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CO 001. IMPACT OF RADIOLOGICAL AND CLINICAL FEATURES ON DIAGNOSTIC BRONCHOSCOPY FOR LUNG MYCOBACTERIAL INFECTION

Francisca Guimarães, Vera Durão, Matilde Ferreira De Almeida, Ricardo Estevão Gomes, Jorge Soares, Miguel Lopes

Hospital Vila Franca de Xira - ULS Estuário do Tejo.

Introduction: Lung Mycobacterial infection (LMI) is diagnosed based on the integration of clinical and imaging features, and microbiological and molecular analysis of respiratory specimens. In smear-negative and sputum scarce patients (pts), bronchoscopy (BP) may be performed for specimen collection.
Objectives: To assess the impact of radiological and clinical features on diagnostic BP for LMI.
Methods: Retrospective study including pts who underwent BP for suspected LMI from January 2016 to December 2021. Demographics, immunosuppression status, symptoms, radiological findings on Computed Tomography, and bronchoscopy aspirate/bronchoalveolar lavage microbiological results were included in a database. Logistic regression models were performed. A p-value < 0.05 was considered as the lower threshold of significance.
Results: Three-hundred and forty pts underwent BP for suspected LMI. Fifty-two pts were excluded due to lack of clinical information or follow-up after BP and 288 were included: 177 males (61.5%); median age 54 years. Half (50%) were immunosuppressed: 34% were infected with Human Immunodeficiency Virus (HIV) and 16.3% were under immunosuppressive therapy. BP was diagnostic of LMI in 29.5% of pts (17.7% tuberculosis; 11.8% non-tuberculous mycobacteria). The presence of fever (OR 1.79, p = 0.036), miliary pattern (OR 2.77, p < 0.001), or cavitation (OR 2.00, p = 0.025) significantly increased the yield of a diagnostic BP for LMI, whereas the presence of ground-glass opacities on radiological exams significantly reduced this yield (OR 0.30, p = 0.002). In immunosuppressed pts, the miliary radiological pattern further significantly increased the risk of a diagnostic BP for LMI (OR 3.13, p = 0.009). The presence of cough (OR 2.49, p = 0.017) and the miliary pattern (OR 3.17, p < 0.001) significantly increased the risk of a diagnostic BP with identification of *Mycobacterium tuberculosis*.
Conclusions: These findings underscore the importance of considering specific clinical and radiological features when evaluating patients for potential Mycobacterial Lung Disease, particularly in high-risk groups.

Keywords: *Lung mycobacterial infection. Diagnostic bronchoscopy.*

CO 002. MULTIDRUG-RESISTANT TUBERCULOSIS IN A PORTUGUESE REFERENCE CENTER: A RETROSPECTIVE ANALYSIS

Mariana Marçal, André Silva, Inês Ladeira, Inês Franco

ULS Arrábida.

Introduction: Multidrug-resistant tuberculosis (MDR-TB) is a form of TB disease resistant to isoniazid and rifampicin. MDR-TB represents a global public health challenge, with approximately 410,000 new cases in 2022. In Portugal, MDR-TB is a growing concern, especially in vulnerable groups and high-incidence regions.
Objectives: To describe MDR-TB cases in a Portuguese reference center, focusing on patient demographics, clinical characteristics, and treatment outcomes.
Methods: A retrospective analysis was conducted on MDR-TB cases diagnosed and treated in a reference center in the North region of Portugal between 2015 and 2023. All patients with confirmed MDR-TB were included.
Results: We identified 29 MDR-TB cases, three (10.3%) were also pre-XDR TB. The mean age was 47.4 ± 14.1 years, with 90% being male. Common risk factors included smoking (58%), previous TB treatment (41.4%), migration from high-incidence countries (34.5%), and alcohol abuse (20.7%). Pulmonary infection was present in 79.3% of patients, with a median diagnostic delay of 60 days. Resistance detection was performed using genotyping methods in 65.5% of cases, with a median of 9 days after diagnosis. Treatment followed current WHO guidelines, with a median duration of 18 months. More than half of the patients were treated with all-oral regimens containing bedaquiline. Adverse effects were experienced by 25 (86.2%) patients, leading to regimen changes in 13 cases. Common adverse effects were gastrointestinal (24.1%), arthralgias

