higher glycemic values in patients with SAS (p = 0.055).
Conclusions: In our population of acute stroke patients, 61.8% show SAS, mostly obstructive type. More than half of CSAS have CSB. Stroke subjects with SAS had higher BMI, NC and higher NIHSS compared to those without SAS.
The study has received technical and equipment support from ResMed and Embla®.

Key words: *Sleep apnea syndrome. Sleep disordered breathing. Acute stroke. Stroke severity.*

CO29. OBESITY AND HYPOXIA DECREASE THE NUMBER OF PERFORIN POSITIVE GAMMA-DELTA T CELLS IN SLEEP DISORDERED BREATHING DISORDERS

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Introduction: We investigated the impact of obstructive sleep apneas (OSA) and increased upper airway resistance (UAR) on the cytotoxic protein perforin (P) in gamma-delta (gd)T cells.
Methods: Eighty-seven participants divided in 3non-obese groups (BMI < 30 kg/m^2): Controls (C): RDI < 5/h; UAR: RDI > 5/h, AHI and ODI < 5/h; non-obese OSA (noOSA): AHI > 5/h) and 1 obese OSA group (oOSA) (AHI > 5/h, BMI ≥ 30 kg/m^2). Perforin (P) in gd cells were analyzed by flow cytometry.
Results: Perforin+ CD3+gd cells were significantly decreased in all groups. Adjusted significance was achieved only in oOSA.
Conclusions: We demonstrate that sleep disordered breathing disorders are associated with a decrease of perforin positive gd cells in the peripheral blood of affected patients. This result was observed in lean patients without hypoxic events but it was more substantial in the oOSA group. These findings suggest that a decrease of perforin positive gd cells might contribute for the observed increased incidence of cancer in OSA patients.

This work was supported by Fundação para a Ciência e a Tecnologia (FCT): PIC/IC/82991/2007.

Key words: *Sleep apnea. Immune system. Tumour.*

CO30. YOUNG SWIMMERS SLEEP QUALITY PRE AND POST COMPETITION

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Actually elite sports require high quality sleep with recover and restorer capacities. This condition is crucial to develop athletes training according to their general and specific physical conditions, allowing them to express the physical skills to complete according to the moment. This study aim to evaluate and compare the sleep quality, pre and post competition, in national young swimmers using polysomnographic study class I. This was an observational and prospective cohort study. The sample included 24 athletes (14 pre and 10 post competition). The results revealed no significant differences on the comparison of the different class I polysomnographic parameters pre and post competition. The most relevant results were the post competition higher sleep time, lower non-rapid eye movement (NREM) latencies and equal efficiency. These results seem to indicate no differences between pre and post competition stages in expertise young swimmers. Even the physiological conditions indicate similar sleep in both moments. The sleep quality slight improvement can probably be explained by the muscle load decrease and less anxiety. This study concluded that athletes with sleep hygiene habits, as the ones included in this study, have a good sleep quality pre and post competition. In not possible to establish that competition significantly affects the sleep quality.

CO31. H1N1 VIRUS IN AN INTENSIVE CARE UNIT IN 2014

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Introduction: Since its emergence in 2009 the H1N1 virus represents a clinical challenge for physicians. Although in most cases have a benign course, a significant group of patients requires Hospitalization (0.3-0.5%) and eventually assistance in an Intensive Care Unit (10-30%). Hospitalizations due to H1N1 virus infection are

Table - C029

	Controls (n: 24)	UAR (n: 19)	noOSA (n:20)	oOSA (n:24)
Age total [years]	37.7 ± 8.8 #	41.4 ± 7.9 §	47.8 ± 8.4 °	47.0 ± 10.2
BMI [kg/m^2] ± SD	25.3 ± 2.3 ^, #	25.4 ± 2.4	25.9 ± 2.3	33.2 ± 2.9
AHI [/h]	0.45 **, ## (0.00-1.5)	2.10 ^^, §§ (0.90-3.30)	24.50 (11.15-37.95)	51.00 30.90-76.60)
RDI [/h]	2.45 ++, **, ## (0.90-4.35)	10.70^^, §§ (7.60-15.90)	34.20 (25.45-52.40)	63.40 (36.50-82.60)
ODI [/h]	0.7 **, ## (0.30-1.65)	1.8^^, §§ (1.30-3.90)	20.60 (11.45-42.30)	42.70 (28.40-69.30)
CD3+gdP+/ CD3$^+$gd [%]	65.10+*## (57-90-79.30)	46.20 (33.00-60.80)	45.95 (28.80-62.90)	38.75 (24.80-67.75)

Significant results with a p < 0.05: Control vs UAR: +, Control vs noOSA: *, UAR vs noOSA: ^. Control vs oOSA: #, UAR vs oOSA: §, noOSA vs oOSA: °. Adjusted significances are indicated by a repeated symbol (e.g:++).

mainly because of respiratory failure (10 to 30%) and for ventilatory suport.
Objective: Full description of patients with H1N1 infection in an ICU/ITCU between January and March 2014.
Methods: retrospective study of patients admitted in ICU/ITCU for H1N1 infection, confirmed by RT-PCR, nasopharyngeal swab or endotracheal aspirate. The data collected included: demographics, risk factors, length of stay, symptoms, laboratory findings, reason for admission, ventilatory support, severity scores and outcome.
Results: 12 patients were infected with H1N1 (8 women - 66.7% and 4 men – 33.3%). The mean age was 62.1 ± 15.3 years (women 63.1 years old; men 60 years old). The most frequent diagnostic triad involved dyspnea (66.7%), fever (58.3%) and cough (58.3%). Gastrointestinal symptoms were found in 16% of patients. On average, there was an interval of 3.75 days between the onset of symptoms and hospital admition. 83% of patients were admitted due to respiratory failure. Cardiovascular disease was present in 4 patients (33.3%), obesity in 3 patients (25%) and respiratory disease in 3 patients (25%). NIV ventilation mode was used initially in 5 patients (41.3%), 2 patients progressed to invasive ventilation (IV). IV was used in 7 patients (58%). All patients with ARDS (3) were submitted to "prone position" and clearly improved oxigenation. 50% of patients evolved in septic shock, with organ dysfunctions being respiratory and renal dysfunctions the most frequent. Bacterial infections were concomitantly observed in 3 patients (25%). We isolated: *S. aureus, S pneumoniae* and *P. aeruginosa*. The average length of stay was of 9.25 ± 5.78 days. Severity index were: SAPS II 31.8 ± 17.15, APACHE 17.2 ± 10.6 and hospital mortality 19.7 ± 26.48. 25% of patients died. Factors associated with mortality were a initial low PaO_2/FiO_2, the number of comorbidities, lymphocytosis and hyponatremia. Oseltamivir was used in all patients, on average during 8.6 ± 2.14 days. The vaccination failed in 2 patients.
Conclusions: According to the literature, there was a trend for higher levels of gravity in patients with H1N1 infection, so we should maintain a high index of suspicion for this agent in seasonal periods.

Key words: *H1N1 virus. Intensive Care Unit. Ventilation.*

CO32. METHICILLIN RESISTANT *STAPHYLOCOCCUS AUREUS* PNEUMONIA- HIGHER MORTALITY, POORER PROGNOSIS

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Introduction: Methicillin resistant Staphylococcus aureus (MRSA) is a versatile, well-equipped pathogen with the potential to evolve and adapt to its host as well as to the treatments developed to control its invasive damage. All infections due to MRSA, including pneumonia, are expected to have a poor prognosis.
Objective: To statistically compare pneumonia due to MRSA with the remaining pneumonias in which organic products were collected to determine the causing agent.
Methods: Retrospective study based on clinical processes of patients admitted with the diagnosis of pneumonia in the Pulmonology Department of a Districtal Hospital from 1/1/2013 to 31/12/2013. Patients without microbiological study were excluded. Data analysis was performed using SPSS 19.
Results: 174 patients were included: 29 (16.7%) with pneumonia due to MRSA and 145 (83.3%) with pneumonia due to other agents or without isolated agent. The mortality rate was 34.5% in patients with pneumonia caused by MRSA, compared with 13.1% in patients with pneumonia caused by other agents or without isolated agent ($p < 0.05$). The median of number of days of hospitalization was 18.0 in pneumonia due to MRSA compared with 13.0 in Pneumonia due to other agents or without isolated agent ($p < 0.05$). The median of antibiotic treatment number of days was 18.0 in pneumonia due to MRSA compared with 10.0 in Pneumonia by other agents or without isolated agent ($p < 0.05$). The radiological involvement was bilateral in 62.1% of MRSA pneumonia, compared with 24.8% of pneumonias due to other agents or without isolated agent. The median age was 81 in MRSA pneumonia and 77 in pneumonia due to other agents or without isolated agent. Regarding the degree of dependence, 75.9% of patients with MRSA pneumonia proved totally dependent, compared with 37.2% of patients with pneumonia by other agents or without isolated agent ($p < 0.05$). In MRSA pneumonia there was a median of Charlson Comorbidity Index of 6.00 compared to 5.00 in Pneumonia by other agents or without isolated agent. ($p < 0.05$).
Conclusions: The developed study seems to demonstrate that patients with pneumonia due to MRSA, when compared with pneumonia due to other agents or without isolated agent, have a higher mortality rate, higher number of days of hospitalization and antibiotic therapy, more extensive radiological involvement, greater degree of dependency and greater number of comorbidities, which necessarily result in a worse prognosis.

Key words: *Pneumonia. MRSA. Mortality.*

CO33. HEALTHCARE ASSOCIATED PNEUMONIA MICROBIOLOGY

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Introduction: The concept of healthcare associated pneumonia (HCAP) was published in 2005 by ATS/IDSA as a new category of pneumonia which is distinguished from community acquired pneumonia (CAP) by the greater probability of multidrug resistance (MDR) pathogens in its etiology. Therefore, HCAP has greater severity and greater mortality and demands treatment with broad spectrum antibiotics. However, this concept is controversial because the scientific evidence to date is divergent concerning the etiology and pathogen resistance patterns. The rationale of this work is to characterize the etiology in HCAP patients admitted in a Portuguese District Hospital.
Methods: The authors retrospectively analyzed the patients admitted to the Pulmonology ward of a District Hospital that met HCAP criteria, in a year interval, concerning their age, sex, type of HCAP criteria, comorbidities, microbiology isolates and their resistance patterns.
Results: Of the 221 patients admitted with pneumonia, 89 met HCAP criteria. Within these, 18 microbiology isolates were obtained (20.2%): *Staphylococcus aureus* (5), *Klebsiella pneumoniae* (2), *Escherichia coli* (4), *Acinetobacter baumanii* (5), *Streptococcus pneumoniae* (1) and *Mycoplasma pneumoniae* (1). Two thirds were MDR pathogens *versus* 25% MDR pathogens isolates in the rest of the CAP sample. In these patients the most common pathogen was *S. pneumoniae* (5). HCAP patients with the diagnosis of COPD, diabetes mellitus and immunosupression had greater tendency for MDR pathogens infection. The same was not verified in others comorbidities (as cardiovascular disease, cerebrovascular disease or chronic renal disease) nor in patients with poor functional or nutritional status (bedridden). The authors could not identify any HCAP criterion that meant a greater risk for MDR pathogens infection. There was not also found any association between the type of pathogen, the risk factor for HCAP, any comorbidity and poor functional and nutritional status.
Conclusions: This work supports the definition of HCAP and its segregation from CAP concerning the type of microbiology isolates and

its resistance patterns. In HCAP patients, the factors associated with greater MDR pathogens infection risk are still to be determined. However, this work suggests three potential comorbidities associated with greater risk. More studies are necessary to clarify and guide clinicians about the best approach towards patients that meet HCAP criteria, not forgetting however their individual clinical sensibility.

Key words: *Pneumonia. Microbiology. Resistance.*

CO34. IMPACT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THE HOSPITALIZED PATIENTS FOR COMMUNITY-ACQUIRED PNEUMONIA

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Introduction: Chronic obstructive pulmonary disease (COPD) is a frequent comorbidity in hospitalized patients with community acquired pneumonia (CAP). According to the literature COPD is a risk factor for CAP, yet studies related to increased mortality rates are not consistent.

Objective: Assess the impact of COPD on the development and mortality of patients hospitalized for CAP.

Methods: We studied all patients admitted with CAP in the Department of Pulmonology in the period between January 1st 2013 and December 31st 2013. Patients with a diagnosis of COPD confirmed by spirometry were selected. Patients admitted to the Intensive Care Unit in the first 24 hours were excluded.

Results: In a total of 151 patients admitted with CAP 40 had COPD. The data for these patients were (table).

Conclusions: Patients with COPD present median CURB-65 indices at admission similar to patients without this condition. However, there were no respiratory complications during hospitalization in the first group. A large percentage of patients with COPD held corticosteroid. The use of corticosteroids in CAP may reduce inflammation and improve outcome in some studies, however, there are no consensus. Despite not having been proven statistically significant relationship between mortality in the different groups, it was found to be lower in the COPD group.

Key words: *Community acquired pneumonia. Chronic obstructive pulmonary disease. Outcome. Mortality.*

Table - C034

	Patients with COPD	Patients without COPD	
Age (years)	72 (+-8)	62 (+-5)	p < 0.001
GOLD A			
GOLD B	10 patients (25%)		
GOLD C	17 patients (42.5%)		
GOLD D	11 patients (27.5%)		
Inhaled corticosteroid therapy prior to admission	32 patients (80%)		
Domiciliary oxygen therapy prior to admission	10 patients (25%)		
Increased debit/oxygen therapy initiation after hospitalization	5 patients		
Length of hospitalization	11 days (+-5)	11 days (+-5)	p 0.9
Median CURB-65 at admission	1	1	p < 0.001
Pleural effusion	1 patient (2.5%)	16 patients (14.4%)	p 0.04
Unilobar pneumonia	32 patients (80%)	75 patients (67.5%)	p 0.14
Bilobar pneumonia	5 patients (12.5%)	18 patients (16.2%)	p 0.57
Bilateral pneumonia	3 patients (7.5%)	18 patients (16.2%)	p 0.17
Respiratory failure at admission	31 patients (77.55%)	48 patients (43.2%)	p 0.9
Pulmonary complications during hospitalization (pleural effusion, empyema, abscess, respiratory failure, diagnosis of lung cancer)	0	13 patients	p 0.02
Non invasive mechanical ventilation	2 patients (5%)	1 patient (2.5%)	p 0.11
Treatment failure	10 patients (25%)	33 patients (29.7%)	p 0.57
Identification of microbiological agent	6 cases (15%)	9 cases (8.1%)	p 0.2
Most prevalent microbiological agent	*H. influenza e E. coli*	*S. pneumoniae*	
Oral corticosteroid therapy during hospitalization	29 patients (72.5%)	33 patients (33.3%)	p < 0.001
Mortality	2.5% (n=1)	3.6% (n=4)	p 0.74

CO35. EMPIRICAL THERAPY FAILURE IN THE HOSPITALIZED PATIENTS FOR COMMUNITY ACQUIRED PNEUMONIA

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Introduction: Community acquired pneumonia (CAP) is a serious infection with a variable evolution and outcome. In-hospital mortality of CAP in Portugal is estimated to be 26.31%. Treatment failure is defined as an inadequate clinical, analytical or radiological response to antibiotics and it is estimated to be between 10% and 15%, with an approximately 5 times higher mortality risk.
Objective: Identify risk factors for treatment failure in patients with CAP admitted into a Pulmonology ward; characterize the association between initial failure and comorbidities, length of hospitalization and mortality.
Methods: Retrospective study of all patients admitted with CAP in the Pulmonology Department in 2013. Treatment failure was defined as the need to alter antibiotic therapy after 72 hours of initial antibiotic therapy. Patients admitted in the Intensive Care Unit within the first 24h were excluded.
Results: One hundred and fifty one patients were included. The average age was 63 years ($p < 0.05$) with a male sex predominance (67.5%; n = 102). The average length of hospitalization was 11 days (($p < 0.001$). The most prevalent comorbidities were COPD (n = 40), cardiac disease (n = 21), lung cancer (n = 18), diabetes (n = 18), asthma (n = 17) and tuberculosis sequelae (n = 16). Fifty patients were former smokers and 41 active smokers with an average smoking history of 27 packs-year. CURB-65 was analysed as the severity index with a median of 1. The analysed inflammatory markers on admission were C-reactive protein (mean = 19.83 mg/dL) and white blood cell count (mean = 14,056/uL). Twenty-three patients had multilobar pneumonia, 21 bilateral and 107 confined to one lobe; 17 patients had pleural effusion and 4 cavitatedlesions. Seventy-nine patients had respiratory failure at admission. The predominant initial empiric antibiotic therapy was amoxicillin/clavulanic acid in combination with azithromycin; the antibiotic schemes were in agreement with guidelines in 146 cases (96.7%). The average duration of treatment in the group with treatment failure (before changing the therapeutic regimen) was 6 days (± 4). Microbiological study (sputum bacteriology, urine antigen analysis, blood culture or bronchoalveolar lavage) was done in 131 patients; there was cultural growth in 15 patients (11.5%) and the most prevalent agent was *S. pneumoniae*. There were cardiac complications in 8 patients and 12 patients presented acute renal failure. Treatment failure was described in 28.5% of cases (n = 43) based on the following criteria (alone or together): clinical evolution (93%), analytical results (33%) and radiology (37%). Therapy adjustment according to susceptibility testing was done in 4.6% of cases. The mortality rate was 3.3% (n = 5).
Conclusions: Due to the low percentage of bacteriological confirmation, appropriate empirical therapy is crucial. Most patients received therapy according to current guidelines. In our study, nearly 30% of patients hospitalized for CAP needed to change the empirical antibiotic therapy, especially for clinical worsening. Treatment failure appears to be associated with older age and result in longer hospitalization time. Other statistically significant associations were not found. The mortality rate was significantly lower when comparing to the national average.

***Key words**: Community acquired pneumonia. Treatment failure. Length of hospitalization. Mortality.*

CO36. FUNGAL INFECTIONS IN LUNG TRANSPLANT RECIPIENTS

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Introduction: Infectious complications after lung transplantation are one of the leading causes for increased morbidity and mortality of the patients. Particularly, fungal infections occur in 15 to 35% of them and more than 80% are caused by Candida spp. and Aspergillus spp.
Objective: Analyze the clinical, endoscopic and radiological features of fungal infections in lung transplant recipients.
Methods: We reviewed the clinical records of patients who underwent lung transplantation at Hospital Santa Marta during the period from January/2008 to July/2013; clinical and demographic data of those diagnosed with fungal infection by brochoalveolar lavage (BAL) were collected and analyzed.
Results: During the referred period, there were 15 cases of fungal infection diagnosed by BAL (in different patients), in a total of 67 transplant recipients (22%). The mean age of patients was 47 (± 13) years and 8 were male. Eight patients underwent a single-lung transplantation. Six patients had pulmonary fibrosis, 4 had bronchiectasis (one for cystic fibrosis), 2 had COPD, 2 had sarcoidosis and 1 had silicosis. The most common comorbidities were diabetes (5/15) and hypertension (5/15). In 10 cases the infection occurred in the first post-transplant quarter and 3 after a year of transplantation. Broad-spectrum antibiotic therapy was performed in 12 cases and therapy for acute rejection in 7. There was concomitant diagnosis of bacterial pneumonia in 6 cases and only one case of concomitant CMV infection. In cases diagnosed in the later post-transplant period, all patients had a diagnosis of chronic rejection. The radiological patterns observed were nonspecific: ground-glass opacities (5/15), nodular infiltrates (4/15), parenchymal consolidation (2/15) or no changes detected (4/15). The most common isolated agent was Candida spp. (10/15) followed by Aspergillus spp (5/15): in the cases of infection by Candida spp. the endoscopic findings were nonspecific, mostly with inflammatory appearance of bronchial mucosa (6/10); in the cases of infection by Aspergillus spp., the findings were mostly consistent with infection of the anastomosis/tracheobronchitis (4/5). Only one patient died due to complications secondary to the diagnosis of fungal infection.
Conclusions: Despite the frequency of fungal infections in lung transplant recipients, it is usually difficult to define its clinical implications. Nevertheless, we emphasize the importance of recognize it, as the risk factors involved, since it remains as a cause with impact on the morbidity and mortality of the patients, particularly during the early and late phases of the post-transplant period.

***Key words**: Lung transplantion. Fungal infections. Complications.*

CO37. CHRONIC NECROTIZING ASPERGILLOSIS, AN EMERGING TREND IN CLINICAL PRACTICE

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Aspergillus is a mould widespread in the environment and is responsible for a wide spectrum of clinical syndromes. Chronic necrotizing aspergillosis (CNA) is locally invasive and is seen mainly in patients with mild immunodeficiency or with chronic lung disease. Our purpose was to characterize a population of patients followed in a tertiary hospital with the diagnosis of CNA. The authors performed a 5 year retrospective analysis of patients with positive cultures or histopathological evidence of Aspergillus (a total of 45 patients). Diagnosis criteria for CNA were present in 12 patients. All performed a thoracic CT scan and fibroscopy. 10 Patients were males, median age was 65.5 (38-83 years), with an average age

adjusted Charlson index score of 4.8. The most frequent risk factors were severe structural lung disease (n = 10), past history of pulmonary tuberculosis (n = 6), severe COPD (n = 4), prolonged corticotherapy (n = 4) and lung cancer (n = 2). 5 Patients had previously identified Aspergilloma. This subgroup of patients had an average of 2.275 known risk factors for CNA (*vs* 4.0 in patients without Aspergilloma). Voriconazol was the treatment of choice and prescribed to 9 patients (75%). The 6 overall 6 months mortality was 33.3% (non-survivors had an average age adjusted Charlson index score of 8). Our results provide data on clinical characteristics and outcomes of CNA in patients with pre-existing chronic respiratory conditions. A significant 6 months mortality was observed in patients with high Charlson index score. We concluded that CNA is an uncommon diagnosis but represents a relevant comorbidity in patients with severe pulmonary chronic disease.

