patients, it was possible to anticipate anti-bacillary therapy by 42 days, thanks to AFB and NAA tests being performed in all samples.

***Keywords**: Pulmonary tuberculosis. Bronchoscopy. Bronchial washing.*

CO 010. MULTIDRUG-RESISTANT PULMONARY TUBERCULOSIS - A 10-YEAR ANALYSIS

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Introduction: Multidrug-resistant tuberculosis is defined as an infection caused by *Mycobacterium tuberculosis* without sensitivity to at least isoniazid and rifampicin.
In the period 2016-2020 in Lisbon Amadora was the municipality with the highest rate of tuberculosis case notification, 39.2 cases/100,000 inhabitants. In 2020 in Portugal there was a prevalence of 1.5% of multidrug-resistant pulmonary tuberculosis.
This study aims to perform a descriptive analysis of cases of multidrug-resistant pulmonary tuberculosis (MDR-PT) in a tertiary care hospital in the last 10 years.
Methods: Retrospective study of patients diagnosed with MDR-PT in a tertiary care hospital between 2012 and 2021. Demographic characterization, symptoms including time of evolution, date of diagnosis, type of diagnostic specimen, bronchofibroscopy, laboratory identification method of infection and resistance, resistance profile, and in-hospital mortality were performed.
Results: Twenty patients with MDR-PT were included. The majority were male (65%, n = 13), and the median age at diagnosis was 41 years. 45% (n = 9) of patients had a concomitant diagnosis of Human Immunodeficiency Virus (HIV) infection. The most frequent symptoms were fever, cough and weight loss (78%, n = 14 respectively) with a median duration of 60 days. Only 1 patient had a history of previously treated tuberculosis. The highest number of MDR-PT diagnoses was in 2012 (25%, n = 5) with a median of about 2 cases per year. The main specimen type for diagnosis was sputum (55%, n = 11), followed by bronchial secretions (25%, n = 5), bronchoalveolar lavage (10%, n = 2) and pleural fluid and biopsy (1 each). Bronchofibroscopy was performed in 45% (n = 9) of cases. The diagnosis was mostly made by direct examination (75%, n = 15). The diagnosis of MDR-PT was made a median of 26 days after diagnosis. Resistance was detected in 40% of cases (n = 8) by polymerase chain reaction (PCR) at a median 1 day after diagnosis, 35% (n = 7) by antimicrobial susceptibility testing (AST) after 46 days, and 25% (n = 5) by strain PCR after 43 days. Resistance to more than 4 antimicrobials was found in 40% of cases, especially resistance to streptomycin (n = 17), followed by pyrazinamide (n = 12), ethionamide (n = 10) and ethambutol (n = 5). There was 1 case of extensively resistant PT (ofloxacin, ciprofloxacin, amikacin and capreomycin). In-hospital mortality was 30% (n = 6).
Conclusions: Demographic characteristics are similar to what has been described in the literature, but more HIV co-infection. The delay of 26 days to the diagnosis of multidrug resistance may be due to the higher number of cases identified by AST and PCR of the strain. It should be taken into account that until 2014 the molecular identification of resistance depended on positivity by the Ziehl-Neelsen technique. While since the use of another method without this requirement it was possible to identify resistance within 1 day. The high in-hospital mortality of 30% may be due to counting the number of deaths over 10 years, without differentiating the diagnosis of concomitant HIV infection or other comorbidities and because it is an infection by a multidrug-resistant microorganism.