(24.1%), and ototoxicity (20.7%). Of the 23 (79.3%) patients who completed treatment, 19 achieved cure criteria, with no deaths reported. Six (20.7%) patients were still receiving treatment.
Conclusions: The findings of this study highlight the importance of rapid diagnosis and timely initiation of appropriate treatment for MDR-TB patients. Despite high rates of adverse effects, treatment outcomes were generally positive for those who completed treatment. Effective monitoring and treatment strategies are crucial for improving outcomes and reducing MDR-TB spread in Portugal.

Keywords: *Multidrug-resistant tuberculosis. Diagnosis. Treatment outcomes.*

CO 003. DISSEMINATED BACILLUS CALMETTE-GUÉRIN INFECTION WITH PULMONARY INVOLVEMENT AFTER INTRAVESICAL INSTILLATION – A CLINICAL CASE

Ana Rita Costa Pereira, Andreia Andrade, David Silva Gomes, Maria Aurora Mendes, Lília Andrade

Unidade Local de Saúde da Região de Aveiro.

Introduction: Intravesical administration of bacillus Calmette-Guérin (BCG) is an effective treatment for early-stage bladder cancer. Disseminated BCG infection is rare. The main risk factors are the extent of bladder mucosal damage and immunodeficiency.
Case report: A 55-year-old man with urothelial carcinoma who underwent transurethral resection in April 2021, started BCG intravesical administration in June 2021. The last treatment cycle was on June 29, 2022. One week later, he went to the emergency department (ED) with urinary symptoms, uncomplicated pyelonephritis was assumed and started cefuroxime. He reported hematuria and dysuria after intravesical BCG sessions with self-resolution in 3-4 days. The following week, he returned to the ED due to persistent fever, fatigue and dry cough without genitourinary symptoms. He was febrile, sweaty, slightly tachycardic and polypneic with peripheral oxygen saturation of 91% with oxygen at 4 L/min. No obvious changes on pulmonary auscultation. Gasimetrically with arterial oxygen pressure (PaO2) 63.9 mmHg, PaO2/fraction of inspired oxygen ratio 177, analytically with leukocytosis, neutrophilia, mild hyponatremia, cytocholestasis, mild elevation of total bilirubin and direct bilirubin, increased C-reactive protein and procalcitonin. Chest X-ray showed bilateral pulmonary infiltrates with miliary appearance. Thoracic computed tomography showed bilateral micronodular pattern scattered in both lung fields with some ground glass, mainly in the upper lobes. The patient was hospitalized. High-flow nasal cannula was started with good clinical response. BCGitis was assumed. The Pneumological Diagnostic Center was contacted, taking into account the severity of the condition and the elevation of liver markers, rifampicin, ethambutol, levofloxacin, amikacin and systemic corticosteroids were started. Subsequently, flexible bronchoscopy was performed without isolation of microbiological agents. There was progressive clinical improvement.
Discussion: This case elucidates a rare complication of intravesical BCG instillation. Hematuria points to mucosal fragility. Microbiological isolation in lung infection is difficult, with the timing of infection being a key factor for diagnostic suspicion.

Keywords: *BCG. Intravesical instillation. Carcinoma. Lung.*

CO 004. EXPERTS' PERSPECTIVES ON TUBERCULOSIS SCREENING PROCEDURES IN MIGRANTS

Marina Pinheiro, David Moreira, Ana Aguiar, Raquel Duarte

Barcelos/Esposende Local Health Unit, Public Health Unit Barcelos/Esposende.