Key words: *Chronic necrotizing aspergillosis. Chronic pulmonary obstructive disease. Aspergilloma.*

CO38. DIABETES MELLITUS (DM) INCREASES THE RISK OF COMMUNITY-ACQUIRED PNEUMONIA (CAP) ADMISSIONS

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Respiratory infections are frequently associated with diabetes mellitus (DM), which in Portugal has one of the highest prevalence rates in Europe. Health Authorities and Medical Societies recommend several general measures (e.g., smoking cessation and control of chronic illnesses), as well as flu and pneumococcal vaccination of people with DM, as it is recognized that this population is at increased risk of pneumonia, namely pneumococcal disease. We have carried out a retrospective, nationwide register analysis of hospitalized patients that aims to estimate the prevalence of DM among community-acquired pneumonia (CAP). patients and evaluate the impact of DM in CAP hospital length of stay and in-hospital mortality. Anonymized data referring to the period 2009-2012 were extracted from the National Hospital Discharge Database of DRGs (Diagnostic-Related Groups). Patients included in the study had CAP as main diagnosis on admission within the age range 20-79 that matched the PREVADIAB - National Prevalence Study. Data for analysis were clean from double entries, day cases and hospitalizations > 90 days. We also excluded individuals with HIV and with iatrogenic immunosuppression. Nationwide DM statistics from 2009 to 2012 were collected from the PREVADIAB study. Within the 74,175 CAP episodes that matched the inclusion criteria we found a high burden of DM that tended to increase over time, from 23.7% in 2009 to 28.1% in 2012. Importantly, the DM prevalence in CAP patients was significantly higher when compared to the national DM prevalence ($p < 0.0002$) (28.1% versus 12.9% in 2012, respectively). The average length of stay was significantly higher in cases of CAP with DM ($p < 0.0001$), with a median of 9 (6-14 days) vs 8 (5-13 days) in CAP without DM. In-hospital mortality was also significantly higher in CAP patients that have DM (15.2%) vs without DM (13.5%) ($p = 0.0064$). Taken together, the data show a high prevalence of DM in subjects hospitalized with CAP reinforcing other reports suggesting that people with DM are at increased risk of CAP. This retrospective analysis also provides evidence that people with DM hospitalized with CAP have longer hospitalization stay and higher mortality rates as compared with people with CAP without DM. This study reinforces the relevance of DM as a risk factor for CAP and the need for more effective implementation of preventive guidelines in this population.

Key words: *Community-acquired pneumonia. Diabetes mellitus. Epidemiological study. Hospital admissions.*

CO39. PREVALENCE OF ERECTILE DYSFUNCTION IN PATIENTS WITH COPD - PRELIMINARY RESULTS

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Introduction: Erectile dysfunction (ED) is defined as an inability to achieve or maintain an erection in order to have satisfactory sexual activity. Recent studies have shown an association between COPD and ED. However, this issue is often ignored and the GOLD guidelines do not include ED in COPD comorbidities neither alert to the importance of its approach and treatment.
Objective: To evaluate the prevalence of ED in patients with COPD and the clinical factors that might be related.
Methods: Cross-sectional study, started in April 2014 that included male patients with COPD, sexually active. Patients with ED caused by structural changes and those with exacerbation of COPD in the last month were excluded. Clinical and demographic data were collected. The presence of ED was assessed using the International Index of Erectile Function (IIEF-5) questionnaire (anonymous) whose score ranges from 5 to 25 points (5-7: severe ED; 8-11: moderate, 12-16: mild- moderate; 17-21: mild; 22-25: no ED). Depression/anxiety – HADS scale; dyspnea - mMRC and the impact of COPD – CAT were also assessed. We evaluated the associations between clinical and demographic factors and ED using Pearson correlation, chi-square and nonparametric tests. The patients were also asked if they discuss with their doctor about the consequences of their pulmonary disease in their sexual activity.
Results: We selected 58 patients: 7 refused, 6 had no sexual activity in the last 6 months and 43 agreed to participate in this study. The 43 patients included were aged between 41 and 82 years old (mean: 67 ± 10 years, median: 67 years). Ten patients (23%) were smokers and 27 (63%) ex-smokers. Nine patients (21%) had COPD GOLD A; 4 (9%) GOLD B; 12 (28%) GOLD C and 18 (42%) GOLD D. Sixteen patients had domiciliary oxygen therapy. Forty patients (93%) had some degree of ED: 19 patients (44%) mild, 10 (23%) mild-moderate and 11 (26%) moderate ED. The presence of ED occurred in all GOLD stages of COPD, without any statistically significant association. The ED score was inversely correlated with CAT ($r = -0.337$, $p = 0.027$), the mMRC ($r = -0.328$, $p = 0.032$), HADS depression level ($r = -0.400$, $p = 0.009$) and age ($r = -0.520$, $p < 0.001$). The ED score was not correlated with anxiety, FEV1 or number of exacerbations in the previous year. Of the evaluated patients, 70% admitted they never discussed with their doctor about the implications of their lung disease in their sexual activity and 21% discussed it only a few times.
Conclusions: This study showed that ED is a common problem in patients with COPD and that it can happen at any GOLD stage. Patients with COPD are often older and have many comorbidities, which might help to explain this fact. The patients with more symptoms are the most likely to have ED. Despite the high prevalence of ED in patients with COPD, we emphasize that, in this study, 91% of patients never discussed or discussed only a few times this problem with their doctor, a reality that needs to be changed.

Key words: *COPD. Erectile disfunction.*

CO40. GOLD CLASSIFICATION AND RESPIRATORY SYMPTOMS IN ELDERLY PEOPLE – GERIA STUDY

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Introduction: Ageing in Europe is increasing and respiratory disease is a relevant pathology. With increasing age, environmental pollution exposure and smoking, the COPD tends to be high, particularly in the elderly population. Advanced age may be associated with a lower perception of symptoms, being spirometry useful in this age group.
Objective: To describe the results of spirometry with bronchodilator test, according to the GOLD criteria, and identify respiratory symptoms of elderly people in elderly care centers (ECC) in Lisbon.
Methods: Between January and February 2014, we assessed 277 elderly people in an ECC, being included in this study elderly who consented to participate, with safety criteria for spirometry with bronchodilator (BD) and FEV1/FVC < 70% in post-BD. The spirometry followed the guidelines of the ATS/ERS (2005). A questionnaire on respiratory disease to identify symptoms was administered by an interviewer. A descriptive analysis of the data was performed.
Results: A total of 136 elderly people with criteria for spirometry with bronchodilation, 35 (25.7%) elderly presented FEV1/FVC < 70% in post-BD, of whom 54.3% were female. The mean age was 85.4 ± 5.3 years. Having as a reference the percentage of predicted FEV1value resulted in the following classifications: GOLD I – 20 (41.7%), GOLD II – 11 (22.9%) and GOLD III – 4 (8.3%). Of the 35 (72.9%) elderly people with GOLD criteria only 20% reported cough and expectoration for three or more months and for at least two years.
Conclusions: In our sample, most of the elderly people with functional criteria of COPD reported no respiratory symptoms. The spirometry providing objective evidence of ventilatory alterations, demonstrates a valuable contribution to the diagnosis of COPD in elderly people.
Granted by Fundação para a Ciência e Tecnologia – Projeto GERIA PTDC/SAU-SAP/116563/2010.

***Key words**: Elderly. COPD. GOLD. Spirometry. Respiratory symptoms.*

CO41. CHRONIC RESPIRATORY FAILURE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE UNDER HOME VENTILATION

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Introduction: Non-invasive ventilation (NIV) is increasingly used in stable patients with very severe chronic obstructive pulmonary disease (COPD). The effectiveness of NIV for the treatment of chronic hypercapnic respiratory failure (HRF) arising from COPD remains debatable.
Objective: To describe a 3-year follow-up of COPD patients under home NIV for HRF.
Methods: Retrospective descriptive study. Patients receiving NIV between August 2011 and July 2014 at the Non-invasive Respiratory Care Unit of a university hospital (Pulido Valente Hospital) were registered in a hospital database and included for analysis.
Results: Within the 334 patients initially screened, 109 had COPD (32.6%) and were included for further evaluation. Out of the 109 COPD patients (mean postbronchodilator FEV1 38.6 ± 14.9% predicted) 93 were men (85.3%), with a mean age of 70.7 ± 9.3 years at the last NIV evaluation and 14 were still current smokers (12.8%). The mean duration of ventilation was 63.4 ± 51.1 months (range: 3 to 192 months). Coexistence of multiple disorders that can contribute to chronic HRF was also analysed: obstructive sleep apnea was found in 59 patients (54.1%), obesity in 41 (37.6%), heart failure in 25 (22.9%), bronchiectasis in 24 (22%), post-tuberculosis sequelae in 9 (8.3%), lung neoplasm in 8 (7.3%), and heterogeneous respiratory and non respiratory diseases in 7 patients (6.4%). Sixty-two (56.9%) patients started NIV during admission with acute respiratory failure and 47 (43.1%) started it electively, 26 of whom (55.3%) had previously received continuous positive airway pressure. There was significant improvement in mean arterial blood gas values between baseline (first stable evaluation) and final evaluation (PaO_2: 61.7 ± 8.8 vs 64.7 ± 7.8 mmHg and $PaCO_2$: 52.9 ± 7.7 vs 49.5 ± 7.5 mmHg) ($p < 0.05$), with 93.3% of patients compliant to NIV (> 4 h/day). There was a significant increase in mean inspiratory positive airway pressures between baseline and final evaluation (19.5 ± 4.4 vs 23.6 ± 5.3 cmH_2O; range: 12-37 cmH2O) as well as in breathing frequencies (11.1 ± 4.8 vs 15.2 ± 1.4 breath/min; range: 10-18 breath/min) ($p < 0.0001$). At final evaluation, patients with severe hypercapnia ($n = 47$; $PCO_2 \geq 50$ mmHg) performing NIV at higher pressures ($n = 30$; IPAP ≥ 25 cmH_2O) were more compliant (mean daily use: 10.1 ± 3.4 vs 6.3 ± 3.7h/day). One hundred patients had pressure support ventilation (91.7%) and nine had volume assured pressure support (8.3%). The most widely used interface at baseline was the nasal mask (74 patients: 67.4%) but at final evaluation oronasal mask (76 patients: 69.7%) was the most used. During the period under analysis (3 years) 27 patients died (24.8%) and 15 patients interrupted NIV due to noncompliance or loss of criteria (13.7%).
Conclusions: For most COPD patients with chronic respiratory failure, home ventilation was tolerable even at high pressures and effective with a significant improvement in arterial blood gases. This is a real life retrospective descriptive study in COPD patients with heterogeneity due to the presence of other respiratory and non-respiratory diseases. Although NIV in COPD patients with chronic HRF is still under discussion, our results suggest that these patients benefit from home ventilation.

***Key words**: COPD. Chronic respiratory failure. Home ventilation.*

CO42. PREDICTORS OF MORTALITY IN PATIENTS HOSPITALIZED FOR ACUTE EXACERBATION OF COPD

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Introduction: Chronic obstructive pulmonary lung disease (COPD) is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Comorbidities and exacerbations contribute to the severity of disease. Severe exacerbations are associated with increased mortality.
Objective: Determin ethe predictive factors of 90 day mortality in patients admitted for acute exacerbation of COPD.
Methods: We carried out a retrospective study that included the first 100 patients of the year 2013, admitted in the Pulmonary Department of Centro Hospitalar de Vila Nova de Gaia/Espinho, for an acute exacerbation of COPD. Socio-demographic variables, comorbidities, smoking status, post bronchodilator forced expired volume in one second (FEV1%), degree of dyspnea, number of hospitalizations for exacerbations in previous year, cause of present exacerbation, analytic, radiologic and microbiological results and 90 day mortality were recorded.

Results: The included patients had: mean age 71 (± 11) years, 83% were men. The mean FEV1 was 42.3% (± 15.2), 54% of the patients were GOLD D, 28% C, 13% B and 5% A. There were 45% of patients with long term oxygen therapy and 5% under domiciliary mechanical ventilation. During the previous year 34% were hospitalized for COPD exacerbation. Smokers corresponded to 24.4% and ex-smokers 55.2%. Regarding previous medical conditions, 42% had bronchiectasis, 30% pulmonary tuberculosis, 16% lung cancer; 72% had cardiovascular risk factors, with arterial hypertension being the most common (65%) and 47% cardiac disease. The mean Charlson Index was 5.21 (± 1.58). The main causes of exacerbation were: tracheobronchitis (33%), community-acquired pneumonia (29%) and infected bronchiectasis (27%). The initial antibiotic therapy was changed in 15% of patients, an aetiological agent was found in 23%, the most prevalent microbiological isolates were *Pseudomonas aeruginosa* (29%) and *Haemophilus influenza* (29%). Overall 90 day mortality was 22%. Predictors of mortality were: higher age ($p < 0.001$), presence of at least one hospitalization for acute exacerbation of COPD in previous year (Odds ratio- OR 5.08; $p = 0.001$), body mass index < 19 kg/m^2 (OR 5.25; $p = 0.043$), presence of some degree of dependence (OR 3.67; $p = 0.007$), changing in initial antibiotic therapy (OR 5.55; $p = 0.002$); higher Charlson index ($p < 0.0001$) and presence of 90 day re-admission after discharge (OR 4.31; $p = 0.026$). Although not statistically significant ($p = 0.054$) we noticed that 18.2% of non-survivors had an isolation of *Pseudomonas aeruginosa* comparing with 5.3% of survivors.
Conclusions: Almost one quarter of patients with acute exacerbation of COPD died. Mortality was higher in patients with: higher age, functional dependence, low weigh, hospitalized in previous year for acute COPD exacerbation, in those that was changed initial antibiotic therapy and patients that were readmitted 90 days after discharge. In conclusion, the presence of these factors not only should point us to a more aggressive treatment but would also help us to identify the patients that will beneficiate most from palliative care measures.

Key words: *COPD. Acute exacerbation. Mortality.*

CO43. PREDICTORS OF 90 DAY READMISSION IN HOSPITALIZED PATIENTS FOR ACUTE EXACERBATION OF COPD

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Introduction: In Portugal the prevalence of COPD reaches 14.2% in adults with more than 40 years old. The number of hospitalizations for acute exacerbation of COPD increased about 20% between 2000 and 2008, which represents an elevated economic burden. Besides, acute exacerbations of COPD are associated with disease severity, respiratory function decline and increased mortality.
Objective: Determine the predictive factors of 90 day readmission in patients hospitalized for acute exacerbation of COPD.
Methods: We carried out a retrospective study that included the first 100 patients of the year 2013, admitted in the Pulmonary Department of Centro Hospitalar de Vila Nova de Gaia/Espinho, for an acute exacerbation of COPD. Socio-demographic variables, comorbidities, smoking status, post bronchodilator forced expired volume in one second (FEV1%), degree of dyspnea, number of hospitalizations for exacerbations in previous year, cause of present exacerbation, analytic, radiologic and microbiological results, mortality and presence of 90 day readmission were recorded.
Results: The included patients had: mean age 71 (± 11) years, 83% were men. The mean FEV1 was 42.3% (± 15.2), 54% of the patients were GOLD D, 45% under long term oxygen therapy (LOT) and 5% under domiciliary mechanical ventilation. During the previous year 34% were hospitalized for COPD exacerbation. Smokers and ex-smokers corresponded to 79.6%. Regarding comorbidities: 47% had cardiac disease, 72% cardiovascular risk factors and the mean Charlson Index was 5.21 (± 1.58). Ninety days after discharge 22% of patients died and 47.8% of survivors were readmitted. The mean causes of readmission were: healthcare associated tracheobronchitis (43.2%), infected bronchiectasis (27.3%) and healthcare associated pneumonia (20.5%). Regarding readmitted patients: 75% were GOLD D, 84.1% had a punctuation in *modified British Medical Research Council* (mMRC) scale ≥2; 86.4% had FEV1 < 50%; 56.8% were under LOT. We noticed that 16.3% of readmitted patients had an isolation of *Pseudomonas aeruginosa* comparing with 2.2% of non-readmitted. Predictors of 90 day readmission were: higher GOLD classification ($p < 0.001$), higher punctuation in mMRC scale ($p = 0.001$), FEV1 < 50% (Odds Ratio- OR = 2.97; $p = 0.039$), being under LOT (OR 2.8; $p = 0.017$), higher number of COPD exacerbations in previous year ($p = 0.021$) and *Pseudomonas aeruginosa* isolation (OR 8.6; $p = 0.022$).
Conclusions: Almost half of patients with acute exacerbation of COPD were readmitted in the 90 days after discharge. Readmission rate was higher in patients with elevated GOLD classification, more dyspneic, greater airflow limitation on spirometry, under LOT, with the largest number of exacerbations in the previous year and with isolation of *Pseudomonas aeruginosa*. Thus, in these patients, therapy optimization during hospitalization for acute exacerbation or during follow-up in outpatient clinic, and the institution of measures to prevent the acquisition of infection acquires great importance, since the control and treatment of disease and exacerbations allows improved quality of life of patients and families and further rationalization of the high costs involved.

Key words: *COPD. Acute exacerbation. Readmission.*

CO44. COPD RISK IN PORTUGUESE FIREFIGHTERS

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Introduction: Portugal is severely ravaged by numerous forest fires, involving thousands of firefighters with potential inhalation risks which have been less studied, particularly in what concern to their chronic respiratory effects.
Methods: A prospective study (FUMEXP Project) involved forty healthy and non-smoking firefighters from several corporations who were followed during three years (forest fire seasons and experimental prescribed burns). The entire sample was subjected to medical examination, SF-36 and SF-6D questionnaires, spirometry, exhaled nitric oxide (FENO), exhaled carbon monoxide (CO) and exhaled breath condensate (EBC), with a detailed study of the aminoacid profile in this matrix, as well as the metabolomic profile representative of lipidic peroxidation and oxidative and nitrosative stress: asymmetric and symmetric dimethylarginine (ADMA, SDMA), nitrates, 8-isoprostane, hydroxynonenal (HNE) and malondialdehyde (MDA). The sample was studied before and after three experimental prescribed burns in Serra da Lousã (conducted at the Center for the Study of Forest Fires) and over three forest fire seasons. A sub-sample was real-time monitored for inhaled particulate matter (PM2,5), NO_2, CO and volatile organic compounds (VOC). A sample of healthy controls was also defined and studied.
Results: Individual monitoring: A considerable number of hour-average values exceeded international recommendations, regarding the quality of breathable air, for all monitored firefighters: 738 μg/m^3 for PM2,5, 73,030 μg/m^3 for CO, 4,571 μg/m^3 for NO_2, 10,342

μg/m³ for total VOCs. The peak values were also very high (600,000 μg/m³ for CO and 19953 μg/m³ for PM2,5). Spirometry: there was a statistically significant decrease in FEV1, F50, F25 and MEF25-75 over the three years of study ($p < 0.05$). Exhaled CO: this parameter increased four times compared to the pre-exposure values ($p < 0.001$). FENO: as was already known in smoking subjects, the firefighter sample showed a statistically significant decrease of this parameter after exposure to forest fire smoke. The pre-fire values were, however, significantly higher than the control sample ($p <0.05$). EBC: significantly higher values for all parameters were observed in the firefighters before exposure, compared to the control sample, with the exception of SDMA. Following the prescribed burns, there were statistically significant increases in arginine ($p < 0.001$), ornithine ($p < 0.01$), proline ($p < 0.01$) hydroxyproline ($p < 0.01$), Isoleucine ($p < 0.01$), leucine ($p = 0.001$) tyrosine ($p <0.01$) ADMA ($p < 0.01$), and SDMA ($p < 0.05$). Between basal and post-forest fire sampling, all analyzed compounds (except for nitrate) increased significantly.

Conclusions: Acute and chronic occupational exposures in forest firefighting induce significant pulmonary pathophysiological changes, with increased inflammatory and oxidative stress markers and decreased lung function, revealing potential risks for the development of COPD in this occupation. The risk of other respiratory diseases may also be increased.

Key words: *COPD. Firefighters. Exhaled breath condensate. Nitrico oxide. Carbon monoxide.*

CO45. NON-INVASIVE MECHANICAL VENTILATION IN PATIENTS WITH STABLE COPD: A COHORT STUDY WITH A ONE YEAR FOLLOW-UP

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Introduction: The use of non-invasive mechanical ventilation (NIMV) in patients with stable chronic obstructive pulmonary disease (COPD) has been a subject of debate for many years, with several studies showing different results in long term outcomes. However, the use of higher levels of pressure support showed better and more consistent results both in clinical efficacy as well as in long term survival. Although NIMV has good results in acute exacerbations of COPD, it is still not clear the impact of this technique in preventing respiratory exacerbations in a stable setting.

Objective: Study the impact of NIMV on the number of respiratory exacerbations and hospital admissions, during a period of one year follow-up in a group of patients with stable COPD.

Methods: Patients with confirmed diagnosis of COPD that fulfilled the criteria to start home NIMV (optimized therapy and paCO2 > 55 mmHg or $paCO_2$ between 50 and 54 mmHg with more than two exacerbations per year with respiratory acidosis needing NIMV) were included and analyzed during one year. Pulmonary function, blood gas values and ventilatory parameters were accessed at the time of NIMV adaptation and one year after. During the follow up period, patient´s adherence (mean usage per day) to NIMV and the number of respiratory exacerbations with hospital admissions in comparison with the previous year was recorded.

Results: Out of a total of 150 patients adapted to NIMV, over a one year period, 28 patients (10% women) with a mean age of 70.8 ± 9.74 years were selected. All patients were diagnosed with COPD group D. In terms of pulmonary function, the mean values were (FVC% 58.43 ± 18.51; FEV1% 32.33 ± 12.58; FEV1/FVC 45.66 ± 16.13). Regarding NIVM parameters, the mean value of IPAP and EPAP was 19.93 ± 3.37 cmH_2O and EPAP 6.46 ± 1.53 cmH_2O, respectively. Most of the patients (68%) also used oxygen therapy. During the one year follow-up period, 6 patients died (3 with respiratory infections, 1 with lung cancer and 2 with unknown causes) and 8 patients suspended NIMV due to bad tolerance. Fourteen patients achieved the one year follow-up using NIMV with a median usage per day of 7.6 (7.06/8.2) hours. In this group of patients we found a decrease in the median number of exacerbations in comparison with the previous year: 1.0 (0.0/3.25) vs 2.0 (1.0/5.5). This reduction was also observed in the median number of hospital admissions when compared with the previous year: 0.5 (0.0/1.25) vs 1.0 (0.75/2.0). Before NIMV adaptation, 12 patients (86%) had two or more exacerbations (or at least one hospital admission) per year. After one year of home NIMV the number of patients with two or more exacerbations (or at least one hospital admission) decreased to 7 (50%).

Conclusions: Patients with stable COPD have a good daily adherence to home NIMV and this technique may have a positive impact on the reduction of respiratory exacerbations and hospital admission in a one year follow-up period. However, a bigger follow-up period and a larger sample of patients is warranted for a stronger statistical relevance.