***Keywords**: Pulmonary tuberculosis. Multidrug-resistant. Diagnosis. Tertiary hospital.*

CO 011. CHARACTERIZATION OF SLEEP QUALITY IN THE ELDERLY

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Introduction: Aging is related to changes in the structure and sleep quality, conditioning the appearance of sleep disorders. Sleep assessment in the elderly is essential for the diagnosis and treatment of these disorders and their consequences. The Geriatric Sleep Questionnaire (GSQ-6) is a new diagnostic tool validated for the Portuguese population that allows assessing the subjective sleep quality in the elderly through six questions.
Objectives: To characterize the sleep quality of the elderly and assess the impact of Sleep Apnea (SA) and other variables through the application of the GSQ-6 questionnaire.
Methods: Assessment of sleep quality in the elderly followed in a sleep or respiratory failure appointments at Centro de Responsabilidade Integrado Sono e VNI from March to May 2022 at Centro Hospitalar Universitário de São João, through the GSQ-6.
Results: Ninety-five patients were included, most of them male (64.2%) and with a mean age of 73.1 years (65-90 years). Thirty-six patients (37.9%) were medicated with at least one of the drugs (anxiolytics, antidepressants and sleep inducers). Most patients lived in urban areas (71.6%) and had low education (80%). The questionnaire mean score was 13.9, and one-third of patients had a score ≥ 16 (cutoff for sleep disorders detection). Most of the patients had a sleep study (76.8%), most of them level 3 (93.2%), and the remaining level 1. The exam revealed mild SAS in 19 patients, moderate in 20 and severe in 27. Time spent below SpO2 90% (T90) was on average 22.9%, with 26 patients (27.4%) having a T90 equal to or greater than 20%. There was no statistically significant association between sleep quality and the presence and/or severity of SAS, presence and severity of nocturnal hypoxemia, education or residential environment. The relationship between age and the questionnaire score was also not shown to be statistically significant.
Conclusions: In this sample, one third of the patients had a QSQ-6 questionnaire score compatible with the existence of sleep disorders, however there was no association between this score and the presence/severity of SAS and nocturnal hypoxemia. There was also no association between age, education level or residence environment and this score. The GSQ-6 is a validated tool for Portuguese population, brief and easy to implement, and could be valuable for future investigations about the relationship between sleep quality and the mental health and well-being in older people.

***Keywords**: Sleep. Geriatric Sleep Questionnaire. Sleep apnea.*

CO 012. RESPONSIVENESS TO PULMONARY REHABILITATION IS RELATED WITH CHANGES IN ORAL MICROBIOTA OF PEOPLE WITH COPD

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Introduction: Pulmonary Rehabilitation (PR) is one of the most cost-effective therapies for chronic obstructive pulmonary disease (COPD), with proven benefits in domains such as exercise capacity and quality of life. Despite its clear benefits, patients are not equally responsive to PR. Reasons behind that as well as the role of the airway microbiota in PR effectiveness are currently unknown.
Objectives: Here, we explored for the first time, the effects of PR on oral microbiota and inflammatory markers and the link with re-

sponsiveness to PR. Study design: 76 participants were enrolled in this prospective cohort study, half of whom integrated a 12-week PR program. During the 6-month follow-up, a total of 417 saliva samples, and data on dyspnoea during exercise (mBorg), exercise capacity (6MWT) and impact of the disease (CAT) were collected. PR responsiveness was defined as overcoming the published minimal clinically important difference for mBorg (-1 point), 6MWT (25m) and CAT (-2 points).
Results: PR modulated patients' microbiota composition and dynamics. Specifically, an enrichment of Proteobacteria (*Haemophilus*) and a depletion in Bacteroidetes (*Prevotella*), previously associated with increased severity (Melo-Dias et al, Respir Res 2022), were observed upon PR. We also observed changes in the levels of IL-1β, TNF-α and IL-10. When separating patients in responders (R) and non-responders (NR), distinct patterns of bacteria/bacteria and bacteria/inflammatory marker longitudinal correlation were observed among the groups. In R, the increase in *Prevotella* negatively correlated with *Lautropia* (enriched in most severe cases of COPD (Melo-Dias *et al.*, Respir Res 2022)). The opposite trend was observed in NR, with Lautropia showing a positive correlation with several pro-inflammatory markers. Conversely, in all groups of R, *Rothia* and *Gemellaceae* presented negative correlations with several pro-inflammatory markers.
Conclusions: Overall, despite responsiveness to PR being multidimensional and heterogeneous, giving rise to a moderate overlap across domains in individual response, PR-induced changes in microbiota revealed surprisingly consistent patterns among R and NR. Future studies should address the implications and stability of these findings.

Keywords: *Pulmonary rehabilitation. COPD. Oral microbiota. Responsiveness to pulmonary rehabilitation.*