Introduction: With the rise in migration to Europe, the health burden of tuberculosis (TB) disproportionately affects migrants, creating urgent needs for effective screening programs. This study aims to evaluate the perspectives of TB experts from different countries regarding national screening procedures.
Methods: The study has a qualitative and descriptive design. Data were collected using electronic and anonymised surveys with experts in TB from 7 different countries and 2 WHO regions (Europe and Africa). Thematic analysis was used for the analysis.
Results: The survey results indicate varied perceptions and experiences of national guidelines regarding the screening and treatment of TB, especially in the population tested, the adequate time of screening, type of tests, best practices, barriers, and limitations of the screening. The participants highlighted the importance of health services integrated with the community to achieve people-centred health care. The study also sheds light on the importance of involving trained nurses and social workers in the screening and networks to ensure the continuity of care.
Conclusions: The overall perception of participants reinforces the importance of uniformized screening guidelines. The continuous collaboration between public health services, the private sector, and the community is essential to reduce TB transmission and offer substantial public health and economic benefits.

Keywords: *Europe. Infectious diseases. Migrants. Public health. Tuberculosis.*

CO 005. TUBERCULOSIS SCREENING IN THE EUROPEAN MIGRANT POPULATION: A SCOPING REVIEW OF CURRENT PRACTICES

João Pedro Ramos, Sara Machado, Mariana Vieira, Pedro Barbosa, Raquel Duarte

EPIUnit, Instituto de Saúde Pública da Universidade do Porto. Laboratório associado para a Investigação Integrativa e Translacional em Saúde Populacional (ITR) Porto.

Introduction: In response to a significant amount of new cases of tuberculosis (TB) in low-incidence European countries occurring in migrants from high-incidence countries, TB screening programs have been created. However, their implementation presents several challenges. This review aims to synthesise evidence on current screening strategies for active TB and latent tuberculosis infection (LTBI) in European high-income countries, and their main barriers and interventions.
Methods: Pubmed, Web of Science and SCOPUS were searched from March to April 2023, only including articles in English published in the last decade on a screening strategy for active TB or latent tuberculosis infection in Europe. Only studies focused on migrants were eligible for inclusion, excluding those exclusively composed of refugees, asylum seekers or any other migrant population. Backwards and forward citation searching was conducted.
Results: Thirty-two studies were included. Screening for active and latent tuberculosis infection immigrants varies from country to country regarding timing, selected population, screening location and diagnostic tests. Furthermore, some barriers prevent migrants from benefiting from TB and LTBI screening, namely Physical Barriers (e.g., screening location); Cultural Barriers (e.g., language, stigma, low TB health literacy); and Professional Barriers (e.g., deficient professional training on migrant health, lack of guidelines, use of different guidelines between healthcare professionals).
Conclusions: Screening strategies in European countries are mostly focused on asylum seekers and refugees, excluding regular migrant populations. Additional research is needed to determine the patterns through which regular migrants adhere to current screening strategies in European countries.

Keywords: *Latent tuberculosis infection. LTBI. Migrants. Tuberculosis. TB. Screening.*

CO 006. MAPPING RISK AND PROTECTIVE FACTORS IN TUBERCULOSIS-RELATED STIGMA: A SCOPING REVIEW

Mariana Vieira, Pedro Barbosa, João Pedro Ramos, Marta Castro, Dulce Torres, Raquel Duarte

EPIUnit, Instituto de Saúde Pública da Universidade do Porto. Laboratório associado para a Investigação Integrativa e Translacional em Saúde Populacional (ITR) Porto. ICBAS-Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto.