Key words: *NIMV. COPD.*

CO46. SMOKING CESSATION HOSPITAL CONSULTATION – EXPERIENCE, RESULTS AND REFLECTION OF THE LAST 6 YEARS

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Cigarette smoking remains the leading preventable cause of death. Tobacco affects virtually every organ and is responsible for a large decline in quality of life and multiple comorbidities. The Smoking Cessation hospital consultation aims to assist smokers in the complete abandonment of smoking through several approaches. The aim of this retrospective study was to characterize the query of Smoking Cessation in our hospital over a 6 year period (2008-2013). In total 456 patients were observed, with the year 2013 presented the highest value of initial consultations with 114 patients. The percentage of men and women was balanced (50.2% vs 49.8%). Regarding education it was found that the highest percentages corresponded to patients with undergraduate (19.3%) and secondary education (16.9%). The median age was 49 years. Patients were mostly sent through Consultation of General Pulmonology (19.5%) but many also relied on its own initiative (18.6%). A significant percentage was provided by internal medicine (6.6%) and occupational health (5.9%). The average smoking history accounted for 46 Units Pack Year and most patients presented an intermediate degree of dependence (45%) or high (39.7%) and an intermediate degree of motivation (45.2%) and low (45, 8%). Regarding the target 77.4% left the consultation, 13.8% had follow-up and 8.6% were discharged. In therapeutic varenicline and nicotine replacements were the most used options. The percentage of patients who remained non-smoking after at least 12 months was 35.1% (160 patients). Our results are similar to others specialized centers in Smoking Cessation. Know the characteristics of our smoking patients and the results achieved makes us reflect and can help correct or change ways of acting in this type of queries so that the future success of the complete cessation can be achieved in a growing number of patients.

Key words: *Smoking cessation. Cigarette smoking.*

CO47. FACTORS THAT INFLUENCE THE SUCCESS OF SMOKING CESSATION

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Introduction: Smoking is the leading avoidable cause of disease, disability and premature death in developed countries. Smoking has been associated with various comorbidities that turn the smoking cessation more difficult to achieve.
Objective: Characterize the population of patients being followed at smoking cessation consultation as well as the factors that influence the success of this process.
Methods: A retrospective study was conducted by consulting medical files. Were included all patients followed between January 2003 and June 2014. Patients in the middle of cessation process, those who have abandoned the consultation without defining day for cessation, those who haven't presented conditions to cease as well as those who had already ceased before the first consultation were excluded. The statistical analysis was performed using SPSS® v20.
Results: We consulted 499 protocols and 385 of these were included in the study (corresponding to 382 patients), of which 56.4% were male, with a mean age of 47 years. The reason most often mentioned for coming to the appointment was health's concern. The main fears highlighted were: anxiety (40.1%), weight gain (30.4%) and fear of failure (18.3%). The majority of patients (60.1%) went to the consultation by a personal decision and had already attempted cessation before (72.5%). On average, the patients started their daily smoking habit at 17 ± 5 years and were smoking 22.5 ± 12.8 cigarettes/day. Only 35.6% had reduced the number of cigarettes smoked in the last month, and 75.8% were employed at the moment of the appointment. The majority of the sample had moderate dependence and motivation (57.9% and 65.7%, respectively). Fifty-eight percent of the sample had CO > 20 ppm in the first evaluation. The most frequent comorbidities were: dyslipidemia (46.8%), HTA (33.2%), psychiatric disease (29.4% - 92.9% of which with depressive syndrome) and COPD (21.6%). Seventy patients abandoned during the follow-up period (18.2%). 275 of the remaining patients started pharmacological therapy: 67.2% were treated with nicotinic substitutes, 14.5% with varenicline, 13% with bupropion in association with nicotinic substitutes, 4.3% with bupropion and 1% with varenicline with nicotinic substitutes and we registered a success rate of 36.8%; 57.5%; 36.1%; 58.3% and 33.3% with each method respectively. Approximately one third (33.7%) of attempts culminated in success and 46.6% in failure. It was also observed that the individuals unemployed/retired had less success (17.5% vs 82.5%, p = 0.036) by assigning a higher average value to the depression's component in HADS (6.3 vs 4.8, p = 0.012). Having previous attempts was associated with a higher probability of success (73.3% vs 25.8%) as well as the presence of lower levels of CO in exhaled air (p < 0.000). The presence of comorbidities, in particular, depressive syndrome and infection by HIV conducted to a lower success rate (p = 0.022; p = 0.025, respectively). The first ones showed a greater dependence when evaluated by the test of Fagerström (5.5 vs 6.2; p = 0.005).
Conclusions: The presence of comorbidities, particularly of psychiatric pathology as well as the unemployment were associated with a lower success rate during the process of smoking cessation. The use of pharmacological treatment increased the rate of success.

Key words: *Smoking. Smoking cessation. Sucess. Failure. Depressive syndrome.*

CO48. ANXIETY AND DEPRESSION IN COPD PATIENTS – RELATION TO THEIR CLINICAL AND FUNCTIONAL EVALUATION

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Introduction: Anxiety and depression are frequent comorbidities in COPD, leading to increased morbidity and impaired quality of life.
Objective: Evaluate the presence of anxiety and depression in the COPD patients and their relation to the symptoms, airflow limitation severity and exacerbations.
Methods: 100 consecutive COPD patients from the outpatient clinic of our Pneumology Department were stratified according to GOLD guidelines (GOLD groups and spirometric stages). Symptoms were assessed using the Modified Medical Research Council Dyspnea Scale (mMRC) and the COPD Assessment Test (CAT). The presence of anxiety and depression was evaluated through the Hospital Anxiety and Depression Scale (HADS).
Results: The mean age was 65 ± 9 years, 85% were male. From the total, 31 patients had anxiety and 45 had depression. The distribution of anxiety/depression according to spirometric stages or GOLD groups (using mMRC) is shown in the table 1. The exacerbation history and its relation to anxiety/depression showed that: the 7 patients of group C who had at least 2 exacerbations in the previous year, none had anxiety/depression; from the 27 patients of group D who had at least 2 exacerbations in the previous year, 52% had anxiety and 63% had depression. Almost of the patients with anxiety and depression had mMRC ≥ 2 and CAT ≥ 10 (29/31 and 44/45 respectively). The relation between anxiety and depression and the symptoms of COPD evaluated by mMRC and CAT is shown in the table 2 (p < 0,05):
Conclusions: Anxiety and depression are two significant comorbidities of COPD, being the severity of it symptoms (mMRC, CAT) a very important factor for both. Also, the frequency of these comorbidities was higher with worsening airflow limitation and the exac-

Table 1 - C048

	1 (n = 13)	2 (n = 31)	3 (n = 35)	4 (n = 21)	A (n = 16)	B (n = 21)	C (n = 14)	D (n = 49)
Anxiety (n = 31)	8%	29%	29%	52%	6%	43%	0%	43%
Depression (n = 45)	38%	35%	46%	62%	6%	71%	0%	59%

Table 2 - C048

	Anxiety	No anxiety	Depression	No depression
mMRC (mean)	3.1 ± 1	1.7 ± 0.9	2.9 ± 1	1.4 ± 0.7
CAT (mean)	23.3 ± 6.8	11.6 ± 5.5	21.4 ± 6.8	10.1 ± 4.5

erbation history had a contribution in the cases where significant dyspnea was present.

***Key words**: COPD. Anxiety/Depression. Symptoms.*

CO49. CHRONIC RESPIRATORY FAILURE IN OBESE AND NON-OBESE CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS UNDER NON-INVASIVE VENTILATION

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Introduction: Chronic obstructive pulmonary disease (COPD) and obesity are common and disabling health conditions with increasing prevalence worldwide. Both disorders are associated with increased death rate and also can cause chronic respiratory failure (CRF). Although obesity is a common co-morbid condition in COPD and more prevalent in these patients than in the general population, relatively little is known how it may affect the evolution of CRF. Non-invasive ventilation (NIV) is an effective treatment in restrictive diseases associated with hypercapnic respiratory failure as well as in obesity hypoventilation syndrome (OHS). Although the evidence is not strong, nowadays the most common indication for home NIV is COPD. Study objectives: The study was designed to compare obese and non-obese COPD patients who were under home NIV.
Methods: Retrospective study. Patients who received NIV between August 2011 and July 2014 at the Non-invasive Respiratory Care Unit of a university hospital (Pulido Valente Hospital), were registered in a hospital database and included for analysis. The diagnosis of COPD was confirmed by spirometry when the patient had reached clinical stability according to the criteria of the Global Initiative for Obstructive Lung Disease (GOLD). Obesity is defined as a body-mass index ≥ 30 kg/m^2 (WHO).
Results: During this period 41 out of 109 COPD patients, studied at this Unit during this period, were obese (37.6%; 35.6 ± 3.7 Kg/m^2; maximum 47.9 Kg/m^2). Between obese and non-obese COPD patients, there were no group differences in gender, mean cumulative smoking history, age, period of follow-up and NIV adherence. The mean postbronchodilator FEV_1 percent-predicted (46.5 ± 14.4 vs 33.8 ± 13.1%, p < 0.0001) and 6 min walk distance (267.6 ± 77.7 vs 230.5 ± 79.5 m, p < 0.001) were significantly higher in obese COPD. The prevalence of obstructive sleep apnea syndrome (OSAS) was much higher in obese COPD patients (n = 37: 92.5%) vs non-obese COPD patients (n = 26: 56.5%) (p < 0.0001). Eighteen obese patients with overlap syndrome had previously performed continuous positive airway pressure (48.6%) vs 7 non-obese overlap syndrome (26.9%). There were no differences in the prevalence of heart failure and bronchiectasis. Twenty-three obese COPD patients (56.1%) began NIV during admission with acute respiratory failure (vs n = 39; 57.4%). Eight obese patients (19.5%) died during the 3-year follow-up (vs n = 19; 27.9%) and 3 (7.3%) stopped NIV due to loss of criteria (vs n = 11; 16.2%). Although last $PaCO_2$ evaluated was lower in obese COPD patients (p < 0.0001), there was no difference between baseline $PaCO_2$. Last pressure support was significantly lower in obese COPD patients (14.4 ± 4.4 vs 18.3 ± 6.4 cmH_2O, p < 0.0001).
Conclusions: In obese COPD patients NIV tended to be implemented in patients with higher FEV_1 and with greater 6 min walk distance. These patients had significant improvement of hypercapnic respiratory failure with less pressure support. Obesity is associated with other conditions such as OSAS that can be a confounding factor. More studies are needed to evaluate the interaction between COPD, obesity and OSAS. Are we facing "another overlap syndrome" or are obesity and OSAS only comorbidities that increase the severity of chronic respiratory failure?

***Key words**: COPD. Obesity. Chronic respiratory failure. Non-invasive ventilation.*

CO50. ETIOLOGIC INVESTIGATION OF BRONCHIECTASIS IN PORTUGAL

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Introduction: Bronchiectasis are a clinical heterogeneous entity with multiple etiologies and clinical presentation patterns. An accurate determination of etiology, follow-up program and treatment regimen is essential since It can encounter different evolution and prognosis.
Objective: Characterize etiological investigation and follow-up of patients with bronchiectasis of unknown cause in Portugal.
Methods: It was elaborated and carried out an online survey that was sent to themembers of the Sociedade Portuguesa de Pneumologia with an electronic mail available.
Results: From a total of 700 forms sent we obtained 69 answers - corresponding to a 10% response rate. Data came from almost all geographical areas. Fifteen percent (15%) of the people polled said that there's a bronchiectasis specialized consultation in their workplace (total of 4 hospital centers). With respect to the complementary study exams for bronchiectasis, those more often demanded are: alpha-1-antitrypsin dosing (70% of the clinicians ask for this exam always or almost always), immunoglobulin (IgA, IgG, IgM) dosing (77%), immunoglobulin E (71%), immunology study (42%) and *Aspergillus fumigatus* serology (77%). On the other hand, some of the exams are never or only rarely requested: functional ciliary study (97%), nitric oxid dosing (94%), specific antibody dosing (89%), genetic study for cystic fibrosis (89%) and sweat test (48%). Regarding follow-up we asked the clinicians how often did they demanded microbiological sputum study and found out that 35% of them do it only during a clinical exacerbation.
Conclusions: The low response rate obtained (10%) can reflect either some inefficacy of the method (online survey) or the fact that the approach to this pathology is not routinely carried out by clinicians that refrain from answering. Despite of that it was possible to attain a global picture of clinical practice. We found out some discrepancies between the clinical practice and international guidelines. The infrequent use of some etiological diagnosis exams can correlate with their unavailability or lack of knowledge of their relevance. Therefore it may be useful to create a database that aggregates these data we tried to collect in order to provide a way for clinicians to better know the epidemiology of the region they work in and in which institutions certain exams can be obtained. More studies are necessary to elaborate a homogenous, accurate and efficient model to approach the patients with bronchiectasis.

***Key words**: Bronchiectasis.*

CO51. NON-CYSTIC FIBROSIS BRONCHIECTASIS: PROGNOSTIC FACTORS

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Introduction: Despite decline of Tuberculosis and advances in vaccination and antibiotherapy, non-cystic fibrosis bronchiectasis (non-CF BQ) keep causing significant morbidity. Prognostic value of several parameters such as respiratory function and the presence of resistant microorganisms has been established in previous stud-

ies. Red cell distribution width (RDW) is a biomarker with growing prognostic impact in conditions such as CAP, sepsis and AMI.
Objective: To assess mortality and prognostic factors for survival in a non-CF BQ population.
Methods: Retrospective analysis of clinical data from consecutive patients admitted with non-CF BQ, for a period of five years, and follow-up in outpatient until July 2014. Statistical analysis was performed using STATA® software v13.0. Survival was analyzed using the log-rank and Cox model. It was considered significant a $p < 0.05$.
Results: 89 patients (48 male) with a mean age of 60.5 years, with a mean follow up of 66 months. 31 died, with a median survival of 70.9 months; 60.3% had ventilatory functional changes (average FEV1 62%, average FVC 74.5%), 21 had resistant microorganisms in bacteriological examination of sputum, 25 had RDW > 15. It was found on multifactorial analysis that male gender, functional impairment, presence of resistant microorganisms, age > 75 years and RDW > 15 were predictors of increased mortality. This biomarker also predicted a statistically significant increase in the number of exacerbations.
Conclusions: We confirm with this study the interest of prognostic factors commonly reported in the literature. In light of our results, RDW should be a prognostic factor to bear in mind.

Key words: *Non-cystic fibrosis bronchiectasis. RDW. Prognosis.*

CO52. FACTORS INFLUENCING TUBERCULOSIS SCREENING IN HEALTHCARE WORKERS IN PORTUGAL

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Introduction: Healthcare workers are at particular risk of tuberculosis; compliance with screening and LTBI treatment is low.
Objective: To evaluate adherence to screening through a survey.
Methods: Cross-sectional study through a population survey, in the form of multiple choice questionnaire. The survey was oriented to health professionals and aimed to collected information on institutional practices of screening and prevention of TB, as well as adherence to them. It was anonymous, voluntary and digitally distributed through "snowball" method. Inclusion criteria were to be a nurse or physician.
Results: We obtained 2,414 responses, 399 didn't meet inclusion criteria: 2015 analyzed. History of TB in 44 (2.2%), 20 before beginning professional activity. 1,540 (76.4%) females, 1,133 (56.2%) nurses, aged 18-73 (mean 39.02 ± 10.60), 1,311 (65.1%) working in the north, in hospitals 1,324 (65.7%) and had curricular training in TB 1,699 (84.3%). Past history of TB in 44 (2.2%) half of which (n = 20) previous to the beginning of professional activity; 139 (6.9%) referred LTBI. 784 (39.5%) never screened, 741 (94.5%) weren't offered screening; 43 (5.5%) denied screening: 5 (11.6%) unavailable to screen, 13 (30.2%) saw no benefits in screening, 6 (14.0%) wouldn't treat LTBI and 8 (18.6%) other reasons; 12 (27.6%) didn't state a reason. Among those not offered screening, 580 (78.2%) would accept if offered, and 141 (19.0%) were either undecided or didn't want screening [fear from side effects 46 (32.6%), not believing in benefit of preventive treatment 18 (12.8%), uninformed decide 43 (30.5%) and other reasons 16 (11.6%)]. 1,187 (58.9%) were screened: positive in 139 (11.7%); 72 (51.8%) were treated, 47 (65.2%) after beginning professional activity. 67 (48.2%) did not treat LTBI, 12 (17.9%) were afraid of side effects, 5 (7.5%) did not believe benefit of treatment, 9 (13.4%) were not informed enough to decide and 16 (23.9%) stated other reasons. LTBI was diagnosed on routine screening in 50 (36.0%) and active post-exposure screening in 45 (32.4%). Post-exposure screening revealed higher numbers of LTBI than routine screening ($p = 0.003$), and treatment compliance was also higher post-exposure [OR: 2.9327 (1.7154-5.0137)]. The most screened individuals were intermediate aged [OR: 1.419 (1.097-1.836)] hospital-working [OR: 2.264 (1.833-2.798)] females [OR: 1.284 (1.033-1.597)] in non-surgical services [OR: 1.553 (1.195-2.020)] and previous TB exposure [OR: 1.858 (1.395-2.474)]; exposure occurred most frequently in older [OR: 1.705: (1.230-2.363)] non-surgical [OR: 1.553 (1.195-2.020)] hospital-workers [OR: 1.729 (1.253-2.387)]. Infection rates were higher in middle-aged [OR: 2.628 (1.713-4.031)] hospital-workers [1.745 (1.218-2.499)] in non-surgical services [OR: 2.398 (1.393-4.132)] and previously exposed to TB [OR: 2.053 (1.062-3.967)].
Conclusions: Major cause for not screening was it not being offered. Age class, inpatient workspace, exposure to TB and working in non-surgical service positively correlated with screening. Odds for LTBI were approximately double in post-exposure screening and treatment was almost triple than in routine screening. Adhesion to LTBI screening is not high among HCW, and seems to be higher when it is part of routine institutional screening. Adherence treatment is also low and fear from side effects is the most important factor. Screening after exposure has higher adhesion and yields higher rates of diagnosis and treatment compliance. Institutions should have more effective screening programs, and proper training should be implemented to all HCW allowing informed decisions to be taken.

Key words: *Tuberculosis. Latent tuberculosis infection. Healthcare workers. Screening.*

CO53. MOLECULAR CHARACTERIZATION OF *MYCOBACTERIUM TUBERCULOSIS* PHYLOGENETIC LINEAGES IN A GROUP OF LOW RISK TUBERCULOSIS PATIENTS FROM THE NORTH OF PORTUGAL

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Introduction: *Mycobacterium tuberculosis complex* (MTBC) comprises seven genetic lineages of bacteria with distinct phylogeographic distribution, each of which can be divided into sublineages. Recent reports have suggested a change of MTBC genetic diversity in Western Europe due to new migration flows. The present study aims to investigate the phylogenetic distribution of MTBC isolates collected from a group of low risk tuberculosis (TB) patients in a main hospital in the Porto area.
Methods: Socio-demographic, clinical and microbiological features of 681 patients attending the Centro Hospitalar São João, Porto, between 2007 and 2013, were collected. Known risk factors and comorbidities were excluded so that a group of 263 low risk TB patients was defined. MTBC strains from these patients were isolated and genotyped using single nucleotide polymorphisms (SNPs) as stable genetic markers to define the different lineages and sublineages. The presence of these genetic markers was determined by TaqMan SNP genotyping real-time PCR assays.
Results: Of the 263 patients analysed, most cases (96.2%) were Portuguese-born Caucasians. Male gender was predominant (69.2%) and mean age (± SD) was 48.7 ± 19.1 years. Drug resistance was present in 41 (15.9%) cases. SNP-typing revealed that 259 isolates

(98.5%) belong to Lineage 4 (L4 or Euro-American). Within L4, the sublineage LAM (Latin American-Mediterranean) represented 62.7% of the isolates. Among non-L4 isolates, 2 were Portuguese-born Caucasians, 1 was African and 1 Asian.
Conclusions: We show a highly homogeneous phylogenetic composition of MTBC in a population of north of Portugal, whereL4 and LAM sublineage dominate. This predominance remained stable across the years analysed. The methods used in this study appear well suited to monitor the MTBC population structure in Portugal.
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Key words: *Tuberculosis. Lineages. Phylogeography. Genotyping.*

CO54. PULMONARY TUBERCULOSIS: INFORMATION TO KNOW, PLAN, AND ACT – EPIDEMIOLOGICAL STUDY, COIMBRA'S DISTRICT, 2000-2011

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Introduction: 24th March 1882, Robert Koch identified *Mycobacterium tuberculosis* as the causative agent of tuberculosis (TB). It is still one of the main causes of death worldwide by infection disease, preventable, and in most cases treatable. The importance of active case finding among high-risk groups in low incidence settings, and their proper understanding for programmatic approaches, has led to the development of this epidemiological study in order to assess in Portugal, in the Coimbra District, the Pulmonary TB cases notified between 2000 and 2011.
Methods: There were 556 cases of pulmonary TB retrospectively enrolled notified on SVIG-TB, corresponding to the study population (pulmonary TB cases, residents in the Coimbra District, between 2000-2011). The clinical records of the included patients were reviewed. Various parameters of the patients were analyzed such as previous treatment history, demographic, socioeconomic, and associated diseases data. Patient clinical variables were analyzed using descriptive statistics.
Results: Cases notified under 15 years of age, declined from 1.8% in 2000, to 0% in 2011. Above 75 years, they rose since 2005 (6.6%) till 2011 (20.7%). The native born cases represent 490 (88.1%) of the cases notified. There were 66 (11.9%) foreign-born TB cases, which presented a rise on the annual rate, between 2001 (11.4%) and 2004 (21%). The 3 most frequent diseases on TB patients are: Human Immunodeficiency Virus infection (HIV) (23.1%), diabetes (6.9%), hepatitis C infection (6.4%). The clinical records reviewed showed an HIV test in 30.4% (169/556) of the cases enrolled. Diabetes shows a rising rate in TB cases, from 5.8% in 2000, to 10.3% in 2011. Alcohol among the TB cases rose from 16.4% in 2000, to 31% in 2011, with the highest of 41.9% in 2007. The proportion of TB cases with drug abuse declined from 7.3% in 2000, to 3.4% in 2011. Those considered active smokers showed a steady proportion (32.7% in 2000, and 31% in 2011) with the highest of 54.5% in 2009. The rate of cases who reside in shelters rose from 3.6% in 2000 to 10.3% in 2011. Among the cases in health workers, 45.8% (11/24) were nurses. In 2011 most of the new cases correspond to the 35-64 age group (44.7%), with 31% older than 65 years.
Conclusions: An assessment of the epidemiological situation, in the Coimbra's District is essential to plan its local TB programme. Today's economic, and social crisis remind us that the conditions for TB resurgence are still present: poverty (higher likelihood of being exposed to crowded, less ventilated places, and malnutrition), addictive behaviors (alcohol, injection drug abuse), and HIV infection. These are reasons important enough to assure a close monitorization of the disease burden, which may be used to define risk groups for active screening.