CO 013. BRONCHODILATOR RESPONSIVENESS TESTING: THE IMPACT OF THE NEW CRITERIA PROPOSED BY THE ATS/ERS

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Introduction: The bronchodilation test has been used for several years to assess changes in lung function in response to the administration of a bronchodilator. According to the most recent technical standard for the interpretation of pulmonary function tests, dating from 2021, from the American Thoracic Society/European Respiratory Society (ATS/ERS), the bronchodilation test is classified as positive when there is an increase equal to or greater than 10% of individual's predicted value of FEV1 or FVC. These new criteria contrast with the long-standing one, dating from 2005, in which the absolute increase of 200ml and 12% in FEV1 or FVC would define a positive test.
Objectives: The objective of this study was to understand the impact of using the new criteria recommended by the ATS/ERS in the interpretation of the bronchodilation test.
Methods: All spirometry with bronchodilation test performed in the functional exploration laboratory of a tertiary hospital from 11 to 22 July 2022 were analyzed and categorized as positive or negative taking into account the 2021 and 2005 criteria from the ATS/ERS. The following data were also collected: age, sex, race, height, diagnosis, information if the test was performed under bronchodilator therapy, purpose of the exam (diagnosis or follow-up) and whether or not changes were detected. Categorical variables were expressed as frequency and percentage and continuous variables as mean ± standard deviation. The results obtained in the bronchodilation test using the different classification criteria were compared using the McNemar test. The threshold for statistical significance was set at $p < 0.05$. All statistical procedures were performed using the IBM Statistical Package for the Social Sciences (SPSS) software, version 28.0.0.
Results: 209 bronchodilation tests were analyzed. In the study sample, 107 patients (51%) were female. The mean age of the patients was 53 ± 22 years, the mean height was 162 ± 10 cm and 100% of the patients were Caucasian. The respiratory functional study was performed without the effect of any baseline Bronchodilator therapy in 107 cases (51%), it was performed for diagnostic purposes in 61 cases (29%) and showed alterations in 138 cases (66%). The most frequent diagnoses were asthma with 75 cases (36%) and COPD with 42 cases (20%). According to the 2005 and 2021 ATS/ERS criteria, 48 (23%) and 37 (18%) tests of bronchodilation were classified as positive, respectively. Of the tests classified as positive using the oldest criteria, 25% have their result changed to negative and of those classified as negative, only 1 test changes to positive. The classification of bronchodilation tests, using the different criteria, are in agreement in 196 cases (94%) and discordant in 13 cases (6%). The McNemar test showed that there are differences in the proportions of positive and negative bronchodilation tests using the different criteria ($p = 0.03$).
Conclusions: The use of the new criteria proposed by the ATS/ERS will lead to a change in the interpretation of bronchodilation tests and, consequently, will have an impact on clinical practice.

Keywords: *Bronchodilator responsiveness testing.*

CO 014. OBSTRUCTIVE SLEEP APNEA THERAPY EFFECTIVENESS FOR SECONDARY ERYTHROCYTOSIS

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Introduction: Although rare as an overall cause of erythrocytosis, Obstructive Sleep Apnea (OSA) is a prevalent cause of secondary erythrocytosis (SE) and a frequent reason of referral to the Sleep Clinics in our practice. Erythrocytosis significantly increases the blood viscosity and the risk of thrombotic events; this might be of particular importance in a susceptible population.
Objectives: We aimed to evaluate the effectiveness of OSA therapy on correcting hemoglobin and hematocrit levels for SE.
Methods: We performed a retrospective cohort study, selecting 45 patients referred to our outpatient clinics for OSA SE undergoing effective OSA therapy. We obtained the hemoglobin (Hb) and hematocrit (Htc) levels at the baseline and after, at least, six months of effective therapy. The statistical analysis was performed using IBM SPSS statistics® v23 and the appropriate statistical tests.
Results: Our cohort patients were mostly men (n = 40, 88.90%) with a mean age of 61.00 ± 13.44 years. Most patients showed severe OSA (n = 26, 58.80%). The prevalence of obesity was 48.90% (n = 22) and previously diagnosed lung disease (stable and without respiratory failure) was present in 10 patients (22.90%). Hb levels at the baseline were 17.72 ± 1.23 g/dL and the Htc 52.56 ± 3.24%. Patients with more severe desaturation indexes showed higher baseline Htc levels ($p < 0.001$). All the analyzed patients showed satisfactory adherence to therapy (according to Portuguese general directorate of health directives). OSA therapy was effective in correcting Htc and Hb in 13 patients (31.00%); the remaining patients, although observing a significant decrease in the Htc values ($p = 0.012$) and Hb values ($p = 0.016$), failed the target of the normal range. The achievement of corrected Hb and Htc levels was less frequent for postural OSA ($p = 0,026$), but we failed to determine other factors potentially related to treatment effectiveness regarding Htc and Hb levels.
Discussion: We showed a significant decrease in Htc and Hb levels after effective OSA therapy, which one can infer to have lowered the hyper viscosity and the subsequential risk for thrombotic events. However, an effective OSA therapy was not a grant for achieving values within the normal range. More research is needed to understand the meaning of this finding, regarding the risk of thrombotic events, the need to add-on therapies and other potentially contributing factors.