Introduction: Stigma and tuberculosis are inextricably intertwined, with TB-related stigma being a well-documented social determinant of health. Understanding the factors that contribute to stigma is critical for designing effective strategies to prevent it. This scoping review aimed to identify the risk and protective factors that contribute to TB-related stigma.
Methods: A comprehensive search of PubMed, PsycInfo, Sociology Source Ultimate, SCOPUS, and Web of Science yielded 3049 suitable studies. Independent reviewers examined and evaluated eligible publications published after 2013, which focused on TB stigma and provided information on relevant parameters. The results were synthesized using the PRISMA-ScR criteria and the JBI Manual for Evidence Synthesis.
Results: Several sociodemographic factors were identified. Lower levels of education, income, and socioeconomic status, as well as rural residency, were associated with increased stigma. However, the relationships with marital status, occupational status, and gender identity were not consistent. Mental health problems, such as stress and depression, were linked to increased perceived stigma. In contrast, prior TB experience and effective people with TB- doctor communication seems to act as protective factors. Knowledge of tuberculosis had a complex link with stigma. General TB knowledge was related to lower stigma, although specific knowledge concerning transmission and HIV co-infection raised stigma on occasion. Social support appeared as an important protective element.
Conclusions: The findings underscore the need for multidisciplinary approaches in TB care that address mental health and enhance communication and education. Developing standardized definitions and measurement tools is essential for advancing stigma reduction efforts and improving TB outcomes.

***Keywords**: Tuberculosis. Stigma. Protective factors. Risk factors.*

CO 007. WHY DON'T WE BELIEVE WHAT WE DON'T SEE? - DIRECTLY OBSERVED THERAPY IN TUBERCULOSIS

Diana Amorim, João Pedro Ramos, Mariana Vieira, Pedro Barbosa, Raquel Duarte

Serviço de Pneumologia, ULS Região de Leiria.

Introduction: Tuberculosis (TB) remains a serious public health problem and the second leading cause of death from infectious disease in adults worldwide. The treatment is quite demanding because of its duration, the number of drugs and the various adverse events that can occur. Treatment should be done under Directly Observed Therapy (DOT), which may cause an important psychosocial burden. We aimed to evaluate patients' and healthcare professionals' perspectives on DOT.
Methods: A cross-sectional study was conducted from September 2023 to January 2024, using a questionnaire filled by healthcare professionals currently working on TB in the Northern region of Portugal and people with a confirmed diagnosis of tuberculosis in the last two years, under treatment at the Vila Nova de Gaia Outpatient TB Centre.
Results: Sixty-two questionnaires were completed with twenty-nine healthcare professionals and thirty-three patients. When asked whether DOT is essential to ensure that antibacillars are taken and to detect side effects of treatment, most professionals and patients agreed ($p > 0,05$). On the positive impact of DOT on users' daily lives, both patients and professionals agreed on its benefits in most cases. However, when considered different contexts of the patients' lives the opinions diverge: negative interference of DOT was more felt by professionals than by patients in the social and family context (75.9% vs. 36.3, $p < 0.001$) and in the treatment's satisfaction (55.2% vs. 27.3% $p < 0,001$), maintenance and finishing (20.7% vs. 18.2%, $p = 0.001$). On the other hand, the negative impact of DOT on daily activities was more felt by patients than by professionals (39.4% vs. 13.3%, $p = 0,001$).
Conclusions: While both groups recognize DOT's importance for treatment adherence and side effect management, they diverge on its impact, which suggests the need for a more person-centered approach to DOT, balancing clinical benefits with strategies to reduce its negative impacts.

***Keywords**: Tuberculosis. Treatment. DOT.*

CO 008. KEY OUTCOMES FOR TUBERCULOSIS MANAGEMENT THROUGH PATIENT-REPORTED OUTCOMES (PRO-TB): A QUALITATIVE STUDY

Pedro Viegas, Dulce Martin, João Pedro Ramos, Mariana Vieira, Pedro Barbosa, Raquel Duarte

Pulmonology Department, Unidade Local de Saúde de Gaia/ Espinho, Vila Nova de Gaia.