Key words: *Pulmonary tuberculosis. Epidemiology. Coimbra District. Screening.*

CO55. BIOLOGICAL THERAPY AT VENDA NOVA'S CENTRO DE DIAGNÓSTICO PNEUMOLÓGICO (CDPVN)

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Introduction: In several immunological diseases the treatments of choice is biological therapy (anti-TNF alfa or anti-interleukines). These interfere with TNF alfa and other cytokines function in the immunological response, thereby increasing the risk of active tuberculosis (TB) by reactivating latent TB. In 2006 the first guidelines for the diagnosis and treatment of latent and active TB in candidates for biological therapy were published in Portugal, these were reviewed in 2012.
Objective: To compare 2 groups of patients (pts) – one assessed according to 2006 guidelines and other according to the 2012 guidelines, and to verify if there were differences in action and results.
Methods: 150 pts were evaluated, 75 according to the 2006 guidelines and 75 according to the 2012 guidelines.
Results: Of the 75 pts of the 2006 group, most had rheumatoid arthritis (38.7%), psoriasis (18.7%) and Crohn disease (12%). Only 6 pt (8%) were evaluated at diagnosis of immunological disease. In none were diagnosed active TB; 51 pts made IGRA test (17 positive – 33.3%); 40 (53.3%) were submitted to treatment to latent TB. Of these, 18 (45%) would have not been submitted to treatment according to 2012 guidelines. None of the pts has developed active TP to the moment. Of the 75 pts of the 2012 group, mostly had psoriasis (40%), rheumatoid arthritis (25.3%) and ankylosing spondylitis (13.3%). Only 1 pt was evaluated before classic treatment. In none was diagnosed active TB; 46pts made IGRA test (12 positive – 26.7%); 40 (53.3%) were elected for latent TB treatment. Thirty six pts did not have criteria for treatment. None has developed active TB to the moment.
Conclusions: Unlike the recommendations, most of the patients were not evaluated previously to the beginning of classic treatment. Although the differences between guidelines, a similar number of pts was submitted do treatment in both groups, but those in the 2012 group were better selected according to the respective guidelines. At the moment, none of the 150 pts has developed active TB.

Key words: *Latent tuberculosis. Anti TNFalfa. Guidelines.*

CO56. HIV SCREENING IN TUBERCULOSIS PATIENTS, IN THE NORTHERN REGION OF PORTUGAL

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Introduction: Portugal is the only western European country with an intermediate incidence of tuberculosis (TB) with a TB/HIV co-

infection rate above the European average. HIV infection is a challenge to diagnosis, course and treatment of TB and TB is one of the lead causes of death in HIV patients. Concerning the National Program for TB control, the Portuguese health authorities determined that HIV screening must be performed in all patients with TB diagnosis. However it is far from being accomplished.
Objective: Identify which determinant factors are associated with an unknown HIV-status in TB patients from the Northern region of Portugal.
Methods: We identified cases of active TB reported between 2006 and 2012, in the Northern region of Portugal. We considered 14 variables (sex, age, year of report, HIV status, country of origin, region, co-morbidities, alcohol abuse, injecting drug use, prison, homeless, community residence, main TB location, chest radiograph) and chi-squared test and Fisher test were performed to evaluate the statistical significance. A Logistic regression model was then used with a subset of variables to evaluate the differences between two groups: known HIV-status and unknown HIV-status.
Results: During the period referred above 7,683 cases were reported, 879 (11%) with an unknown HIV-status. Unknown HIV-status was associated witholder individuals (OR: 2.77, 95%CI = 1.722-1.805) and living outside the city of Porto (OR: 2.77, 95%CI = 2,348-3,252). Patients having one or more co-morbidities (OR: 0.72, 95%CI = 0.606-0.885) and with alcohol or drug abuse (OR: 0.66, 95%CI = 0,481-0,765) were those who had more HIV screening tests performed.
Conclusions: HIV-status is usually unknown in older patients and those who live outside the city of Porto. Therefore it is necessary to understand the reasons behind this problem and promote strategies to solve it.

Key words: *Tuberculosis. HIV. HIV screening test.*

CO57. A PREDICTION RULE TO STRATIFY MORTALITY RISK OF PATIENTS WITH PULMONARY TUBERCULOSIS IN THE ABSENCE OF COMORBIDITIES

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Introduction: One of tuberculosis hallmarks is the difference in outcomes observed in patients, calling for the importance of developing clinical severity prediction models. Only a few studies have associated clinical features with tuberculosis risk prediction. This study aims at developing a clinical prediction rule to stratify mortality risk among patients with pulmonary tuberculosis in the absence of known risk factors.
Methods: Socio-demographic, clinical, radiographic and microbiological variables were analysed in 681 tuberculosis cases diagnosed between 2007-2013. A cohort of 240 pulmonary tuberculosis patients without significant comorbidities was selected and a clinical scoring system based on a multiple logistic regression analysis of prognostic variables with six-month mortality as the outcome measure was developed.
Results: We selected a homogenous population, composed mainly of Portuguese-born Caucasians infected with lineage 4 *Mycobacterium tuberculosis* strains. The factors significantly associated with death were increasing age, alcohol abuse, highly symptomatic disease, hypoxemic respiratory failure, low hemoglobin, high C-Reactive Protein, lung cavitation > 4 cm, bilateral alveolar consolidation, pleural effusion and overall advanced disease on chest X-ray evaluation. After stepwise logistic regression, only four independent variables were retained in the final model: age ≥ 65 years (OR 5.17, 95%CI 1.85-14.56), hemoglobin < 12 g/dL (OR 4.15, 95%CI 1.47-11.76), bilateral alveolar consolidation (OR 7.76, 95%CI 1.95-30.89) and pleural effusion (OR 4.53, 95%CI 1.63-12.57). A clinical score assigning one point for each of these variables was derived, allowing patients stratification with low-risk (score 0 to 1) and high-risk (score ≥ 2) for death. Scores of 0, 1, 2, 3 and 4 points were associated with a mortality of 0%, 2.2%, 12.7%, 36% and 75%, respectively. The ROC curve demonstrated a good fit (AUC: 0.85; 95%CI 0.77-0.92).
Conclusions: We provide a new clinical scoring system to stratify low risk pulmonary tuberculosis patients. This prognostic score may help clinicians decide which patients should be closely supervised during treatment.
Acknowledgement: We acknowledge the Fundação Amélia de Mello/José de Mello Saúde and Sociedade Portuguesa de Pneumologia (SPP) for financial support. This work is co-funded by Programa Operacional Regional do Norte (ON.2 – O Novo Norte), Quadro de Referência Estratégico Nacional (QREN), through the Fundo Europeu de Desenvolvimento Regional (FEDER).MS is an Associate FCT-Investigator. MIV and NSO are postdoctoral fellows from FCT.

Key words: *Tuberculosis. Mortality. Risk factors. Clinical prediction rule.*

CO58. TUBERCULOSIS AND EXTRAPULMONARY INVOLVEMENT: HOSPITALIZATIONS ON A HOSPITAL UNIT, 14 YEARS EXPERIENCE

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Introduction: Although Tuberculosis is primary a pulmonary disease, it can affect any organ, translating into a variety of clinical manifestations with increased diagnostic challenges. From 2002 to 2011 it was notified on the European Economic Area 167.652 cases of strictly extrapulmonary tuberculosis and 49.153 cases of extrapulmonary tuberculosis (EPTB) with pulmonary involvement.
Objective: Characterization of the interned patients of a hospital unit with Tuberculosis with extrapulmonary involvement diagnosed during the internment.
Methods: Retrospective analysis of the clinical records of the patients with Tuberculosis diagnosed during the internment, between 2000 and 2013. The cases where divided, according to the "European consensus on surveillance of tuberculosis-1996", in 3 groups – "pulmonary tuberculosis only", "EPTB only" and "EPTB and pulmonary Tuberculosis" - consisting the final sample of patients from the last 2 groups. Inclusion criteria were a confirmed diagnosis (positive culture for *Mycobacterium tuberculosis* [MT] or detection of acid-fast bacilli [AFB] in the microscopy and nucleic acid amplification test [NAAT] for MT positive) or probable diagnosis (detection of AFB in the microscopy, NAAT positive for MT, caseating granulomas in the biopsy sample or compatible cytological and biochemical characteristics of biological liquid). Demographic, clinical, laboratory, and intrahospitalar evolution data was collected. The statistical analysis was done with SPSS.
Results: Were diagnosed 369 cases of tuberculosis, of which 252 referring to "pulmonary only tuberculosis", 65 EPTB only and 52 EPTB combined with pulmonary. From 117 cases with extrapulmonary involvement 89 were men, the average age was 53.1 ± 19.9

years and 43% presented smoking habits. The most prevalent Tuberculosis risk factors were alcoholism (21.4%), smoking/COPD (19.7%), immunosuppression (12.9%), diabetes mellitus (7.8%) and chronic kidney disease (6.8%). It was verified a HIV co-infection on 9.4% of the patients, although this wasn't searched on 47.9%. The most frequent extrapulmonary locations were the pleural (58.1%), disseminated (17.1%), lymphatic (7.8%), meningeal (5.1%), gastrointestinal (3.4%), pericardial (2.6%), genitourinary (2.6%), musculoskeletal (1.7%), bone marrow (1.7%), cutaneous (0.9%) and splenic (0.9%). "Organ specific" symptoms were referred in 87.1% of the cases and systemic symptoms in 82.9%. The median in-hospital diagnostic time was 7 days. On 70.9% of the cases the diagnostic was "confirmed" and on 29.1% "probable". Microbiological culture isolation was obtained in 82 cases from which 53 on extrapulmonary samples, the most frequent the pleural liquid, lymphatic nodes, urine, cerebrospinal fluid and blood. In 80.3% of the cases the "standard" quadruple therapy was the first line treatment. Sixteen patients showed adverse effects to the antibacillary drugs, namely hepatic toxicity in 14. The median length of stay was 22 days, with an intrahospitalar mortality of 4.3%.
Conclusions: Tuberculosis is a multisystemic disease, translated in this study by the variety of extrapulmonary locations, more frequently the pleural, comparably to other works. Some risk factors for Tuberculosis were identified in this sample, though the "HIV status" investigation wasn't systematically done. The microbiological isolation proportion was lightly higher than the described. The most used treatment scheme was the "standard" for the pulmonary tuberculosis and the intrahospitalar complications and mortality rate was low.

***Key words**: Extrapulmonary tuberculosis. Hospitalization. Mortality.*

CO59. NATIVE AND FOREIGN BORN POPULATIONS HAVE DIFFERENT RISK FACTORS FOR TB IN PORTUGAL

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Introduction: Tuberculosis (TB) is a major global health problem, with an estimated 8.6 million cases and 1.3 million deaths in HIV-negative people in 2012 worldwide. Over the last 20 years, although industrialized countries have shown changes in overall TB notifications, they share a similar pattern: decreasing incidence in native population and increasing incidence in foreign-born population. There is a variation in the methods used for controlling TB in these populations among different countries.
Objective: Characterize the risk factors associated with TB among native and foreign-born tuberculosis patients between 1 January 2008 and 31 December 2012 in Portugal.
Methods: Retrospective case-control study to characterize the risk factors associated with tuberculosis among native and foreign-born population in Portugal. The medical records of all TB cases notified between the 1 January 2008 and 31 December 2012 were analyzed. We identified all foreign-born patients and selected the controls between native-born patients, randomly in a relation of 1:2. Variables analyzed included: gender, age, employment situation, comorbidities, HIV infection, alcohol or other drugs abuse, reclusion, homelessness or living in a shelter. Exclusion criteria: invalid or missing information. Multivariate conditional logistic regression was used to identify independent characteristics in foreign-born.
Results: We analyzed 2,092 foreign-born and 4,294 native-born patients. The majority of the foreign-born came from: Africa (1,484), South America (209), Eastern Europe (197) and Asia (104); 1,362 (65%) of them were male with mean age 35.99 years (± 15.78). The native population had 2,722 males (63%) with mean age 45.34 (± 20.86). HIV positivity [adjusted odds ratio (OR): 2.143; 95%CI: 1.643-2.796], homelessness or living in a shelter (OR: 2.174; 95%CI: 1.303-3.626) were the risk factors more frequently found in foreign-born cases; drug abuse was less frequently found in foreign-born cases (OR: 0.328; 95%CI: 0.229-0.470) and employment was more frequent among the foreign born group (OR: 1.458 95%CI: 1.204-1.764). The outcome of the disease and the time between the onset of symptoms and diagnosis were not statistically different between the 2 groups (p = 1).
Conclusions: The outcome and the period between symptom and diagnosis did not differ between the two studied groups. The risk factors associated with TB cases are different between the two populations. There is a need to define different strategies in these two populations.

***Key words**: Tuberculosis. Risk. Foreign-born populations. Portugal.*

CO60. IMPACT OF A CASE OF TUBERCULOSIS IN A RESTRICTED COMMUNITY

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Introduction: Tuberculosis is a disease known for centuries and established treatment, but it continues to be an expression of something that is socially reprehensible. Prejudgment interferes with the acceptance and compliance of medication as well as with the understanding of family and work colleagues.
Objective: Evaluate the impact of a case of pulmonary tuberculosis in a restricted population, in this case a military unit.
Methods: Retrospective analysis of clinical files throughout the community that has been in contact with patients with pulmonary tuberculosis. Sex, age, kinship/ professional relationship, Mantoux test, IGRA test, chest X-ray, number of persons indicated for treatment of latent tuberculosis and active tuberculosis, and the side effects of medication. We also assessed files of patients that refused to undergo treatment and those who expressed disapproval with the clinical condition of the patient.
Results: 88 cohabitants were included, 81 men and 7 women, with a mean age of 45 years (minimum of 8 and maximum of 74). This study included 81 coworkers and 7 kinsfolk. The first Mantoux test was positive in 76.1% of cases and the second, carried in certain cases three months later were positive in 15.9%. The first IGRA test was positive in 34.1% and 4.5% in the second. The chest radiograph showed changes in only one patient. 38.6% of cohabiting persons had indication for treatment for latent tuberculosis infection and in 1.1% for the treatment of active tuberculosis. In the former group, 17.6% did not undergo treatment, either by refusal (11.8%) or because they already done so in the past. 17.2% had side effects of antibacillary medication, such as pruritus, nausea and increased transaminases. Only in one case was it necessary to discontinue treatment. Finally, 65.9% expressed distaste for having to contact with a patient with pulmonary tuberculosis.
Conclusions: The authors emphasize the high percentage of cohabitants who expressed dissatisfaction with the patient's diagnosis (65.9%) and those who refused to follow the treatment of latent tuberculosis infection (11.8%). We highlight, in this case, that it was necessary to hold a lecture in the patients workplace, for clarification of doubts and fears, aiming to reduce the nervousness and discontentment that were prevailing at the time, therefore avoid-

ing prejudices manifested more or less veiled by some co-workers. We conclude that the social stigma of this disease is still deeply ingrained in our society.

Key words: *Tuberculosis. Stigma. Prejudice.*

CO61. TUBERCULOSIS – THE PROFILE OF THE NON-COMPLIANT PATIENT

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Introduction: Tuberculosis remains a major global health problem. It ranks as the second leading cause of death from an infectious disease worldwide, after the HIV. Roughly one-third of the world's population has been infected with *M. tuberculosis*, and new infections occur at a rate of one new infection per second.
Objective and methods: Retrospective study carried out in a center for control and prevention (CDP) of tuberculosis in Portugal, with the aim of identifying patients who abandoned the anti-tuberculosis therapy in the past 10 years. Evaluation of the epidemiological profile, as well as the main causes of dropout, in this group of patients.
Results: In the past 10 years, 21 patients abandoned the anti-tuberculosis therapy, in the CDP of Coimbra. 67% were males, and the mean age was of 47.01 years (± 19.2). Moreover, 67% of these patients had pulmonary tuberculosis, and the remaining had extra-pulmonary sites of infection (lymph nodes, pleura and osteoarticular). In 52% of the cases, the sputum examination for tuberculosis by direct microscopy was positive, and in 48% the culture was positive. These patients fulfilled on average 4.35 months of treatment before abandoning the medication. The majority of patients had social problems associated with chronic alcoholism, drug abuse and unemployment, having abandoned the consultation. It was also a group of patients with associated pathologies, including psychiatric problems, HIV positive patients (24%), and 3 cases with a history of tuberculosis in the past. In 19% of cases, symptoms of dizziness, nausea and malaise led to the dropout.
Conclusions: Bad therapeutic compliance is associated with several factors and the adherence to therapy is a chain of responsibilities including patients' behaviour and socio-economic status, health care workers' conduct and society's outlook. Compliance is one of the most important factors that affect the outcome, so it is essential to reinforce the role of therapeutic compliance to all patients, specially the most difficult patients.

Key words: *Tuberculosis. Non-compliant patient.*

CO62. RARE PRESENTATIONS OF *MYCOBACTERIUM TUBERCULOSIS* INFECTION – EIGHT YEARS AT A PORTUGUESE CLINICAL CENTER

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Introduction: Pulmonary tuberculosis is the most frequent manifestation of Mycobacterium tuberculosis infection (MTI), but it can affect every part of the body, with lymph nodes as the most common extrapulmonary location.
Objective and methods: To compile and characterize cases of rare presentations of MTI, clinical information from patients treated in Coimbra's Diagnostic Pulmonology Center between 2004 and 2012 was revised.
Results: The authors found 17 cases of rare MTI presentations, none with concomitant pulmonary involvement, and only one case associated with HIV infection. Nine patients had skin, mucosa and/or soft tissue involvement, from which we highlight MTI of a traumatic wound of the right index finger, one penile, one in labial mucosa, and three abscesses (arm, suprascapular and neck); two cases affecting lacrimal gland; two patients with peritoneal tuberculosis; a case of pericardial involvement; a patient with thyroglossal duct infection; a patient with ovarian infection; and finally a uterine tuberculosis. Time elapsed between first symptoms and diagnosis was 4.2 ± 3.0 months (minimum: 1.5; maximum: 12 months). Diagnosis was obtained through *Mycobacterium tuberculosis* identification in biological samples (culture or molecular biology techniques) in 47% of cases; in the others, diagnosis was based on the pathological study. Five patients underwent surgery before being diagnosed [peritoneal (2), pericardial, ovarian and uterine tuberculosis], and all the other were studied as outpatients. Most individuals completed 9 month regimen therapy with first line drugs (76.4%). Two patients died before concluding the treatment, unrelated to complications of the disease or therapy.
Conclusions: Mycobacterium tuberculosis infection must be considered in any organ, particularly when most frequent diagnostic hypotheses are not confirmed. Timely diagnosis allows an effective and safe treatment, through similar regimens to those of pulmonary tuberculosis.

Key words: *Tuberculosis. Rare presentations.*

CO63. CHILDHOOD TUBERCULOSIS – FROM DIAGNOSIS TO TREATMENT DECISION

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Introduction: Childhood tuberculosis is a major public health problem because it means recent infection. As shown by previous studies, if we invest more in diagnosing children below 6 years old, active tuberculosis (TB) is confirmed in about 50%. However, there is a low confirmation rate - 19,2% in Europe in 2009 and 27,6% in Portugal from 2000 to 2009.
Objective: To identify epidemiologic, clinical and imagiologic criteria to start anti-tuberculosis treatment without micobacteriological confirmation in children below 6 years old.
Methods: Transversal study with an online survey to medical doctors and researchers in Portugal that work with TB.
Results: Sixty-five questionnaires was sent and 29 were completed. Physicians were from different medical specialties: 38% Pneumology, 34% General medicine, 21% Pediatrics and 7% from other medical areas. 64% of respondents initiated antibacilar treatment without diagnostic confirmation in this age group. They valued history of exposure (72%), imagiological abnormalities (62%) and clinical history (55%). TST/IGRA was considered the most important factor for about half of the respondents (55%). When the child had symptoms, TST was considered extremely important by 41% to diagnose TB and IGRA was considered extremely important by 28% in that situation. Concerning epidemiological context, history of exposure (86%), immunodeficiency (59%) and country of origin with high TB prevalence (55%) were considered the most important data in the decision to initiate treatment. Concerning radiological manifestation, 76% of respondents considered chest radiography and 33% considered CT scan as the most important test. To diagnose

active TB with CT scan, nodules and cavities (96%), adenopathies (41%) and pleural effusion (41%) were considered extremely important. Tree-in-bud appearance (63%) and bronchial narrowing (56%) were considered very important. About half (55%) considered consolidation/atelectasis as medium importance. Concerning clinical context, sustained fever (55%) and respiratory symptoms (41%) were considered extremely important, while failure to thrive (55%) was considered important in the decision to initiate treatment.
Conclusions: When facing a child with TB suspicion without micobacteriological confirmation, the decision to initiate antibacilar treatment was mainly based in contact history, clinical history (mainly sustained fever) and the presence of abnormal radiological findings. TST continues to be very valued by medical doctors and investigators in this population.

Key words: *Tuberculosis. Children. Diagnosis. Treatment.*

CO64. NON-SMALL CELL LUNG CANCER IN OCTOGENARIANS - COMPARATIVE ANALYSIS OF SURGICAL STAGES OPERATED AND NON-OPERATED

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Introduction: Non-small cell lung cancer (NSCLC) is a common disease in elderly people and has been increasing its incidence with population aging. Surgery is the treatment of choice in early stages, and is potentially curative. Data suggests that at this age, in selected patients, surgery gives acceptable results.
Objective: Comparative analysis of octogenarian patients with NSCLC in surgical stages, operated and non-operated.
Methods: Retrospective study of 1292 patients diagnosed with lung cancer conducted in a central hospital between 01/07/2009 to 30/06/2014. Were only analyzed patients followed in pulmonary oncology department, aged ≥ 80 years, and surgical stages (I and II) operated (OP) and non-operated (N-OP).
Results: We identified 22 patients with NSCLC aged ≥ 80 years in surgical stages, 27.3% (n = 6) OP and 72.7% (n = 16) N-OP. Male patients were 66.7% (n = 4) in OP vs 87.5% (n = 14) in the N-OP (p = 0.28). The mean age was 82.7 ± 2.4 years in OP vs 82.9 ± 2.9 years in N-OP (p = 0.84). Regarding smoking history, 50.0% (n = 3) of OP were former smokers vs 62.5% (n = 10) in N-OP; 33.3% (n = 2) were non-smokers in OP vs 12.5% (n = 2) in N-OP; smoking history was unknown in 16.7% (n = 1) in OP vs 18.8% (n = 3) in N-OP; active smoking only in N-OP, 6.3% (n = 1). All N-OP patients had relevant comorbidities compared to OP. The average delay from onset of symptoms to histological/cytological diagnosis was 2.8 ± 2.9 months in the OP vs 3.9 ± 4.4 months in the N-OP (p = 0.63). It was identified adenocarcinoma in all OP patients (n = 6) vs 31.3% (n = 5) in the N-OP; in remaining N-OP patients, histological types were squamous cell carcinoma in 62.5% (n = 10) and NSCLC not otherwise specified in 6.3% (n = 1). In the evaluation of initial performance status (PS) by groups: PS 0 in all OP; in N-OP group, 75.1% (n = 12) were PS 0 and 1, 12.5% (n = 2) PS 2 and 12.6% (n = 2) PS 3 and 4.The mean survival was 14.7 ± 11.6 months in OP versus 15.3 ± 13.8 months in the N-OP, p = 0.92. In both groups, the rate of survival to 1 year was 50%.
Conclusions: Although data in the literature suggest that surgery gives acceptable results in survival of octogenarian patients in surgical stages, in our sample there was no statistically significant difference in survival between those who underwent surgery and those who were not. This result may be due to the small sample size.