Tuberculosis (TB) is a global health problem affecting an estimated total of 10.6 million people in 2022. Despite effective treatment and progress in disease control, the TB community's most valued concerns are not known. Patient-reported outcomes (PRO) can provide useful information about people's beliefs, on the impact of the disease on their quality of life and increase knowledge on how to manage the expectations and perspectives of people with TB. We aim to identify and explore outcomes that people with TB perceive as relevant to be considered when in treatment. We performed a qualitative study through in-depth interviews with a convenience sample of people with TB followed in the TB outpatient clinic in Vila Nova de Gaia. Data was collected until theoretical saturation was achieved. Inductive and deductive analysis methods were used with open and thematic coding. Seventeen interviews were performed. Participants were mainly male (58.8%) and predominantly affected by pulmonary TB (n = 8). Consistent with prior studies, participants identified drug-related adverse events as major issues during their follow-up. Impairment of social relationships and fear of TB transmission to relatives were also relevant concerns, with some signaling the impact on psychological functioning, namely the development of depressive symptoms. The need for directly observed therapy is also identified as distressing for some participants. Participants also identified new outcomes including the issue of low health literacy concerning TB disease and its treatment, the significance of effective patient communication, and the enhanced value of a supportive professional-patient relationship. TB has a relevant impact on individuals affected by the disease, especially therapy-related issues and social impairment associated with the disease. PRO will allow more focused management of people with TB and should be taken into consideration when developing Patient Reported Outcome Measures (PROMs) for Tuberculosis.

***Keywords**: Tuberculosis. Patient-reported outcomes.*

CO 009. CHALLENGES IN TREATING TUBERCULOSIS: A RARE ADVERSE EFFECT OF RIFAMPICIN

Inês Filipa Casacão Estalagem, Joana Carvalho, Luís Coelho, Miguel Lopes, Ana Claúdia Vieira

Hospital Garcia de Orta.

Introduction: Tuberculosis, also known as the great imitator, can affect any organ. The urinary system can be involved in 4 to 5% of cases, either directly by infection or secondarily by amyloidosis.

Glomerulonephritis secondary to tuberculosis is a rare cause within the nephritis group.
Case report: 69-year-old man with a known history of depressive syndrome, dyslipidemia and active smoker of 100 pack-years. History of contact with tuberculosis in childhood (mother). He went to a private consultation for a 2-month history of productive cough, sometimes with hemoptotic sputum, tiredness, anorexia and weight loss of 8 kg. Of the investigation tests carried out, chest CT showed multiple images of cavitation in all lobes bilaterally and micronodular infiltrates. The mycobacteriological examination of direct sputum, TAAN and culture were positive for Mycobacterium tuberculosis, with no evidence of resistance. After 1 month of treatment, there was hepatotoxicity (AST 3x higher than the upper limit of normal), so pyrazinamide was discontinued. After 2 months of treatment, there was eosinophilia (13.4%), skin pruritus without objectifiable lesions and acute kidney injury (AKI) with creatinine clearance of 29 mL/min/1.73 m^2. Due to worsening, he went to the Emergency Department and was hospitalized for DRESS Syndrome, requiring the suspension of all drugs, most likely associated with rifampicin. A renal biopsy was carried out due to AKI, showing the presence of Membrane-Proliferative Glomerulonephritis. An alternative regimen was started with levofloxacin 500 mg, ethambutol 1,000 mg, isoniazid 300 mg.
Discussion: Tuberculosis is a challenging disease, both in terms of diagnosis and treatment. This case is a reminder of a rare adverse effect associated with rifampicin and demonstrates the importance of these patients being closely monitored throughout the course of therapy, with vigilance for the development of adverse drug effects.

Keywords: *Tuberculosis. Glomerulonephritis. Rifampicin.*

CO 010. EPIDEMIOLOGY AND SOCIODEMOGRAPHIC CHARACTERISTICS OF PF-ILD IN PORTUGAL: INTERIM RESULTS FROM A NATIONAL, NON-INTERVENTIONAL, MULTICENTER STUDY

D.B. Coelho, R. Pinto Basto, A. Borba, A. Loureiro, A.V. Cardoso, C. António, C. Nogueira, C. Pereira, C. Guerreiro, D. Neves, J. Portela, L. Fernandes, M. Anciães, N.S. Marçal, P.G. Ferreira, R. Simões, S. Clemente, A. Morais

ULS São João and ULS Santa Maria.

Introduction: Currently there is limited evidence available on the characteristics of Progressive Fibrosing Interstitial Lung Disease (PF-ILD) patients in Portugal.
Methods: This is a national, non-interventional, multicenter study aimed to collect data of patients diagnosed with PF-ILD in specialized Portuguese hospitals. Adult patients (≥ 18 y/o) diagnosed with IPF (ATS/ERS/JTS/ALAT 2018 guidelines) or other PF-ILD (INBUILD criteria) were included. Data was collected during screening and follow-up including medical history, demographics, diagnosis, exams and treatments.
Results: In total, 454 patients with PF-ILD were identified between Jan 27th, 2023, and Apr 30th, 2024 and included in the interim analyses. Among the enrolled patients, 60% (n = 262) were diagnosed with IPF and 40% (n = 171) with other PF-ILDs. The majority was male (70%) with a mean (SD) age of 73.8 (9.3) years. Nearly half of the patients were attended in the Lisbon and Tejo Valley (47%) area and 38%, 10% and 5%, were in the North, Center and Algarve regions respectively. The crude prevalence was 11.0 per 100,000 person-years (95%CI: 10.0-12.0). After stratifying for region, the prevalence rates varied, with the highest observed in the North (12.2 per 100,000 person-years, 95%CI: 10.4-14.1) and the lowest in the Center (7.6 per 100,000 person-years, 95%CI: 5.3-9.9). The crude incidence rate was 1.7 per 100,000 person-years (95%CI: 1.5-2.0) and was highest in the North (1.9 per 100,000 person-years; 95%CI: 1.4-2.3) and lowest in the Center (1.3 per 100,000 person-years; 95%CI: 0.7-1.8).
Conclusions: This interim analysis provides a preliminary overview on the epidemiology and sociodemographic characteristics of IPF and other PF-ILD patients in Portugal. Our results indicate that IPF was the most frequently observed subtype and that prevalence and incidence rates varied between regions. These estimates are however likely to be underreported as not all hospital visits were recorded in the logs.

Keywords: *PF-ILD. PPF. ILD. IPF. Progressive fibrosis. Incidence. Prevalence. RWE. Non-interventional study. Multicenter study. Epidemiology. Sociodemographic characteristics.*

CO 011. REFERRAL PATTERNS AND DISEASE MANAGEMENT OF PF-ILD IN PORTUGAL: INTERIM RESULTS FROM A NATIONAL, NON-INTERVENTIONAL, MULTICENTER STUDY

D.B. Coelho, R. Pinto Basto, A. Borba, A. Loureiro, A.V. Cardoso, C. António, C. Nogueira, C. Pereira, C. Guerreiro, D. Neves, J. Portela, L. Fernandes, M. Anciães, N.S. Marçal, P.G. Ferreira, R. Simões, S. Clemente, A. Morais

ULS São João and ULS Santa Maria.

Introduction: There is currently a lack of understanding of the disease management of Progressive Fibrosing Interstitial Lung Disease (PF-ILD) patients in the Portuguese healthcare setting. A nationwide registry has therefore been established to assess and monitor relevant outcomes.
Methods: This is a national, non-interventional, multicenter study collecting data from PF-ILD patients on follow-up in specialized Portuguese hospitals. Patients (≥ 18 y/o) diagnosed with IPF (ATS/ERS/JTS/ALAT 2018 guidelines) or other PF-ILD (INBUILD criteria) were included.
Results: From Jan 27th, 2023, to Apr 30th, 2024, 454 patients were included, of which 22% (n = 96) had ≥ 1 follow-up visit. The most common underlying ILD diagnosis were IPF (60%; n = 262), hypersensitivity pneumonitis (19%; n = 80) and autoimmune ILD (9%; n = 37). The large majority of patients (89%; n = 376) were diagnosed during multidisciplinary teams (MDT) meetings and most were referred by respiratory specialists (40%, n = 169) or general practitioners (35%, n = 145). In total, 422 patients had multiple symptoms at diagnosis, the most common were dyspnea (75%; n = 316), cough (60%; n = 255) and fatigue (30%; n = 128). The mean (SD) time between first symptom onset and referral was 24 (43) months; the mean (SD) time between first symptom onset and diagnosis was 33 (45) months. Arterial hypertension (53%, n = 220), diabetes (24%, n = 98), and gastroesophageal reflux disease (12%, n = 51) were the most reported comorbidities. During follow-up, 199 (45%) received nintedanib and 92 (21%) pirfenidone and in total 22 AEs were reported with most being mild or moderate in severity.
Conclusions: This interim analysis provides a preliminary overview of the referral pathways and disease management of PF-ILD patients in Portugal. Most patients were referred from respiratory specialists and GPs, with an average time of almost ~3 years between symptom onset and diagnosis. These results demonstrate the need for earlier detection of symptoms and timelier diagnosis to further improve the outcomes of patients with progressive ILDs.