Key words: *Non-small cell lung cancer. Octogenarians and surgery.*

CO65. CHARACTERIZATION OF T CELLS SUBSETS AND TNF-ALPHA LEVELS IN NON-SMALL CELL LUNG CANCER PATIENTS UNDER RADIOTHERAPY TREATMENT

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Introduction: Lung cancer (LC) is a disease with a poor prognosis once diagnosed, making it a very aggressive cancer with high mortality. LC can be classified into two types: Small cell lung cancer (SCLC) and Non-Small cell lung cancer (NSCLC). This last one includes adenocarcinoma, squamous-cell lung carcinoma, and large-cell lung carcinoma, each with its subtypes. Chemotherapy and radiation therapy (RT) are standard therapeutic modalities for patients with cancer, including LC. It is well known that RT recruits biological effectors that may have systemic effects as result of treatment. Non-cancerous cells surrounding the tumor (fibroblasts, pro-inflammatory leukocytes and vasculature cells) may play a pivotal role in determining the progression of cancer, as well as its metastasis. Recruitment of cells from the immune system as well as the type of immune response may influence the therapeutic outcome.
Objective: The purpose of this study was to evaluate T Cells subsets and Tregsas well as TNF-α in NSCLC (adenocarcinoma) patients after external beam RT.
Methods: A group of 10 NSCLC patients was studied immediately before radiotherapy (T0), half-treatment (T1) and 30 days after the end of treatment (T2), blood samples were collected to $EDTAK_3$ and dry tube. Blood samples were analyzed by flow cytometry for CD3, CD4, CD8, CD19, CD56, CD25, CD127, FoxP3, CD31 and CD45RA expression. TNF-α levels were evaluated using an immunoassay (ELISA).
Results: In patients we observed a statistically significant decrease in CD4+ T cells, regarding double negative (DN) (CD4-CD8-) T cells and Natural Killer (NK) (CD56+) cells an increase was observed although not statistically significant. B (CD19+) cells decreased during treatment, from T0 to T1 recovering significantly at T2.Tregs (CD4+CD25+CD127+FoxP3+) cells increased significantly. At T2, CD45RA+CD31-Tregs decreased, although not statistically significant. There was an increase in TNF-α level in NSCLC patients from T0 to T1 decreasing at T2.
Conclusions: The observed significant changes in Tregs, going together with non-significant alterations of NK and DN T cells as well as in TNF-α level after RT, may suggest an attempt to decrease/regulate inflammation, in this group of patients, explaining the obtained results. The significant difference for T cells and specifically within Tregs, together with no significant changes in NK and DN T cells as well as in TNF-α levels, this last one increasing from T1 and decrease to T2 may suggests a possible polarization of a Th2

immune response, as well as an attempt to reduce and/or regulate inflammation in this group of patients, thus explaining the results we obtained.

Key words: *Lung cancer. Radiotherapy. T cells. Natural Killer cells. TNF-alpha.*

CO66. EPIDERMAL GROWTH FACTOR RECEPTOR (EGRF) MUTATION IN LUNG CANCER: ANALYSIS OF PATIENTS AT INSTITUTO PORTUGUÊS DE ONCOLOGIA FRANCISCO GENTIL DE COIMBRA, EPE (IPOFGC, EPE)

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Introduction: EGFR mutation testing is recommended in advance stage lung adenocarcinomas. Clinical characteristics are not sufficiently sensitive or specific to select patients for testing. In 2011, International Association for the Study of Lung Cancer (IASLC)/ American Thoracic Society (ATS)/European Respiratory Society (ERS) published a new pathologic classification for lung adenocarcinomas with recognized prognostic value. One of the new aspects of lung cancer diagnosis is the need to have sufficient tissue not only for morphological diagnosis but also for immunohistochemistry and molecular studies.
Objective: Describe the population of lung cancer patients, positive for EGFR mutation in IPOFGC.
Methods: We reviewed clinical records from patients screened for EGFR mutation from June 2011 to July 2014. We collected information regarding age, gender, smoke history, ethnicity, oncology history, diagnose method, TNM staging (7th Edition of TNM for Lung Cancer), pathology classification (2011 IASLC/ATS/ERS classification) and EGFR mutational profile. The genetic study was performed by direct sequencing of polymerase chain reaction -amplified genomic DNA that corresponds to exons 18 to 21.
Results: There were 118 requests, but 31had inadequate material for study. In the 87 patients with adequate material, 10 (11%) were positive for mutation. In this group, we found a predominance of female, Caucasians, non-smokers and median age of 63,5 years. The TMN staging groups were IV (8) and IIIB (2). Pathologic diagnose were obtain by surgery in 3 patients and by small biopsies in 7. The resection specimen was lung in one patient (adenocarcinoma in situ non mucinous) and lymph nodes in two (metastasis of carcinoma with immunohistochemical profile suggesting adenocarcinoma). The small biopsies were obtained in lung with predominant patterns: mucinous (3), acinar (2), lepidic (1) and non-small cell adenocarcinoma not otherwise specified (1). Eight patients showed mutation in the exon 19; one patient in the exon 18 and one in exon 21. The most frequent deletion in exon 19 was del746-750. The mutation in exon 18 was G719S. The mutation in exon 21 was Leu-861Glu.
Conclusions: We found a very significant number of cases with inadequate material for testing (26%), which had limited our results and conclusions. Concerning, the clinical characteristics, our results were expectable. We found no reasonable for screening IIIB stage. Pathologic diagnose was obtain in small biopsies in 70% of cases, which is in accordance with the literature. EGFR mutation were detected in several histological patterns. There was a predominance of low-grade adenocarcinomas, which emphasize the predictive value of the 2011 IASLC/ATS/ERS classification. The deletions found in exon 19 are common. The deletions in exons 18 and 21 are less common. All of them correlate with TKI sensitivity in vitro. In the future, we hope to improve the communication between pathologist, pulmonologist, thoracic surgeon and oncologist. Our major objective is to improve the number of patient with adequate material for study and refine screening criteria.

Key words: *Lung cancer. Adenocarcinoma. EGFR.*

CO67. NON-SMALL CELL LUNG CANCER IN ADVANCED STAGES - COMPARATIVE ANALYSIS BETWEEN YOUNG ADULTS AND OCTOGENARIANS

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Introduction: Lung cancer is the leading cause of cancer death worldwide, and in most cases the patient is in advanced stages, precluding curative treatment, which justifies a low rate of survival at 5 years. Some studies suggest increased aggressiveness and poorer prognosis in younger adults comparing with elderly patients.
Objective: To identify and characterize the population of patients with non-small cell lung cancer (NSCLC) in advanced cancer stages at extreme ages.
Methods: Retrospective study of patients with NSCLC in initial stages IIIB or IV, and age ≤ 45 years [younger group (YG)] or ≥ 80 years [elderly group (EG)] followed in Pulmonology Oncology consultation in central hospital from 07/01/2009 to 06/30/2014. We carried out a comparative analysis between the groups.
Results: Of 1,292 patients with lung cancer, were identified 11 patients with NSCLC stage IIIB or IV in YG and 61 in EG. Male patients were 63.6% (n = 7) in YG vs 77% (n = 47) in EG, p = 0.35. With regard to smoking history, 72.7% (n = 8) were smokers in YG vs 16.4% (n = 10) EG; 27.3% (n = 3) were non-smokers in YG vs 9.8% (n = 6) EG;in EG 47.5% (n = 29) were ex-smokers, and 26.3% (n = 16) were with unknown smoking history. The median delay time from symptom onset to histological/cytological diagnosis was 2.0 months in both groups, p = 0.82.Adenocarcinoma was identified in 63.6% (n = 7) in YG vs 52.5% (n = 32) in EG; squamous cell carcinoma in 18.2% (n = 2) in YG vs 41.0% (n = 25) in EG; NSCLC not otherwise specified in 9.1% (n = 1) in YG vs 6.6% (n = 4) in EG; large cell carcinoma 9.1% (n = 1) in YG. The assessment of initial performance status (PS) by groups: PS 0 and 1 in 45.5% (n = 5) in YG vs 55.7% (n = 34) in EG;PS 2 in 36.4% (n = 4) in YG vs 16.4% (n = 10) in EG;PS 3 in 18.2% (n = 2) in YG vs 14.8% (n = 9) in EG;PS 4 just in EG in 13.1% (n = 8). Regarding treatment, chemotherapy only was made in 45.5% (n = 5) in YG vs 26.2% (n = 16) EG; chemotherapy and radiotherapy in 54.5% (n = 6) in YG vs 14.8% (n = 9) in EG; EG performed radiotherapy only in 8.2% (n = 5) and symptomatic/support treatment in 50.8% (n = 31). The median survival was 5 months (range 18) in YG vs 2.0 months (range 55) in EG, p = 0.08.
Conclusions: In this population of patients with NSCLC and advanced stages there were no differences in median delay time from onset of symptoms to diagnosis, and survival between the younger group and the elderly one. No patients in the young group performed supportive therapy as initial option. These results suggest that the natural history of lung cancer at advanced stages appears to have similar behavior at the extremes of age.

Key words: *Non-small cell lung cancer. Advanced stage. Young adults and octogenarians.*

CO68. LUNG CANCER IN OCTOGENARIANS – RETROSPECTIVE ANALYSIS

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Introduction: The lung cancer (LC) is the leading worldwide cause of cancer death, with an overall survival at 5 years varying between 9% and 16%. It has a higher incidence in older ages and, given the aging population, the trend is growing. The specific characteristics of this age group challenges the diagnostic and therapeutic approaches.
Objective: To identify and characterize the population of patients with LC aged ≥ 80 years.
Methods: A retrospective study of 1292 patients diagnosed with LC performed in a central hospital 07/01/2009 to 06/30/2014.We only analyzed patients followed in Pulmonology Oncology consultation, aged ≥ 80 years, diagnosed with non-small cell lung cancer (NSCLC), small cell lung carcinoma (SCLC) and large cell neuroendocrine carcinoma.
Results: 112 patients aged ≥ 80 years were identified with LC (8.7% of total), 12 were excluded. Of the 100 patients studied, 80% of whom were male and 20% female, with a median age of 82.0 years (range 12.0).14% of patients were smokers, 50% ex-smokers, 12% non-smokers, unknown smoking history in 24%. The median delay time from symptom onset to histological/ cytological diagnosis was 2.0 months (range 12.0).Regarding histological type, adenocarcinoma was identified in 48% of patients, squamous cell carcinoma in 38%, SCLC in 7%, NSCLC not otherwise specified in 5%, large cell neuroendocrine carcinoma in 1% and sarcomatoid carcinoma in 1%.As for the initial staging, 12% of patients presented with stage I-A, 4% in I-B, 2% in II-A, 4% in II-B, 10% in III-A, 17% in III-B and 51% in IV. About the evaluation of initial performance status (PS), it was found that 61% of patients presented with PS 0 and 1, 17% with PS 2, 22% with PS 3 and 4. The treatment performed was: surgery in 6% patients, surgery and chemotherapy in 1%, chemotherapy only in 23%, radiotherapy only in 14%, chemotherapy and radiotherapy in 13% and supporting/ symptomatic treatment in 43%.Regarding evolution, at this day 38% of patients are alive, 53% died, 9% not knowing the outcome. The median survival was 4.0 months (range 55.0).
Conclusions: In this patient population, there is a predominance of male gender, adenocarcinoma, presenting the most in advanced stages. Patients undergoing initial surgical stage (I and II), only 32% underwent surgery (actually probably related to the presence of comorbidities).The median survival was short.

***Key words**: Lung cancer. Octogenarians. Adenocarcinoma. Advanced stage.*

CO69. ADJUVANT CHEMOTHERAPY IN STAGE IB NON-SMALL LUNG CARCINOMA CELL

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Introduction: Stage IB non-small cell lung carcinomas' (NSCLC) therapeutic approach is a controversial issue. Adjuvant chemotherapy in this particular group of patients has never demonstrated unequivocally an improvement on survival. Recently, National Comprehensive Cancer Network (NCCN) guidelines included a formal indication for adjuvant chemotherapy in high risk patients with stage IB (poorly differentiated tumors; vascular or visceral pleura invasion; tumors > 4 cm; wedge resection; Nx).
Objective: The aim of our study was to evaluate the impact of adjuvant chemotherapy on overall survival and disease-free survival of stage IB NSCLC patients undergoing surgery and in the subgroup of these patients with high risk factors defined by the NCCN guidelines.
Methods: Retrospective study including all stage IB NSCLC patients observed in our department between January 2006 and December 2013. Collected data included sociodemographic variables, comorbidities, alcohol and smoking status, therapeutic orientation, NCCN high risk factors, overall survival and disease-free survival. Patients in whom surgery was not performed were excluded from our statistical analysis. The level of significance was set at $p < 0.05$.
Results: Thirty patients were included in this study. Mean age was 66.5 ± 9.48 years, 70% were men and 76.7% had a history of smoking (40% were active smokers at the time of diagnosis). Over 90% of patients had performance status ≤ 1 at diagnosis. Observed histological types were: adenocarcinoma (21 patients), squamous cell carcinoma (8 patients) and large cell carcinoma (1 patient). Treatment was mainly surgical (27 patients; 17 lobectomies, 4 bilobectomies, 4 pneumonectomies and 2 wedge resections). In this group of patients there was no statistically significant difference between those who did and did not underwent adjuvant chemotherapy, with respect to disease-free survival and overall survival ($p = 0.831$/$p = 0.365$). Mean survival time in patients that underwent adjuvant chemotherapy was 73.37 ± 8.15 months, and 52.89 ± 7.68 months, for those who did not underwent adjuvant chemotherapy. Nineteen of these patients had at least one NCCN high-risk factor. Among these patients there was also no association between the disease-free survival and overall survival ($p = 0.695$/$p = 0.242$) and the use of adjuvant chemotherapy.
Conclusions: Despite recent formal indications for adjuvant chemotherapy in all stage IB patients with NCCN high risk factors, our study did not found a clear benefit for these patients in terms of overall survival and disease-free survival, and the same holds for all NSCLC stage IB patients who underwent surgical treatment.

***Key words**: Stage IB NSCLC. Adjuvant chemotherapy.*

CO70. MALIGNANT PLEURAL EFFUSIONS: DIAGNOSTIC IMPLICATIONS OF DIFFERENT PRIMARY TUMORS

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Introduction: The specific characteristics of each type of tumor, namely in the process of metastatic invasion of the pleura, seem to condition different diagnostic rentability of the pleural fluid cytological examination and pleural biopsies.
Objective: To compare the diagnostic rentability of the pleural fluid cytological examination and pleural biopsies between different groups of primary tumors.
Methods: Clinical information, results of pleural fluid cytological examination and of pleural biopsies of oncological patients were revised.
Results: The results of 988 pleural fluid cytological samples were evaluated. The majority of patients had primary tumors of breast (24.8%), lung (16.7%), lymphomas (13.3%) and head and neck (9.1%). The results of the pleural fluid cytological examination (negative, positive, suspect) were significantly different between the various primary tumors evaluated ($p = 0.000$), with relevance of the positivity in 70.7% of ovarian tumors, as well as the negativity in 91.7% of leukemias, 83.9% of head and neck tumors, 83.7% of non-adenocarcinoma non-small cell lung cancer, and in 80.6% of colorectal cancers. The pleural fluid cytological examination was complemented with pleural biopsies in 278 (28%) cases, with superior diagnostic rentability of the second method relatively to the first in primary tumors of breast (60.2% vs 48.2%), head and neck

(42.9% vs 13.8%), and lung adenocarcinomas (80% vs 66.7%). The volume of evacuated pleural fluid was statistically different according to the results of the cytological study (positive, negative, suspect) for malignant pleural effusions of lymphomas (positive: 1,170 ml; negative: 809 ml; suspect: 640 ml. p = 0.013), lung adenocarcinoma (positive: 1,149 ml; negative: 702 ml; suspect: 995 ml; p = 0.021) and uterine neoplasms (positive: 1,139 ml; negative: 622 ml; p = 0.014). On the contrary, the volume of evacuated pleural fluid was not significantly different between the various results of the biopsies, for any of the studied tumors (p = 0.431).
Conclusions: There is a relationship between the type of primary tumor and diagnostic rentability of the pleural fluid cytological examination, especially in the case of ovarian tumors. For the same type of tumor, the volume of evacuated pleural fluid is directly related with cytological examination positivity, particularly in the cases of lymphoma, lung adenocarcinomas and uterine neoplasms. Pleural biopsy showed increased profitability than pleural fluid cytological examination in breast tumors, head and neck tumors, and lung adenocarcinoma.

Key words: *Malignant pleural effusions.*

CO71. AIRWAY ANASTOMOTIC COMPLICATIONS IN LUNG TRANSPLANT – RISK FACTORS AND RESULTS

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Introduction: Lung transplant is a therapeutic option for patients with terminal lung disease which already have optimized medical treatment. However, is still associated with numerous complications, namely airway anastomotic complications, which are an important factor of morbid-mortality.
Objective and methods: To evaluate the incidence of anastomotic complications in a consecutive group of patients (pts), submitted to lung transplant (LT) at our center, between January 2008 and February 2013, to identify risk factors and describe treatment. Pts who died in the first month were excluded (6 pts). We classified as severe complications those that needed endobronchial therapy or resulted in the patient's death. We analyzed recipient variables (age, sex, diagnosis, airway microbial colonization), donor variables (ischemic time, airway microbial isolation) and post-chirurgic variables (mechanical ventilation time, need of extra corporeal circulation, need of vasopressor drugs; airway infection). The analyses were made using Mann Whitney test and Qui-square test, using SPPS statistics 20.
Results: Sixty pts were submitted to LT – 24 bipulmonar and 36 unipulmonar, with a total of 84 anastomosis. The main indications for LT were IPF/NSIP (48.3% - 29 pts), cystic fibrosis/other bronquiectasis (31.7% - 19 pts), COPD/alfa1-anti trypsin deficit (15% - 9 pts) and sarcoidosis (5% - 3 pts). Of the 84 anastomosis, 24 developed complications (28.6%), but only 4 needed endobronchial therapy (4.7%). One pt died directly related with anastomotic complications (necrosis concomitant with Aspergillus infection). Only the isquemic time was a statistically significant factor for anastomotic complications (p < 0.03), with an average time of 361 min (max. 650, min 126).
Conclusions: The bronchial anastomosis is still a challenge in lung transplant. At our center, severe complications are rare, but still have an impact on patients' lives. The ischemic time was a risk factor for the development of anastomotic complications.

Key words: *Lung transplant. Anastomosis. Survival.*

CO72. PULMONARY METASTASES SURGERY: THE EXPERIENCE OF A DEPARTMENT

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Introduction: The diagnosis of pulmonary metastases in patients with malignant tumors is considered a sign of systemic disease and historically has been associated with the end stage. Currently, surgical resection plays an increasingly important role in the multidisciplinary approach to the patient with pulmonary metastases from carcinomas and is associated with better survival.
Objective: Characterization of patients who underwent the complete resection of pulmonary nodules between January 2008 and June 2014 on Cardio-thoracic Surgery Department of Santa Maria Hospital.
Methods: Retrospective review of patients who underwent the complete resection of pulmonary nodules. We characterize: sex, age, tumor presentation, primary tumor, surgery, other metatases, length of stay, mortality, pulmonary metastases recurrence, survival and *outcome*.
Results: Seventy three patients underwent the complete resection of pulmonary nodules (36 women - 49.3% and 37 men - 50.7%), with a mean age of 58 years (women 55.9 years old; men 60.1 years old). Regarding tumor presentation, 23 patients (31.5%) had bilateral pulmonary nodules, 44 patients (60.3%) had multiple nodules and 29 patients (39.7%) had a solitary nodule. Regarding the primary tumor, 29 patients (44.6%) had tumors of the digestive tract (colorectal), 11 patients had a sarcoma (16.9%), 5 patients (7.7%) had breast cancer and 5 patients (7.7%) had larynx carcinoma. The remaining primary tumors were located: gonads (n = 3 - 4.6%), lung (n = 3 - 4.6%), kidney (n = 2 - 3.1%), skin (n = 2 - 3.1%), gallbladder (n = 2 - 3.1%), thymus (n = 1 - 1.5%), nasopharynx (n = 1 - 1.5%) and adrenal gland (n = 1 - 1.5%). Of the remaining 8 patients, 5 patients had no tumor tissue in the excised material, 2 patients had a primary lung cancer and 1 patient had a pulmonary sarcoidosis. With regard to surgical procedure, the most frequently used technique was atypical resection by thoracotomy (n = 56 - 76.7%). Were performed 11 atypical resections by mini-thoracotomy (15.1%), 4 atypical resections by thoracoscopy (5.5%) and 2 lobectomies by thoracotomy (2.7%). Only 10 patients had other metastases (liver, adrenal gland, pleura and diaphragm). On average the length of stay was 5 days (ICU stay: on average 1.6 days). There were no deaths during surgery or during the next days spent in hospital. Ten patients (15.3%) had recurrence of pulmonary metastases, on average 14 months after the initial surgery (7 tumors of the digestive tract, 2 sarcomas and 1 melanoma). Of the 65 patients with histologically confirmed lung metastasis 29 died, with a median survival of 64.6 months after diagnosis of the primary tumor. Currently 36 patients remain alive with a median survival of 69.2 months.
Conclusions: The primary tumors that most frequently metastasize to the lung are the digestive tract followed by sarcoma, breast and larynx. We emphasize the low incidence of benign lesions, which is certainly associated with a more precise clinical and radiological diagnosis, preceding surgery. Given the low perioperative morbidity and mortality and the lack of suitable alternative treatments, it is advised to performe metastectomy whenever the metastatic lesions can be completely excised, which is associated with increased survival of these patients.

Key words: *Thoracic surgery. Pulmonary metastases. Survival.*

CO73. VATS ANATOMIC LUNG RESECTION: INITIAL EXPERIENCE OF A DEPARTMENT

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The implementation of video-assisted thoracoscopic surgery (VATS) has revolutionized the way surgeons diagnose and treat pulmonary pathology, beginning a new era of development and progress in thoracic surgery. It has become possible to perform anatomic lung resections using a videoscope and a single access incision of 3 to 5 cm, without the use of a mechanical retractor and without rib spreading, obtaining all the advantages of minimum invasive procedure. The aim of this study was to present our initial experience performing VATS anatomic lung resections. From November 2013 through July 2014 (9 months), seventeen patients underwent VATS anatomic lung resections. The patients' demographics, clinic history, lung functional capacity, surgical indication, approach and type of surgery, as well as morbidity and mortality were analysed. Surgery was performed in 11 male and 6 female with a mean age of 62 years (range, 38-78 years). Surgical indications were lung cancer in 16 patients (stage IA: 12; stage IB: 3 and stage IIA:1); 1 patient was operated due to bronchial stenosis. Twenty two surgery were began by VATS, with 17 of them finalized by this approach. In 14 surgeries only one port was used, in 3 surgeries an additional port was required and in 5 surgeries it was necessary conversion to thoracotomy due to bleeding. The procedures executed were: right upper lobectomy in 6 patients, right inferior lobectomy in 4 patients, left upper lobectomy in 4 patients, middle lobectomy in 1 patient, bilobectomy in 1 patient and anatomical S6 segmentectomy in 1 patient. The mean surgical time was 213 minutes (range, 150-315 minutes). On the oncologic surgeries, the mean tumor size was 22.8 mm (range, 6-53 mm) and the most common histologic type was adenocarcinoma (7 cases).Postoperative, the median length of stay was 6 days (2-15 days). Minor complications were reported in 6 patients (air leak superior to 7 days in 5 patients and 1 episode of atrial fibrillation). There was no operative or 30-days mortality. Nowadays, VATS has become the approach of choice in many thoracic surgery departments. Minimally invasive approaches even to lung cancer treatment have been demonstrated to be safe and effective for patients with early-stage lung cancer. Then, it is becoming ever more difficult for thoracic surgeons to justify not using a VATS in the face of overwhelming evidence for the benefits of this approach – not only in terms of reducing patient morbidity, but also in improving surgical outcomes. Moreover, learning the VATS technique in our department did not influence the postoperative results obtained. Therefore, we expect this uprising technique to become the gold standard of national thoracic surgery.

***Key words**: VATS. Anatomic lung resection.*

CO74. FLEXIBLE BRONCHOSCOPE USE IN TRANSNASAL PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (TN-PEG) IN HEAD AND NECK CANCER PATIENTS: ROLE OF PULMONOLOGIST

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Introduction: Head and neck cancer patients (HNCP) are prone to malnutrition due to malignancy and side effects of treatment. The placement of a percutaneous endoscopic gastrostomy (PEG) is necessary for most of these patients. In some situations, oropharyngeal obstruction or trismus preclude a transoral aproach and a transnasal (TN) route with a thin scope is the available option. The use of flexible bronchoscope for PEG placement in this situation has already been described. With the same purpose we adapted an aspiration and suction device to improve the procedure.

Objective: Retrospective analysis of all TN-PEG tubes placed in HNCP in a single institution, over a 5-year period, using the "pull" method, in a combined approach by a gastroenterologist in the abdominal side and a pneumologist in the head side, employing an adapted flexible bronchoscope.

Methods: Retrospective analysis of 23/649 (3.5%) consecutive HNCP patients referred for PEG placement, that underwent a TN-PEG procedure between 2009-2013. Demography, indication (prophylactic vs palliative), TN-PEG procedure outcome, complications and treatment, and overall survival were reviewed. Along with the use of the flexible bronchoscope we adapted a specific suction/insuflation device using a Luer-lock 3-way stopcock attached simultaneously to high pressure vacuum tube and an oxygen delivery system, allowing an alternative, on demand, suction and insuflation.

Results: TN-PEGs were successfully placed in 22/23patients, 17 men and 6 women, with a mean age of 56 years old (26-74) and a mean BMI = 20(15-27). Only one TN-PEG technical failure due to missing transilumination. Palliative TN-PEGs in14/23 and prophylactic in 9/23 patients. TN-PEG route due to trismus (22/23) and oropharyngeal obstruction (1/23), in patients with tumors of oropharynx (8), oral cavity (7), tongue (5) e maxillary sinus (3). TN-PEG was the only way of nutrition in the 22 patients for a mean time of 242 days (31-1115). On follow-up, 15 patients died of disease progression, 2 died of other causes and 5 are alive in remission. None of the patients removed TN-PEG. The 5 patients in remission were using TN-PEG for exclusive enteral nutrition for a mean time of 378 days (110-730).No major complications occurred associated with the procedure, namely with the adapted device.

Conclusions: Combined TN-PEG placement by a Gastroenterologist and a Pneumologist using an adapted flexible bronchoscope is a safe and useful option for HNCP in witch transoral PEG placement is not possible. Bronchoscopist learning curve for the procedure is short and needs no extra skills.

***Key words**: Bronchoscope. Gastrostomy. PEG. Head and neck. Cancer.*

CO75. CONVENTIONAL TRANSBRONCHIAL NEEDLE ASPIRATION HAS A DIAGNOSTIC TOOL

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Introduction: The development of real-time ultrasound guidance (EBUS-TBNA) has detracted the importance of conventional transbronchial needle aspiration (cTBNA). However, cTBNA is available to all bronchoscopists and allow cytological, histological or microbiological sampling of mediastinal lymph nodes and pulmonary lesions.

Objective: Analysis of the experience with cTBNA in a single institution.

Methods: We reviewed 4 years (2010-2013) of routine clinical practice with cTBNA in diagnostic bronchoscopy. Clinical and radiological files, bronchoscopy database and video reports were reviewed. Indications, type of lesions and results were registered. The cytologic samples of the lesions were reported as positive (positive for malignant cells or granulomas), negative (negative for malignant cells and presence of lymphocytes) or inadequate (without or rare lymphocytes observed). The statistical analysis was based in frequency distribution with Pearson's chi-squared test.

Results: 550 patients, 403 men, mean age: 62.3 years. 612 bronchoscopies and 802cTBNA were performed. Deep sedation under anesthesiologist supervision was used in 89% of bronchoscopies. Mean duration of procedures was 34 ± 13 minutes. Rapid on-site evaluation (ROSE) was available in 484 bronchoscopies (79.1%). In-

Table 1 - C075

Lesion	n	Adequate material	Sensitivity (%)	Specificity (%)	Accuracy (%)	Dimension (mm)	Needle passes (n)
4L station	55	47 (85%)	90.6	100	71.1	15,7 ± 7.5	4.3 ± 2.3
4R station	223	170 (76%)	82.2	100	75.6	16.5 ± 8.3	4.1 ± 2.3
7 station	283	232 (82%)	89.8	97.8	78.8	18.9 ± 8.7	3.9 ± 1.8
Other station	70	39 (56%)	-	-	-	-	-

Table 2 - C075

Lesion	n	Diagnostic	TBNA only diagnostic method	Dimension (mm)	Needle passes (n)
Central lesion Endobronchial	25	21 (84%)	1 (5%)	42.2 ± 22.6	2.9 ± 1.3
Central lesión Extrabronchial	90	69 (76.7%)	35 (50.7%)	37.2 ± 15.8	4.3 ± 2.5
Peripheral lesion	56	38 (67.8%)	15 (39.5%)	34.7 ± 16.5	3.2 ± 2.3

dications for bronchoscopy were: lung cancer diagnosis/staging in 404 cases; secondary lung cancer diagnosis in 95 cases; mediastinal lymphadenopathy diagnosis in 93 cases and other indications in 20 cases. cTBNA was performed in 631mediastinal lymphadenopathy and in 171other lesions. Adequate material was obtained in 85.3% TBNA with ROSE and 65.6% without ($p < 0.0001$). Out of the 612 bronchoscopies, 411 were diagnostic: 353 primitive or metastatic neoplasia; 20 lymphoproliferative disorders; 22 granulomatous lymphadenitis; 13 tuberculosis – 2 associated with granulomatous disorder and 2 with neoplasia and 5 others situations. In 342 bronchoscopies cTBNA contributed to the diagnosis and in 176 it was the only ancillary method that was positive and enabled a diagnosis. Additionally, in this series, diagnosis without the contribution of cTBNA were done in only 71 bronchoscopies.

Conclusions: Our results emphasize the value of cTBNA as a diagnostic procedure mainly in central lesions and as a mediastinal staging procedure for stations 4 and 7. In this series, ROSE has been shown to enhance the diagnostic yield of conventional TBNA. In some cases cTBNA can be the single and most useful diagnostic bronchoscopic procedure.

Key words: *Bronchoscopy. TBNA. Diagnosis. Staging.*

CO76. CT-GUIDED PERCUTANEOUS TRANSTHORACIC BIOPSY: 4 YEARS' EXPERIENCE IN A CLINICAL CENTRE

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CT-guided percutaneous transthoracic biopsy (PTTB) is a fairly safe technic in the evaluation of pulmonary and mediastinal lesions of undetermined aetiology. Sampling of the lesion can be performed by fine needle aspiration biopsy (FNAB) or cutting-needle biopsy (CNB or "core"). The aim of this review is to characterize the PTTB performed at Hospital Garcia de Orta (HGO) during a period of 4 years (01/01/2010 to 31/12/2013), demonstrating their diagnostic usefulness in the diagnosis clarification of lung lesions, mediastinal and pleural and assess its safety. It was performed a retrospective analysis, based on a review of clinical files, microbiological and pathological (cytology and histology) results, of patients who underwent CT-guided PTTB in HGO during the time period indicated above. We analysed the indication for the procedure, type of biopsy (fine needle biopsy or cutting biopsy), diagnosis obtained after the test, location (peripheral vs central) and dimensions of the lesion, distance to the pleura and the diagnosis considered definitive (after histology analysis of tissue samples obtained by surgery, if performed or after oncologic treatment and clinical/radiological follow-up). We used the Spearman correlation coefficient to analyse the correlation between the occurrence of complications and age, distance to the pleura and lesion size. Finally, we analysed its complications. It were performed 140 PTTB in 127 patients (mean age 66.6 years, 96 men and 31 women), from which 42 CNB, 89FNAB and9 CNB combined with FNAB. The solitary pulmonary nodule was the most common indication for the procedure with 69 biopsies, followed by solitary or multiple lesions with known primitive neoplasia with 26, multiple nodules with 20 and undiagnosed focal infiltrates with 7. In 34.7% of FNAB performed the material obtained was not sufficient/significant for diagnosis which occurred in only 1 of 51 CNB performed (2%). Malignant lung cancer was the diagnosis most often obtained (58 BPTT), being lung adenocarcinoma the most frequent (28 BPTT). The mean size of lesions undergoing biopsy were 41.5 mm (min. 5.14 mm and max. of 127.45 mm; standard deviation 23.73). The method revealed a diagnostic sensibility of 74.4%, a specificity of 80% and an accuracy of 74.8%. There was a moderate correlation ($r = 0.420$, $p < 0.01$) between the distance of the lesion to the pleura and the existence of complications. 26 pneumothoraces were reported, with small dimensions and only 3 occurred after CNB. The present review shows that BPTT is a diagnostic method with good sensitivity, specificity and accuracy, which allows a diagnosis in many cases, without presenting a high risk of complications despite being an invasive procedure.

Key words: *Percutaneous transthoracic biopsy. Pneumothorax. Solitary pulmonary nodule.*

CO77. CONVENTIONAL TRANSBRONCHIAL NEEDLE ASPIRATION IN LUNG CANCER DIAGNOSIS AND STAGING

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Introduction: Bronchoscopy is still the most important exam in diagnosis and staging of lung cancer. Albeit highly desirable, establishing simultaneously the diagnosis and correct nodal staging of lung cancer is not an easy task. Combining conventional transbronchial needle aspiration (cTBNA), with other selected bronchoscopic

procedures has the potential to accomplish both objectives. Conventional TBNA also permits cytological and pathological sampling of primary or metastatic lung lesions.
Objective: Evaluation of adding cTBNA on the first bronchoscopic approach in diagnosis or simultaneous diagnosis and staging of lung cancer.
Methods: Clinical and radiological files of suspected primary lung cancer patients, scheduled for first diagnostic and staging bronchoscopy with cTBNA in a four year period (January 2010 to December 2013) were reviewed. Database reports were compared and confirmed with videorecorded information of each exam, all the procedures and the respective pathologic results. Cytology samples were classified as positive (positive for malignant cells), negative (negative for malignant cells and presence of lymphocytes) or inadequate (without or rare lymphocytes observed). Statistical analysis was based on frequency distribution with Pearson's chi-squared test.
Results: In 274 patients (210 men, mean age: 63.1 years), 371cTBNA were performed, 281 in mediastinal lymph nodes and 90 in other lesions. Peripheral lung lesions were in the upper lobes, in 190 cases (114 on the right and 76 on the left). Rapid on-site evaluation (ROSE) was available in 222 bronchoscopies (81%). Histological diagnosis was achieved in 227 patients using the best selected procedure combination. The final diagnosis was non-small cell lung cancer in 193 (adenocarcinoma in 109 cases) and small cell lung cancer in 34 patients. Lymph node staging was N2 in 115and N3 in 83 patients. 142 patients were in stage IV. PET scan was available in 175 cases, showing mediastinal lymph node hypermetabolism in110 of them. On 131 occasions cTBNA confirmed nodal staging on the first diagnostic bronchoscopy (104 positive; 27 negatives) (78%) and in 5 cases cTBNA was false negative. Out of the 83N3 patients, nodal sampling for staging was performed only in 15 patients (10 confirmations; 2 exclusions). In 58 N3 patients cTBNA was used to achieve the diagnosis in known supraclavicular N3 or metastatic disease. Pathologic diagnosis was obtained with cTBNA in 196 patients, being the only bronchoscopic procedure enabling a diagnosis in 72 cases. Diagnostic yield was significantly higher with ROSE (90.5% vs 73.1%; $p < 0.001$). Complication rate was 0.3% with only one case of mediastinitis.

Table - C077

	n	PET	cTBNA	Positive	Negative	Inconclusive
N0	55	44	32	0	22	10
N1	17	13	14	4	5	5
N2	115	67	107	90	3	14
N3	83	51	15	10	2	3
Tumor	274	175	90	70	-	20

Conclusions: Conventional TBNA is a safe and effective technique with a definite role in the diagnosis and staging of lung cancer, even in advanced stages. Correct lymph node staging can often be achieved at initial bronchoscopy, precluding further invasive and expensive staging methods. In our series ROSE was an important additional diagnostic help.

Key words: *Bronchoscopy. TBNA. Staging.*

CO78. TRANSBRONCHIAL BIOPSIES AND VALUE OF RADIOLOGICAL PATTERN IN INTERSTITIAL LUNG DISEASES

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Introduction: The diagnosis of interstitial lung diseases (ILD) is a combination of clinical, analytical, radiological and histological elements. Transbronchial biopsy (TBB) can provide important information for the diagnosis of ILD without the inherent risks of a surgical biopsy.
Objective: The aim of this study was to evaluate the diagnostic value of TBB in a population of patients suspected of having ILD and to assess its relationship with the dominant radiological pattern in these same patients.
Methods: Retrospective study which included all patients that underwent a TBB in our department between January 2002 and June 2014. All included patients had ILD as primary differential diagnosis. Patients with incomplete clinical data review or without CT were excluded. The level of significance was set at $p < 0.05$.
Results: One-hundred and eight patients were included in this study. Mean age was 55.3 ± 15.2 years, 52.8% were men. TBB was the first invasive diagnostic method used in 94.4% of patients. The material collected by BTB in 42 (38.9%) patients was sufficient for diagnosis; 52 (48.1%) patients had insufficient material for diagnosis and 14 (13%) patients had no lung parenchyma in the material collected. The most frequent diagnoses were: sarcoidosis (25 cases), organizing pneumonia (4 cases), usual interstitial pneumonia (4 cases), silicosis (3 cases), and hypersensitivity pneumonia (3 cases). Complication rate was 0.9%. About 34% of patients had respiratory failure at the time of the procedure. The most common dominant radiological patterns were: "ground glass" (29 cases), hilar/mediastinal lymphadenopathies (20 cases), perilymphatic nodular pattern (15 cases) and consolidation (11 cases). Patients who had "ground glass" as the dominant radiological pattern had a significantly lower TBB diagnosis yield ($p = 0.001$, OR = 0.173), whereas patients who had lymphadenopathies ($p < 0.001$, OR = 6.778) or perilymphatic nodular pattern ($p = 0.017$, OR = 3.813) were statistically associated with a higher TBB diagnostic yield.
Conclusions: TBB is a safe diagnostic method with a high diagnostic yield in diseases such as sarcoidosis (especially in cases with perilymphatic nodules). The dominant radiological patterns most often associated with a higher diagnostic yield of TBB were perilymphatic nodular pattern and lymphadenopathies. Additionally, there was an association of "ground glass" pattern with a lower diagnostic yield with this method.

Key words: *TBB. Interstitial lung diseases. Radiological patterns.*

CO79. PERCUTANEOUS TRACHEOSTOMY IN THE ICU

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Introduction: Critical ill patients frequently require tracheostomy to simplify long-term airway management, and tracheostomy is currently among the most common performed procedures in the ICU (Intensive Care Unit). Prior findings suggest that early tracheostomies are not associated with any additional benefit over a wait and see approach in patients on mechanical ventilation.
Objective and methods: Retrospective review of all elective percutaneous tracheostomy performed in our ICU in the period of two years (2012-2013). Our aim was to verify the timing of tracheostomy and outcome of patients.
Results: 78 patients performed percutaneous tracheostomy in the period considered, with median age 76 years, mostly male – 48 (61.5%). The median time in our ICU was 29 days (minimum 2, maximum 172) and 56 days in our Hospital (minimum 6; maximun 195). In the majority of patients the cause of admission was medical – 37 patients (47.4%), followed by neurosurgical patients – 14 (17.9%), politrauma with traumatic brain injury – 11 (14.1%) and urgent surgical procedures – 8 (10.3%). Tracheostomy was performed on aver-

age at the 15th day in the ICU (76.9% of cases after 10 days). The reason for the tracheostomy was the need to protect the airway in 31 patients (39.7%) and in the other a difficult weaning or the prediction of prolonged mechanical ventilation. Major complications occurred in only two patients - local bleeding - requiring surgical revision. Median days on mechanical ventilation after tracheostomy were 3 days (minimum 0, maximum 145). 49 patients (63.6%) were transferred to the general ward and 15 (19.5%) to another hospital. Mortality in the ICU was 16.9% (13 patients). In this group of 78 patients, 27 died in the hospital (36.5%), with 28-day mortality of 9%. The analysis of this group with early mortality revealed a higher mean age (78 years), predominantly female (71.4%), mostly admitted for medical conditions or urgent surgery (71.4%). Twenty five patients (33.8%) were discharged from the hospital without tracheostomy tube.
Conclusions: Tracheostomy was performed to facilitate the process of weaning or when time under mechanical ventilation exceeded 21 days, in the majority of patients. Early tracheostomy was not performed in most patients, as nowadays is recommended. We observed an overall mortality of 36.5% in this group, with a low 28-day mortality, according to findings in the literature. In this group of patients 33.8% left the Hospital without cannula. One limitation of this analysis is the ignorance of the condition of patients transferred to another hospital with tracheostomy tube.

Key words: *Tracheostomy. Intensive care.*

CO80. AIRWAY STENTS – 10 YEARS FOLLOW-UP

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Introduction: Airway stents maintain patency and stability of the airway structures and have a key role in the treatment of intrinsic obstruction or extrinsic compression of the airway, fistulas or tracheobronchomalacia. The goal of our study was to characterize the population of patients undergoing insertion of tracheobronchial stents in our hospital between 2004-2014 regarding demographic characteristics, stent characteristics, diagnosis and complications.
Methods: We retrospectively analyzed medical records from patients undergoing insertion of tracheobronchial stents between January 2004 and June 2014. The evaluation included type and characteristics of the stents, diagnosis, insertion site and other techniques, complications and need for reintervention, mean durability (in days) and mortality (at 6 months and total).
Results: 44 patients were included and 65 stents inserted (with 19 reinterventions); 3 had "Y" configuration and 62 straight configuration (57 silicone and 4 nitinol). Trachea (66%) was the site with largest number of stent insertions. Indication for stenting was: bronchopulmonary cancer (52%), extrapulmonary malignancy (16%), secondary tracheal stenosis (14%), tracheobronchial fistula (9%), tracheobronchomalacia (5%), primary tracheal stenosis (2%) and association of secondary tracheal stenosis and tracheobronchomalacia (2%). There were 2 early complications (stent caught fire and a death). Late complications associated with stents included: obstruction with secretions in 54% of cases (including cases not related to stent obstruction), migration (16%), infection (13%), granuloma/granulation tissue (11%) and infiltration by tumor tissue (6%). Combined therapies used: Balloon bronchoplasty/tracheoplasty or dilation with rigid bronchoscope (47%), electrocoagulation (28%) and argon-plasma (25%). The average permanence of the stents was 199 days (min 1, max 1596). There were 34 deaths (77%) during the study period, 23 occurred within 6 months after stenting (20 patients diagnosed with malignancy).
Conclusions: Airway stents constitute an alternative therapy in tracheobronchial disease. Serious complications associated with this technique were rare and endoscopic treatment was possible in the remaining cases. Permanence of the stents and patient's mortality were influenced by underlying diagnosis and prognosis of each patient.

Key words: *Bronchoscopy. Stent. Tracheobronchial.*

CO81. EARLY ENDOSCOPIC FINDINGS IN LUNG TRANSPLANT: APPLICABILITY OF MDS CLASSIFICATION

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Introduction: In recent years, thanks to progresses in surgical technique and to the development of new immunosuppressive agents, it has been noticed a survival increase in patients subject to lung transplantation. However, complications related to bronchial anastomoses still cause significant morbidity, and its prevalence varies according to the series. The surveillance bronchoscopy has an important role in these patients, yet the lack of a classification both universal and summary, have limited the description of endoscopic findings.
Objective: Apply and evaluate the usefulness of a new proposed classification (MDS) to endoscopic findings in surveillance flexible bronchoscopy in the first 3 postoperative months of transplanted patients in Portugal between January 2012 and June 2014 (30 months).
Methods: Retrospective analysis of bronchoscopy examinations performed in patients transplanted during the study period (43 patients), based on the descriptions of the reports and the assessment of attached pictures. Examinations without captured images were excluded. Endobronchial findings were classified according the 3 parameters from the proposed classification of Groupe d'Endoscopie de Langue Française (GELF): M (macroscopic appearance), D (diameter of the anastomosis) and S (suture). The right and left anastomosis were classified separately in the case of patients subject to bipulmonar transplantation.
Results: It were evaluated 60 bronchoscopies, related to 33 patients, resulting in a total of 84 classified anastomoses (34 related to unipulmonar transplantations and 50 to bipulmonar transplants). In half of the reports, there was a macroscopic appearance M3 (ischemia or necrosis), followed by M2 (inflammation or granuloma), with most endobronchial alterations limited to anastomosis (64%). 82% of the examinations did not reveal a significant change in the diameter of the anastomosis (D0, reduction < 33%), and no case of anastomotic dehiscence was identified (100% S0). Analyzing the reports on the same patient at different times, there is sometimes a change in classification.