Keywords: *PF-ILD. PPF. ILD. IPF. Hypersensitivity pneumonitis. Autoimmune ILD. Progressive fibrosis. RWE. Non-interventional study. Multicenter study. Referral patterns. Disease management of PF-ILD. Multidisciplinary teams (MDT).*

CO 012. COMBINED ANTIFIBROTIC AND IMMUNOSUPPRESSIVE TREATMENT OUTCOMES IN PROGRESSIVE PULMONARY FIBROSIS

Mariana Marçal, Inês Duarte, Patrícia Mota, Natália Melo, Hélder Novais Bastos, António Morais

ULS Arrábida.

Introduction: Progressive pulmonary fibrosis (PPF) is a debilitating condition resulting from a heterogenous group of interstitial lung

diseases (ILD) and characterized by radiological signs of fibrosis and evidence of progression. Managing PPF often involves antifibrotic agents combined with previously prescribed immunosuppressants, but the benefit and safety of this combination remain uncertain.
Objectives: To evaluate the tolerability and safety of combined regimen with antifibrotics and immunosuppressants in patients with PPF.
Methods: A retrospective analysis was conducted on PPF patients (excluding idiopathic pulmonary fibrosis) treated with antifibrotics in a tertiary referral ILD centre. Data on tolerability and concurrent treatments were collected from the initial prescription to June 2024.
Results: We analyzed 116 patients with a mean age of 69.6 ± 7.3 years, including 55% women. The most prevalent ILD was hypersensitivity pneumonitis (61.2%), followed by connective tissue disease-related ILD (25%). At the start of antifibrotic therapy (Nintedanib 92.2%; Pirfenidone 7.8%), most patients (79.3%) were already on immunosuppressive treatment for a median of 11 months, with mycophenolate mofetil being the most common drug. Adverse effects (AEs) occurred in 96 patients (82.8%) on average 3.7 months after starting therapy. Of these, 22 (19%) and 10 patients (8.6%) discontinued antifibrotic and immunosuppressive therapy, respectively, and 44 patients (37.9%) needed permanent dose reduction to tolerate AEs. The most common AEs were gastrointestinal disturbances (81%) and elevated liver enzymes (13.8%). There was no significant difference in the frequency ($p = 0.93$) or severity ($p = 0.69$) of AEs between the combined therapy group and the antifibrotic-only group.
Conclusions: The majority of patients with PPF who initiated antifibrotic therapy were established on immunosuppressant drugs. AEs related to the combined antifibrotic and immunosuppressive regimen in PPF are very common but generally tolerable and manageable. Careful monitoring for AEs is crucial to managing therapy discontinuation and improving patient outcomes.