Table - C081

MDS classification	M0	M1	M2	M3	D0	D1	D2	D3	S0
Number of anastomoses	6	5	31	42	69	1	11	3	84
%	7%	6%	37%	50%	82%	1%	13%	4%	100%

Conclusions: It is fundamental to have a universal and standardized classification, both systematic and comprehensive, capable of homogenizing the report endoscopic findings, facilitating the mon-

itoring and therapeutic approach to these patients. MDS classification is easy to implement and introduces objectivity in the description of the airway alterations. As limitation of the work it was identified the fact that it is a retrospective analysis of tests already performed, only with access to the report and attached images, without a real-time endobronchial visualization. It was not assessed the impact of interobserver variability in the classification of findings. In the future it is needed a prospective validation of this classification and the assessment of its interest in guiding the therapeutic approach and prognosis according to the definition of severity stages.

Key words: *Flexible bronchoscopy. Lung transplantation. MDS classification. Endobronchial findings.*

CO82. SURGICAL TREATMENT OF BRONCHIECTASIS: 20 YEARS OF EXPERIENCE

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Bronchiectasis is defined as chronical abnormal dilatation and distortion of the bronchi. The incidence of this pathology is largely unknown, but there is a general belief that the incidence is falling. The surgical treatment of this disease is usually reserved for focal disease and when the medical treatment is no longer satisfying. Currently, surgery for bronchiectasis still plays an important role in thoracic surgical practice in several countries, including Portugal. The aim of this study was report our experience and outcomes in surgery for bronchiectasis along the last 20 years. Between 1994 and 2014, sixty nine patients underwent surgical resection for bronchiectasis. The patients' demographics, presenting symptoms and indications for surgical treatment, type of lung resection, complications and mortality rate, as well as clinical follow-up and outcomes were analysed. The study sample included 31 male and 38 female with a mean age of 38.6 years (range, 5-75 years). Surgery indication were: recurrent respiratory infections in 33 patients (47.8%), haemoptysis in 22 patients (31.9%), lung mass in 9 patients (13.0%) and lung abscess in 5 patients (7.3%). The surgical treatment was pneumonectomy in 10 patients (14.5%), bilobectomy in 6 patients (8.7%), lobectomy in 47 patients (68.1%), lobectomy plus segmentectomy in 3 patients (4.3%) and only segmentectomy in 3 patients (4.3%). Complications occurred in 10 patients (14.5%): re-thoracotomy for haemorrhage in 2 patients, bronchial stump dehiscence with bronchopleural fistula in 1 patient, persistent air leak (> 10 days) in 5 patients, nosocomial pneumonia in 1 patient and atrial fibrillation in 1 patient. There was no operative mortality. Follow-up was possible in 60 patients (87.0%): 44patients (73.3%) were asymptomatic after surgery, 11 patients (18.3%) had their symptoms improved and 5 patients (8.3%) referred no improvement or worsening of the symptoms of bronchiectasis. Although the number of patients with bronchiectasis referred to surgical treatment has decreased, pulmonary resection still have asignificant role in this pathology. Surgery can be performed with low complications, providing markedly improvement in the quality of life of the majority of patients.

Key words: *Bronchiectasis. Thoracic surgery.*

CO83. THE EVOLUTION OF A VATS LOBECTOMY PROGRAM – A 6-YEAR BALANCE

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The role of minimally invasive surgery in lung cancer has been growing significantly worldwide with the implantation of lobectomies and other anatomical resections by videotoracoscopy (VATS). Besides this, in Portugal the practice is sill limited but has been growing in popularity. We describe the experience of 73 anatomical lung resections by VATS made by our team, between May 2008 and July 2014. Have been performed 63 lobectomies and 9 sublobar anatomical resection. We highlight the recent growth in our program with 55 of these procedures performed since 2012. The patients proposed to this kind of surgery are essentially older patients, with an average age of 68 ± 11 years of age, median of 71 years old, from 31 to 85 years old; with significant co-morbilities, like osteoarthritis, arterial hypertension, dyslipidemia, coronary heart disease and also diabetes and smoking. 82 anatomical lung ressections were started by VATS but 9 (11%) were converted to utility incision enlargement or thoracotomie. There were performed resections of every lobe, with the most frequent being right superior lobe and medium lobe resections. There equally performed segmentectomies of S6 and 2 lingulectomies, 2 apico-posterior segmentectomy of the LSL and 1 segmentectomy of anterior segment of the LSL. The surgery was mainly performed for primary neoplasm of the lung, in about 80% of the cases and lung adenocarcinoma was the most common histologic type among these. It was mainly early stage disease with a medium tumor size inferior to 25 mm. Any patient had N2 disease, and only 2 patients had N1 disease. Were excised a medium of 3.7 ± 1.25 ganglion groups. There were also performed lobectomies for metastatic disease, specifically from colorrectal origin, and 3 lobectomies for benign disease. The time with thoracic drainage was, in average 5 ± 3 days with a median of 4 days, clearly inferior to the time after classical surgery. The in-hospital time was equally lower with an average of 7 ± 4 and median of 6 days. The follow-up time is between 1 day and 6 years and 2 months. Concerning survival, we highlight the death of only 2 patients. Every other was free from disease after an average follow-up time of 12 ± 11 months. Minimally invasive surgery in the treatment of lung cancer is becoming the treatment of choice in patients with early stage disease, especially in patients with significant co-morbilities because it is followed by a post-operative period with less thoracic drainage time, less pain, less in-hospital time, better esthetic result and always reminding the principles of oncological surgery that demand a ruled limphadenectomy, in order to guarantee a good long-term survival for our patients.

Key words: *Lung cancer. VATS lobectomy. Thoracic surgery.*

CO84. CHRONIC EOSINOPHILIC PNEUMONIA: TWO CASE REPORTS

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Chronic eosinophilic pneumonia is a rare, idiopathic disease characterized by pulmonary eosinophilic infiltration. It usually has a subacute or chronic presentation. The treatment is based on systemic corticosteroids, with good prognosis. We present two clinical cases. Two female patients, 38 and 52 years, with no medication history. One of the patients with a history of bronchial asthma in childhood, asymptomatic since 12 years of age. Both patients had exercise induced dyspnea with a few months of evolution, wheezing and cough with sputum. The lung auscultation with snoring and wheezing. The respiratory functional study had moderate bronchial hyperreactivity in one case, and was normal in the second case. The analytical study showed peripheral eosinophilia, elevated immunoglobulin E and sedimentation rate in both patients and sensitization to mites, grasses and fungi in only one patient. Both cases were initially interpreted as bronchial asthma, however there was no significant improvement even after therapy optimization. Thus,

differential diagnoses of other diseases with respiratory symptoms and peripheral eosinophilia were made, including bronchopulmonary aspergillosis, the Churg-Strauss syndrome, a parasitic infection, association with drugs and chronic eosinophilic pneumonia. The patients underwent CT of the chest, which revealed peripheral ground-glass opacity in one of the patients, and a slight thickening of the bronchial walls in the left lower lobe of inflammatory features, in the second case. None of the patients had specific IgE or precipitin against *Aspergillus fumigatus*, the *p-ANCA* screening was negative. The search for parasites in stool was negative, and yet both patients were treated with albendazole. A drug etiology was ruled out. Both patients underwent bronchoscopy, in one case there was a BAL eosinophilic alveolitis (31%). In the other patient, transbronchial lung biopsies were consistent with eosinophilic pneumonia. Thus it we concluded to be a chronic eosinophilic pneumonia in both cases. Patients initiated oral prednisolone (0.5 mg/kg/day), with complete resolution of symptoms. In one of the patients, after a period of 14 months of treatment, it was possible to progressively reduce the dose until his suspension. Thus, two patients with subacute clinical presentation suggestive of allergic asthma difficult to control. After investigation, it was concluded that it was two cases of chronic eosinophilic pneumonia. The chronic eosinophilic pneumonia must be kept in mind as a differential diagnose in cases suggestive of bronchial asthma with peripheral eosinophilia and poor response to bronchodilator therapy.

Key words: *Differential diagnosis of chronic eosinophilic pneumonia.*

CO85. CAVITATED PULMONARY CANCER WITH CEREBRAL METASTIZATION OR LUNG ABSCESS WITH SYSTEMIC PYOGENIC DISSEMINATION?

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Introduction: In developed countries lung abscesses secondary to pulmonary cancer are becoming increasingly common in contrast to primary abscesses whose incidence has decreased.
Case report: Forty-six-year-old male, Vila Nova de Gaia resident, independent in activities of daily-life, unemployed (construction worker), smoker (15 pack-year), medical history of repeated pulmonary infections and lung abscess in 2012, alcoholism. Hospitalized in March/2014 for community-acquired pneumonia. Usually medicated with bronchodilator, omeprazol and aminocaproic acid (as needed). In May/2014 the patient was admitted at emergency department with involuntary movements of the left upper limb, few minutes of duration. There was no loss of consciousness, tongue bite or sphincters incontinence. At physical examination: conscious, oriented, hypotensive (88/56 mmHg), normal heart rate, afebrile, SpO_2 (21%): 98%, eupneic, decreased breath sounds on the right lung and left hemiparesis (4+/5).C-reactive protein 1.91 mg/dL. Chest radiograph: heterogeneous hipotransparency in the right lung field. Head CT: multiple lesions (cerebellar and right frontal). He was medicated with dexametasone 12 mg/day and sodium valproate 1,000 mg/day and continued follow-up at Oncologic Pneumology consultation. During follow-up thoracoabdominal CT showed: right lower lobe (RLL) mass 10 × 6,3 cm, cavitated, bronchiectasis, mediastinal lymphadenopathy, distension of the jugular veins, left brachiocephalic vein and superior vena cava (SVC). Bronchofibroscopy: edema, congestion and suggestive signs of submucosal tumoral growing in the right upper bronchus. The patient completed 14 days of levofloxacin 750 mg for respiratory infection. In bronchial lavage (BL) was isolated an *Haemophylus influenzae*, mycobacteriologic exams were negative, citology and bronchial biopsy histology didn't show malignancy. A transthoracic aspiration biopsy (TAB) of the mass was performed, with pus drainage; cytology was negative for malignancy. Brain MRI revealed multiple right frontoparietal and cerebellar lesions (probably infectious). Viral markers were negative. He was admitted in 4/July/2014 and began piperacillin/tazobactam. At 4th day of hospitalization a *Streptococcus anginosus* was isolated in bacteriologic exam of cavitated mass (TAB), and ampicillin + gentamicin (24 + 7 days) were initiated. Transesophageal echocardiography: mitral valve endocarditis, without dysfunction. Negative blood cultures. At 13th day an hospital-acquired pneumonia was diagnosed, and the patient began vancomycin + meropenem (16 days). Thorax CT was repeated: RLL lesion maintained same characteristics, there was marked distension of SVC, brachiocephalic, left subclavian and right jugular veins, multiple tortuous vascular structures in the mediastinum and periesophageal varices. CT angiography of the thorax: multiple anomalous venous structures suggestive of mediastinal vascular malformation. The patient repeated head CT at 15th and 41th days of hospitalization, without improvement. At 42th day *Fusobacterium nucleatum* and *Actinomyces naeslundii* susceptible to penicillin G were isolated in bacteriologic of cavitated mass pus. Thoracic Surgery doctor concluded there was no indication for pneumectomy. At 51th day of hospitalization: eighth day of penicillin G, afebrile, hemodynamically stable, respiratory insufficiency improving, without new focal neurologic deficits, cavitated RLL lesion has slightly decreased and almost normal inflammatory markers.
Conclusions: The authors present a case of an immunocompetent patient with a lung abscess with cerebral and cardiac pyogenic dissemination. It is an interesting case given the rarity of clinical presentation, iconography, diagnostic workup and difficult therapeutic orientation.

Key words: *Lung abscess. Pulmonary cancer. Cerebral lesions.*

CO86. IDIOPATHIC PULMONARY HEMOSIDEROSIS – TWO CASE REPORTS

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Introduction: Idiopathic pulmonary hemosiderosis (IPH) is a rare cause of diffuse alveolar hemorrhage (DAH), of unknown cause (diagnosis of exclusion) usually diagnosed in childhood.
Case reports: Case report 1: 33 years old female, ex- smoker (5 pack-year), with depressive syndrome medicated with fluoxetine and clobazam. She reported acute onset of dyspnea on exertion and mild hemoptysis and a CT scan was performed with imaging of diffuse bilateral ground glass pattern. After that episode, she remained asymptomatic for a year, until the reappearance of dyspnea on exertion and mild hemoptysis, with pulmonary X-ray with bilateral heterogeneous consolidations. She underwent a CT scan that showed worsening of the bilateral ground glass pattern, a bronchoscopy with normal features and a bronchoalveolar lavage with severe alveolar haemorrhage, but no evidence of microorganisms or malignant cells. No vascular malformations were found and the autoimmunity tests were negative. She then was submitted to surgical pulmonary biopsy, which histological features were compatible with IPH. After biopsy, a clinical and radiologic worsening occurred, and corticotherapy with an appropriate response was then prescribed. Three weeks after discharge, the patient was hospitalized with hemoptysis, worsening of dyspnea and respiratory failure (PaO_2 54 mmHg). We prescribed a three day course of meth-

ylprednisolone (1 g/day) and one course of cyclophosphamide (750 mg), with clinical, functional and imagiologic improvement. As an outpatient, she maintained treatment with corticosteroids undergoing weaning and oral cyclophosphamide (100 mg/day) for six months, with total regression of the disease. Afterwards she began maintenance therapy with azathioprine for two years. She remains asymptomatic with regular follow up, with no evidence of relapse of the disease. Case report 2: 51 years old black female, smoker (70 pack-year), with arterial hypertension, type 2 diabetes, dyslipidemia and obesity. The patient referred to the emergency department with complaints of asthenia and shortness of breath with progressive worsening. On the admission, we emphasize the presence of microcytic and hypochromic anemia (9.1 g/dL), peripheral saturation of 78% and a pulmonary x-ray with diffuse lung infiltrates particularly on lower zones. The patient was hospitalized and underwent high resolution CT scan with diffuse homogenous ground glass mild pattern and a bronchoscopy with bronchoalveolar lavage with moderated alveolar haemorrhage, with no evidence of microorganisms or malignant cells. The immunologic tests were negative, no vascular malformations were found and the transthoracic echocardiogram showed good ejection fraction. After, she did a surgical pulmonary biopsy which showed a lung parenchyma with features compatible with IPH. She was prescribed with a three day course of methylprednisolone (1 g/day) and monthly cyclophosphamide (750 mg), which she still does, with good clinical response.
Discussion: These cases reports are of particular interest because of the rarity of the disease, as well as the atypical presentations, namely age and sex. An exhaustive study must be carrying out and the surgical lung biopsy is absolutely necessary to establish the correct diagnosis.

***Key words**: Idiopathic pulmonary hemosiderosis. Atypical presentation.*

CO87. AN UNUSUAL CAUSE OF HEMOPTYSIS

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Introduction: Hemoptysis is a common symptom in clinical practice, that should be promptly investigated. The several possible etiologies can be categorized into parenchymal, airway and vascular diseases.
Case reports: Case 1: man, 63 years, smoker. With history of non-recent traumatic fracture of the 12th thoracic vertebra, without other previously known pathologies. Admitted at the emergency department of CHSJ with massive hemoptysis and dyspnea. History of first episode of hemoptysis four days before admission and with bloody sputum since the previous month, associated with pain in the lower third of the chest and the upper abdominal quadrants. At admission, the patient was normotensive, afebrile, with pulse oximetry on room air of 87%. Blood gas analysis with type 1 respiratory failure (pO_2 50.9 mmHg). Analytical study with mild leukocytosis and C-reactive protein of 16 mg/L. Chest radiograph showed a discrete reticular infiltrate in the lower third of the left hemithorax. Negative smear. Admitted to the pulmonology department for etiologic study and treatment. Computed tomography (CT) revealed the presence of a large saccular aneurysm of the transition of the thoracoabdominal aorta, with signs of contained rupture and alveolar consolidation in the left lower lobe. The patient was evaluated by Vascular Surgery, having undergone placement of thoracic aortic endograft. Later evolution without recurrence of hemoptysis. Case 2: man, 68 years, smoker. Previous history of pulmonary tuberculosis, pulmonary emphysema and abdominal aortic aneurysm surgically repaired 1 year ago. Presented to hospital ward with complaints of sudden massive hemoptysis and dyspnea. In the previous week, complaints of bloody sputum. At admission, with marked respiratory distress and respiratory acidemia (pH 7.19), with posterior need of endotracheal intubation. Chest CT showed saccular dilatation of the aortic arch, with signs of contained rupture. The patient was evaluated by Vascular Surgery and, after stabilization, underwent placement of endovascular aortic prosthesis. Later evolution without recurrence of hemoptysis.
Discussion: Although in most cases hemoptysis is a self-limited event, in some cases it may be massive and potentially fatal, condition that requires urgent investigation and approach. With these clinical cases, the authors intend to highlight the importance of the etiological study of hemoptysis. A detailed clinical history is essential and may indicate the cause, however, in these cases there were several diagnostic hypotheses. Imaging was fundamental, since it allowed a rapid identification of the etiology and subsequent therapeutic orientation. A ruptured aortic aneurysm, although uncommon, is a potential cause of massive hemoptysis and should be considered in differential diagnosis.

***Key words**: Hemoptysis. Aortic aneurysm. Rupture.*

CO88. INTRAPLEURAL COMBINATION THERAPY IN INFECTIOUS PLEURAL EFFUSION – TWO CASES REPORTS

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Introduction: About half of all cases of pneumonia presents with pleural effusion, significantly contributing to increased morbidity and mortality. Surgery is often required in cases that do not resolve with medical therapy, with no negligible risk and cost. The effectiveness of intrapleural therapy has been subjected to debate, however recent studies indicate greater efficacy of the combination of DNase and alteplase.
Case reports: Case 1: a 54 year old male, with vertebromedullary lesion (C4 level) for several years and hypercapnic respiratory failure, with chronic nocturnal NIV, was admitted electively to perform a video-assisted sympathectomy, which complicated with left pneumothorax, requiring chest tube placement. A few days later, the patient started with fever with elevated inflammatory markers; X-ray showed opacity in the left hemithorax; thoracic ultrasound confirmed a multiloculated pleural effusion. Thoracentesis was compatible with pleural infection. Empirical broad-spectrum antibiotics were started, a chest tube was placed and its correct positioning confirmed by chest CT-scan. Nevertheless, there was little drainage in the following days, with persistent fever. Given this unfavorable course, and surgical risks inherent to the underlying patient condition, intrapleural treatment with dornase alfa (5 mg 2id, 3 days) and alteplase (10 mg 2id, 3 days) was started, resulting in increased pleural fluid drainage, with frank clinical improvement and no associated complications. Antibiotic therapy was given for 16 days. Revaluation chest CT-scan showed a slight pleural effusion, and he was discharged afterwards. Case 2: a 41 year old woman, non-smoker, presented with pleuritic pain on the right; chest X-ray showed opacity in the lower 2/3 of right hemithorax; thoracic ultrasound confirmed the presence of right pleural effusion, slightly septate, associated with underlying consolidation/atelectasis; blood tests showed elevated infection parameters; urinary antigen test for Legionella and Pneumococcus were negative. Thoracentesis showed cloudy yellow liquid, characterized as an exudate, consistent with pleural infection; a chest tube was placed and empirical antibiotic therapy started. There was little drainage in subsequent days, and chest CT was performed, which confirmed the position of the tube in the pleural cavity, and showed moderate volume multiloculated pleural effusion, associated with parenchymal consolidation. After a thoracic surgeon evaluation, an immediate surgery indication was not considered. Therapy with intrapleural dornase alfa (5 mg 2id, 3 days) and alteplase (10 mg 2id, 3 days)

was started, resulting in increased pleural fluid drainage, associated with clinical and radiological improvement. Pain during instillation of drugs was observed. Antibiotic therapy was sustained for 14 days, without microbiological isolates. Revaluation CT-scan revealed a minor pleural effusion.
Discussion: The use of combined intrapleural therapy (dornase alfa and alteplase) contributed to the clinical and radiological resolution, and obviated the need for surgical intervention. Therefore, upon failure of medical therapy, when surgery is not an option (immediate or permanent) for medical or logistical reasons, this therapy should be considered.

Key words: *Pleural Infection. Dornase and alteplase.*

CO89. DOEGE-POTTER SYNDROME OR HYPOGLYCEMIA AS A PRESENTING SYMPTOM OF A SOLITARY FIBROUS TUMOUR OF THE PLEURA: CASE REPORT

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Introduction: Solitary fibrous tumours of the pleura (SFTP) are rare, of mesenchymal origin, mostly benign, however in 12% of the cases with malignant behavior. Usually it has an insidious onset and often it is a radiological finding. The most common symptoms are cough, chest pain or dyspnea. Paraneoplastic syndromes (PNS) are a rare presentation. The Doege-Potter syndrome represents a PNS associated to SFTP and it is manifested by hypoglycemia.
Case report: We are reporting a case of a 65 years old woman who presented with dyspnea on exertion in the last month. The patient was admitted to the emergency department with depression of consciousness in context of a severe hypoglycemia (45 mg/dL). Observation also showed absence of breath sounds on the left hemithorax. As relevant background stood out the presumptive diagnosis of pulmonary tuberculosis 15 years ago, and the patient completed antituberculosis therapy, but no follow-up. Also had rheumatoid arthritis and hypothyroidism, making proper medication. The chest CT revealed a large mass occupying almost the entire left hemithorax. During hospitalization hypoglycemia remained refractory to treatment. For the diagnostic investigation we have conducted a flexible bronchoscopy, which was inconclusive, and was performed a transthoracic needle aspiration biopsy (TNAB), for which the pathological findings were compatible with SFTP. The patient was subject to anterior-posterolateral thoracotomy with a complete excision of the pedunculated and vascularized extensive mass, and consequent complete lung expansion. The surgical specimen had dimensions 30 × 18 × 12 cm and weighted 2,645 g; histology confirmed TFSP with benign characteristics. When reassessed 2 months later the patient was asymptomatic, with normal pulse oximetry and normalization of glucose and insulin levels.
Discussion: SFTP are slow growing tumours, remaining asymptomatic for long periods of time. Although the most frequent symptoms are cough, chest pain or dyspnea, in less than 5% of cases, particularly in larger SFTP and with malignant behavior, there is a paraneoplastic syndrome of refractory hypoglycemia (Doege-Potter syndrome). This syndrome is related to the production of IGF-II from these tumours, conditioning low serum insulin levels, which typically reverses after surgical excision. This case report presents such particularities as the rare clinical presentation and exuberant tumor size, despite being histologically benign. It is important to highlight that the complete surgical excision is the preferred treatment for these tumours, allowing the resolution of the hypoglycemia, similarly to what happened in this case. In addition to being curative, surgery is also diagnostic in many cases, although it had been possible to do a preoperative histopathological diagnosis to this patient.

Key words: *Doege-Potter. Solitary fibrous tumour pleura. Hypoglycemia.*

CO90. PULMONARY ALVEOLAR MICROLITHIASIS

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Introduction: Pulmonary alveolar microlithiasis is a rare diffuse lung disease of unknown etiology first described in 1933 by Puhr. It is characterized by the intraalveolar deposition of calcium phosphate microliths. It is an autosomal recessive disorder caused by mutations in the SLC34A2 gene encoding a sodium/phosphate type II cotransporter found in the alveoli. It is usually diagnosed accidentally in the first four decades of life. Patients are often asymptomatic at diagnosis presenting a normal or restrictive lung function pattern. The disease can vary between clinical stability or progress to fibrosis, respiratory failure and cor pulmonale. The only effective treatment is lung transplantation.
Case report: 47 year old man, public official, ex-smoker since age 21 with a history of 3 pack years. Previously living in an urban center until 13 years ago and currently residing in a rural area. In pulmonology outpatient follow-up since he was 18 years old after the incidental identification of bilateral diffuse micronodules of the lung on a chest radiograph. In this context he had been hospitalized with suspected miliary tuberculosis and put on antituberculosis therapy for 1 month. The bronchoalveolar lavage showed increased CD1a suggesting Langerhans cell histiocytosis. Kept in clinical surveillance and smoking eviction for 30 years. Refers mild exertional dyspnea (mMRC 0-1) in the last two years. Personal history includes arterial hypertension for 2 years treated with perindopril + amlodipine, one episode of renal colic several years prior and seasonal allergic rhinitis for nearly 20 years prescribed with antihistamines and nasal budesonide on demand. No relevant family history. Environmental exposure includes contact with dog in the last 5-6 years and chickens for about 6 months. Analytical investigation revealed persistently normal results (CBC, WBC, sedimentation rate and biochemistry including serum calcium, ACE, autoimmunity and thyroid function, HIV 1 and 2 and normal Urine). Respiratory function tests showed a normal pattern until 2013, with recent slight decrease in DLCO. Radiological changes remained stable since diagnosis with “Exuberant, mainly calcified micronodules, “ground glass” densification, thickening of interlobular septa with punctate calcifications and calcifications in the inter-cisural and visceral pleurae, bilateral and symmetrical in the middle sections of the lung and lung bases”. The diagnosis of pulmonary alveolar microlithiasis with mild clinical and functional deterioration was put forth and surgical lung biopsy was performed by thoracoscopy. The intraoperative findings showed a granulous lung, grainy to the touch, with many millimetric, white, circumferential lesions. Histology showed alterations of the lung parenchyma architecture at the expense of alveoli filled with calcified material with a concentric laminar morphology, which confirmed the diagnosis.
Discussion: This is an interesting case of a rare entity, Pulmonary alveolar microlithiasis, with clinical stability for 30 years. Histological confirmation is necessary for planning the therapeutic strategy considering the differential diagnosis initially considered.

Key words: *Pulmonary alveolar microlithiasis. Lung calcification. Lung micronodules.*

CO91. "TB OR NOT TB"

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Case report: The authors present the case of a Caucasian male with 52 years old that worked as a construction worker. The patient had smoking habits in the past (30 packs year). In 2009 he was diagnosed with Inflammatory Bowel Disease (IBD) having started immunosuppressive therapy at May 2012 (5 mg/day of prednisolone and infliximab) after a negative tuberculosis screening. At July 2013 he went to the Emergency Room complaining about fever and tiredness with 2 months of evolution accompanied by dry cough at the last week. At the admission the patient was breathless and presented 86% on pulse oximetry while breathing room air and decreased breath sounds at the lower third of the right hemithorax. Laboratory tests showed microcytic hypochromicanemia (Hb: 12.7 g/dL), hyponatremia (134 mmol/L), elevated transaminases and CRP (GOT: 75 IU/L, GPT: 60 IU/L, CRP: 223 mg/L). Arterial blood gas analysis confirmed thepresence ofpartialrespiratory failure (PaO_2: 53.3 mmHg). The chest radiograph revealed bilateral scattered micronodular infiltrate accompanied by rightpleural effusion. The patient was initially admitted to the Internal Medicine ward with the diagnosis of community-acquired pneumonia and was treated with amoxicillin + clavulanic acid and azithromycin. However, the patient failed to improve and he was submitted to a chest CT that had showed multiple small centrilobular nodules scattered in both lungs (predominating in the upper lobes) associated with right pleural effusion. The Pulmonology support was requested by doing a diagnostic thoracentesis with pleural biopsy. The pleural fluid was consistent with lymphocytic exudate presenting elevated ADA (125 IU/L) and the sputum smear requested was negative for AFB. The diagnosis of pleural and pulmonary tuberculosis was assumed and the patient began HRZE. Pathological examination of the pleural samples revealed the presence of necrotizing granulomas and subsequently *Mycobacterium tuberculosis complex* sensitive to all first line antituberculosis drugs was isolated in cultural exams of sputum, pleura and pleural fluid as well as in blood cultures. Given these findings, the diagnostic challenge was placed between IBD and intestinal involvement by tuberculosis. For clarifying the situation a review of the biopsies of the sigmoid colon was requested leading to the identification of a necrotizing granuloma. Nucleic acid amplification tests (NAAT) were performed in the colon biopsy and those also revealed the presence *of Mycobacterium tuberculosis complex*. The patient was discharged on the 27th day of HRZE showing clinical, analytical and radiological improvement. He was referred to the Pneumologic Diagnosis Center and maintained antituberculosis therapy for 9 months.
Discussion: The distinction between IBD, especially Crohn's disease, from intestinal tuberculosis is a challenge, since these two entities present themselves with clinical, endoscopic and histological similar findings. In these cases the diagnosis is extremely important to avoid the toxicity of antituberculosis drugs in patients with Crohn's disease and the risks of immunosuppressive therapy in patients with tuberculosis. The biopsies' review and the realization of NAAT are essential for the differential diagnosis.

Key words: *Tuberculosis. Immunossupression. Inflammatory bowel disease.*

CO92. ALPHA-1-ANTITRYPSIN DEFICIENCY: A FAMILY WITH A RARE ALLELE – "MPA"

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Introduction: Alpha-1-antitrypsin (AAT) deficiency is rare in the general population. About 100 genetic variants are described. The Mpalermo (Mpa) allele, is an allele of severe deficiency, which corresponds to a rare variant that results from a deletion of phenylalanine at 52nd position of the protein. When this allele is present its associated with reduced secretion of the protein of about 90%.
Case report: We present the clinical case of a 22 year old man, designer, non-smoking, admitted in the emergency room due to left pleuritic chest pain and dyspnea, of sudden onset. He had personal history of asthma and allergic rhinitis; medicated with nasal corticosteroids; no known drug allergies. In physical examination, polypnea and decreased breath sounds in the left lung auscultation. The chest x-ray revealed an image compatible with left pneumothorax, which was drained. Upon discharge from hospital, he was oriented to Pulmonology outpatient, where he had no symptoms and the physical examination had no significant changes. From the additional diagnostic study: chest computed tomography revealed the presence of apical bubbles of emphysema (bilaterally), respiratory function tests were normal and the assay of AAT was 71.5 mg/dl. After observing the lack of AAT was performed phenotyping – M1 and genotyping - M1Mpa. Liver function and upper abdominal ultrasound had no significant changes. Was conducted family tracing in his two brothers, both healthy and non-smokers. The sister had AAT 66.9 mg/dl (phenotype S and genotype SMpa) and the brother had AAT 77.4 mg/dl (phenotype M and genotype M1Mpa). Liver function, respiratory function tests and chest X-ray, were normal in both.
Discussion: In cases of pneumothorax, as the one described here (especially in a non-smoking patient), should be excluded the AAT deficiency. This patient had genotype M1Mpa. Despite the M1 allele is associated with normal secretion of the protein and therefore not result in disease, the opposite is true with Mpa allele. The Mpa allele corresponds to a rare variant of severe deficiency and even in situations of heterozygosity, with alleles of normal secretion, as presented in this clinical case, it may be associated with disease risk. The S allele, found in the patient's sister, is a partially defective allele, this variant increases the likelihood of the protein being degraded intracellularly after its discharge, so that the probability of disease is increased, especially when in association with other deficient allele, as in this case. These patients, albeit with different genotypes, all have increased risk for illness and despite the current clinical stability should be kept under clinical supervision.

Key words: *Alpha-1-antitrypsin. Rare allele. Mpa.*

CO93. FEATURES OF INTERSTITIAL LUNG DISEASE PATIENTS REFERRED FOR TRANSPLANTATION IN PORTUGAL

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Introduction: Interstitial lung diseases are a common reason for lung transplant. As it represents a heterogeneous group of diseases, timing of referral for lung transplantation is difficult to define. Early referral is highly desirable because of the high risk of disease progression and mortality on the waiting list.
Objective: To present the clinical and functional characteristics of interstitial lung disease patients referred to our center during the last two years (2012 and 2013) and to analyze the results of their evaluation for inclusion on the waiting list for lung transplant.
Methods: We analyzed retrospectively the patients clinical files, including their medical history, lung function tests (spirometry,

plethysmography and carbon monoxide diffusing capacity - DLCO), baseline arterial blood gas, six-minute walk test (6MWT) and heart function tests (echocardiogram and cardiac catheterization with coronary arteriography).
Results: We included 61 patients, mainly male (67.2%). The mean age was 54.2 years (± 8.8). The most common diagnosis were idiopathic pulmonary fibrosis (n = 19; 31.1%), extrinsic allergic alveolitis (n = 16; 26.2%) and silicosis (n = 8; 13.1%). At timing of referral the mean time of disease progression was 5.2 years (± 6.2). The mean of forced vital capacity was 57 ± 20%, total lung capacity was 64 ± 18% and DLCO was 38 ± 14%. The 6MWT mean distance was 313 meters (± 128) and oxygen desaturation (SpO_2 < 88%) was present in 70.5%. The majority of patients had respiratory failure (n = 51; 83.6%). The principal comorbidities found were pre-obesity/obesity (68.9%) and pulmonary hypertension (54.1%); eleven patients (18%) had coronary heart disease. The majority of patients (80%) met clinical and/or functional criteria for immediate inclusion on the waiting list at the time of referral for lung transplantation. Twenty-four patients (39%) were accepted, with eleven of them (46%) being already transplanted by now; the waiting list mortality was 8.3% (n = 2). Fourteen patients (23%) were refused, mainly because of their comorbidities.
Conclusions: The majority of interstitial lung disease patients referred for lung transplant in our center was in an advanced stage of their disease and had significant comorbidities, preventing their inclusion on the waiting list. This study highlights the importance of an earlier referral and some of the lung transplant limitations.

***Key words**: Lung transplant. Interstitial lung diseases.*

CO94. DIFFUSE ALVEOLAR HEMORRHAGE IN IDIOPATHIC PULMONARY FIBROSIS

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Introduction: There have been recently a number of descriptions of alveolar hemorrhage in idiopathic pulmonary fibrosis (IPF), suggesting a vascular damage process as a potential relevant physiopathological process at least in a subgroup of patients.
Objective: Identification of alveolar hemorrhage in IPF patients and investigation of the association with the severity and prognosis of the disease.
Methods: Patients assisted in ILD outpatient clinic with IPF diagnosed according with 2001 ATS/ERS guidelines till 2011, and after that according with 2000 ATS/ERS/JRS/ALAT guidelines, who performed bronchoalveolar lavage (BAL) in their diagnostic approach, were included. BAL was performed according with 1990 ERS recommendations. Golde score (GS) was used to identify and quantify hemosiderin-laden alveolar macrophages in BAL fluid (BALF). All patients with BAL alveolar hemorrhage were evaluated regarding the clinical presentation, lung function tests, high resolution computed tomography scan (HRCT) features and survival.
Results: Seventy two patients with IPF and BAL in the diagnostic assessment were included. BAL alveolar hemorrhage was detected only in 5 (6.9%) patients and all of them had moderate hemorrhage (medium Golde score 115). BALF neutrophilia was present in all the five patients and eosinophilia in 3. None of the patients were a current smoker. Four patients had a functional restrictive pattern and all had significant diffusion impairment. HRCT fibrotic score went from 8 to 11. Except in one patient who had pulmonary hypertension, any cardiovascular disorder or other apparent cause for alveolar hemorrhage were detected. All patients died during the 6 months after BAL have been performed (2-6).
Conclusions: The identification of alveolar hemorrhage was infrequent in this cohort of IPF patents, although it has been associated with patients with poor prognosis.

***Key words**: Alveolar hemorrhage. Idiopathic pulmonary fibrosis. Bronchoalveolar lavage. Golde score.*

CO95. CHRONIC HYPERSENSITIVITY PNEUMONITIS: IS THE INTERSTITIAL PNEUMONIAS DISEASE BEHAVIOR CLASSIFICATION SUITABLE FOR OUTCOME STRATIFICATION?

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Introduction: Chronic hypersensitivity pneumonitis (CHP) is associated with a high variability outcome that goes from a residual disease to a respiratory insufficiency and death. However, until now, any classification regarding disease evolution or prognostic factor had been validated or clinically accepted. Recently ATS/ERS Interstitial Idiopathic Pneumonias statement had proposed a disease behavior classification that has been considered also suitable to reflect CHP clinical course.
Objective: Stratification of CHP clinical course according with an adapted version of IIP Disease Behavior Classification. Research of predictive factors associated with each type of evolution considered.
Methods: Evaluation of 150 patients with hypersensitivity pneumonitis diagnosed using the criteria proposed by Lacassse et al and assisted at Interstitial Lung Diseases outpatient clinic. They were stratified according with Disease Behavior Classification: 1) Reversible and self-limited disease, 2) Reversible disease with risk of progression, 3) Stable with residual disease, 4) Progressive, irreversible disease with potential for stabilization and 5) Progressive, irreversible disease despite therapy. Only the groups 3, 4 and 5 were considered as CHP and evaluated and compared according with clinical, functional and radiologic presentation. The patients included in the study had at least one year of evolution.
Results: The patients included had a mean age of 56 years (IQR 43-65), 85 (57%) were woman and 122 (82%) non smokers. The two more frequent antigens were bird proteins in 112 (75%) patients and cork moulds in 11 (7%) and in 19 (13%) any antigen related with the disease was found. The median time of exposure was 10 years. The clinical presentation was acute in 18% (n = 24) patients, subacute in 14% (n = 19) and chronic in 68% (n = 94). Regarding disease behavior classification, 35% (n = 53) patients were in the groups 1 + 2, 11% (n = 16) in the group 3, 19% (n = 28) in the group 4 and 19% (n = 28) in the group 5. When the CHP patients were compared (groups 3-5), any significant difference was found regarding the presence of the most usual symptoms, dyspnea and dry cough. However, when the respiratory functional parameters were evaluated, a significant difference was noted in FVC (3 vs 4: $p = 0.004$; 4 vs 5: $p < 0.001$), DLCOsb (3 vs 4: $p < 0.001$; 4 vs 5: $p < 0.003$) and FEV1 (4 vs 5: $p = 0.022$). No significant discrepancies were detected when radiological patterns on HRCT scan were considered and compared.
Conclusions: In this cohort of CHP, the majority of the patients were easy to classify according with the adapted version of the IIP Disease Behavior Classification, which suggests its applicability. As it happen in IPF, the functional parameters, namely FVC and DLCO seems to be the most consistent predictive factors of outcome in CHP.

***Key words**: Hypersensitivity pneumonitis. Disease Behavior Classification.*

CO96. ASSESSMENT OF PULMONARY ARTERIAL HYPERTENSION ESTIMATED BY ULTRASOUND CRITERIA AND EXERCISE CAPACITY IN PULMONARY TRANSPLANT CANDIDATES

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Introduction: Pulmonary arterial hypertension is characterized by dyspnea on exertion and might be an important limiting factor of exercise capacity. Pulmonary transplant candidates have a multiplicity of respiratory conditions but all end up with organ failure that is no longer unchanged with medical treatment.
Objective: To assess how pulmonary arterial hypertension, estimated by echocardiography (PAHe), relates with exercise capacity determined by the six minute walk test distance (6MWD), maximum work rate (Wmax) and maximal oxygen uptake (VO2max) using a cycle ergometer for cardiopulmonary exercise test.
Methods: Retrospective evaluation of pulmonary transplant candidates with the following inclusion criteria: clinical data of transthoracic echocardiogram, Wmax and VO2max from an early medical evaluation followed in the outpatient transplant department. PAH was considered when estimated pulmonary artery systolic pressure (PASP) was ≥ 30 mmHg or if indirect signs of PAH were present. The Mann–Whitney *U* test was used to perform the statistics analysis.
Results: Thirty patients met the inclusion criteria, 23 were male, the median age was 57 years (20-68 years) and the median forced expiratory volume in one second percent predicted (FEV1%) was 41.4%. Nine patients had pneumoconiosis, 6 COPD, 4 interstitial lung disease, 3 bronchiectasis, 2 asthma, 2 alpha 1-antitrypsin deficiency, 1 hypersensitivity pneumonitis, 1 cystic fibrosis, 1 Sjögren syndrome and 1 severe sequelae of *Staphylococcus aureus* pneumonia. Six candidates (20%) had PAHe, with median PASP of 51mmHg. Considering all patients, the median values were: 400 meters for 6MWD, 57.5 Watts for Wmax and 12.3 ml/min/kg for VO2max. Regarding only those with PAHe, the median values were respectively: 275 meters, 67.5 Watts e 13.4 ml/min/kg, with no statistically significant differences when comparing with the remaining patients: 6MWD (p = 0.462), Wmax (p = 0.527) and VO2max (p = 0.781).
Conclusions: Although PAHe was not associated with statistically significant differences in the exercise capacity of in this sample of pulmonary transplant candidates, the differences obtained in the 6MWD may be clinically significant.

***Key words**: Pulmonary arterial hypertension. Echocardiogram. Lung transplant.*

CO97. PULMONARY EMBOLISM

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HG-CHUC.

Introduction: Pulmonary embolism is the third most common cause of death from cardiovascular disease. Its incidence increases with age and with risk factors that increase venous stasis and hypercoagulability. Venous thromboembolism occurs in 1-2 adults/1,000 each year, with about a third presenting with pulmonary embolism.
Objective: The present study aims to describe the population with the diagnosis of pulmonary embolism that was hospitalized in the Internal Medicine Service of Hospital Geral do Centro Hospitalar da e Universitário de Coimbra from June 2012 to June 2014.
Methods: This is a retrospective and descriptive study. The sample was collected through the software program SAM® and treated statically on Excel®.
Results: This sample accounts for 60 patients in whom 67% are men and 33% women with a mean age of 77 years whose clinical presentation was characterized by hypoxemia (88.3%), dyspnea (60%) and tachycardia (46.7%). The diagnosis of pulmonary embolism was obtained by CT angiography. The mortality rate was 17%. The most prevalent risk factors were age over 70 years (71.7%), prolonged immobility (51.7%), previous venous thromboembolism (30%), obesity (20%) and history or diagnosis of cancer (13.3%). Two patients were treated with fibrinolysis, 52% of patients were dismissed with warfarine and 37% with enoxaparin.
Conclusions: This population accounts for patients with multiple pathology and the mortality rate does not reflect the mortality by pulmonary embolism. The clinical presentation is similar to what was found in literature. The age and prolonged immobility were the most prevalent risk factors. The prevalence of obesity was only 20%. The therapeutic option after discharge took into account both the economic possibilities and the underlying pathologies, showing the cheapest option as the main choice.

***Key words**: Pulmonary embolism. Venous thromboembolism. Risk factors.*

CO98. FIBRINOLYSIS IN THE TREATMENT OF PULMONARY EMBOLISM: TWELVE YEAR EXPERIENCE OF AN INTENSIVE CARE UNIT

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Introduction: Pulmonary embolism is a frequent cause of death from cardiovascular disease. Although not without risks, fibrinolysis improves respiratory and hemodynamic functions in patients with massive pulmonary embolism.
Objective and methods: To conduct the retrospective study, the authors reviewed the medical records of patients with pulmonary embolism who underwent fibrinolysis with Alteplase, in the period between January 2002 and May 2014, in order to evaluate efficacy and security of this treatment.
Results: Fibrinolysis was performed in 21 patients: 13 (61.9%) women an 8 (38.1%) men, with 59.6 ± 20.4 years old.On average, the first symptoms began 8 days before admission, with dyspnea (n = 14; 66.6%) and syncope (n = 11; 52.4%) being the most referred. Risk factors for pulmonary embolism were identified in 11 patients, and the most prevalent were chronic venous insufficiency of the lower limbs (n = 5; 23.8%), and oral contraception (n = 4; 19.0%). Subsequently, genetic factors for thrombophilia were diagnosed in 7 (33.3%) patients. Analytically, D-dimers were 11,598 ± 19,035 ng/L. All 19 patients (90.5%) who performed CT angiography of the chest presented thromboembolism signs in both right and left principal pulmonary artery branches, and all that performed echocardiogram (n = 19; 90.5%) had signs of right heart overload, with a pulmonary systolic artery pressure of 52.7 ± 16.9 mmHg. Eight patients (38.1%) presented with cardiogenic shock at admission, and 18 (85.7%) had acute respiratory failure, characterized by hypoxemia and hypocapnia in 10 patients (47.6%), hypoxemia and normocapnia in 7 (33.3%), and hypoxemia and hypercapnia in one (4.7%). Severity scoring systems on admission were SAPS II: 36.8 ± 10.9 and APACHE II: 12 ± 2.9. One patient needed invasive mechanical ventilation. None of the patients had contra-indications to fibrinolysis. Complications occurred secondarily to therapeutic in 2 individuals: transient ischemic attack, and an arm hematoma. A third patient died of refractory shock, due to treatment failure. Average length of ICU stay was 2.8 ± 3.2 days.
Conclusions: Fibrinolysis allowed rapid improvement of symptoms, respiratory failure and hemodynamic instability, and it was simultaneously safe, in patients with massive pulmonary embolism.

***Key words**: Pulmonary embolism. Fibrinolysis.*