Keywords: *Progressive pulmonary fibrosis. Antifibrotic treatment. Immunosuppressive treatment. Adverse effects.*

CO 013. THE EFFECTS OF THE ILIFE PROGRAMME ON PHYSICAL ACTIVITY OF PEOPLE WITH ILD: A RANDOMISED CONTROLLED TRIAL

Cátia Paixão, Ana Sofia Grave, Vânia Fernandes, Francisca Teixeira-Lopes, Maria Aurora Mendes, Pedro Ramalho, Pedro Gonçalo Ferreira, Dina Brooks, Alda Marques

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

Introduction and objectives: Home-based physical activity (PA) programmes are scarce but may be fundamental to tackle physical inactivity in interstitial lung disease (ILD). We explored the efficacy and effectiveness of the Lifestyle Integrated Functional Exercise for people with ILD (iLiFE) trial on their PA levels.
Methods: A randomised controlled trial, assessor blinded, was conducted (NCT04224233) with people with ILD. After the baseline assessment, participants were randomly assigned to the control (CG-standard medication) or experimental (EG-standard medication + iLiFE) group. The iLiFE lasted 12 weeks and comprised two main components: 1) PA and 2) education and psychosocial support. The PA component was embedded in individuals' daily routines and focused on activities to improve endurance, balance and muscle strength. The iLiFE involved a mix of face-to-face sessions and phone calls: 2 face-to-face sessions and 1 phone call per week in the first two months. The number of face-to-face sessions and phone calls were reduced in the last month, to promote participants' independence. Overall, iLiFE included 32 sessions: 19 face-to-face and 13 phone calls. PA levels were assessed at baseline and after 12-weeks (post), with steps/day (primary outcome measure) and time spent in moderate to vigorous PA (MVPA)/day and MVPA/week. Efficacy and effectiveness were assessed using intention-to-treat and per-protocol analysis with linear mixed methods.
Results: Forty-eight individuals with ILD (54% female, 67 ± 11 years, DLCO 50 ± 17% predicted; nEG/nCG = 24/24) were included. A significant group*time interaction for steps/day and MVPA/day and per week was found for both analyses, with people in the CG declining and in the EG maintaining their PA levels. No adverse events were reported.
Conclusions: The iLiFE programme is an efficacious and effective intervention to maintain PA levels in people with ILD. Access to PA at home might contribute to delay the disease progression in people with ILD.

Keywords: *Physical activity. Idiopathic pulmonary fibrosis. Personalised medicine.*

CO 014. CHARACTERIZATION OF PATIENTS WITH INTERSTITIAL LUNG DISEASES (ILD) PRESENTING TO THE EMERGENCY DEPARTMENT: THE FIRST STEP TO AN ILD DAY HOSPITAL

Leonor Roseta, Pedro Viegas, Ana Cristina Ferreira, Carla Nogueira, Eduarda Tinoco, Sérgio Campainha, Sofia Neves

Pulmonology Department, Unidade Local de Saúde de Gaia/ Espinho.

Introduction: Interstitial Lung Diseases (ILDs) impose a significant burden, with frequent hospitalizations through the emergency department (ER) and high healthcare costs. This study aims to describe ILD patients presenting to the ER to understand the feasibility of their management in a day-hospital setting.
Methods: Retrospective analysis of patients from the ILD outpatient clinic who presented to the ER with respiratory symptoms from June/2023-June/2024. Patient baseline demographics, disease data, and clinical/diagnostic interventions were collected.
Results: 171 admissions (97 patients), were recorded, with most cases occurring in winter months. Mean age was 73.33 years (± 10.94) with an even sex distribution (female, n = 49, 50.5%) and most patients (n = 63, 64.9%) were independent (autonomy, median Karnofsky-Performance-Status of 70 [IQR 10]). Comorbidities were prevalent (median Charlson-Comorbidity-Index 5) and the median ILD-GAP-Index was 4. Most were non-smokers (n = 53, 54.6%) or former smokers (n = 35, 36.1%). Pulmonary hypertension was present in 28 patients (28.9%), and 29 (29.9%) required long-term or ambulatory oxygen-therapy. The most frequent ILDs were fibrotic hypersensitivity pneumonitis (n = 16, 16.5%), idiopathic pulmonary fibrosis (n = 13,13.4%), unclassifiable ILD (n = 12, 12.4%), and sarcoidosis (n = 10, 10.3%). Regarding therapy, 36 patients (37%) were under immunosuppression, 19 (19.6%) on antifibrotics, and 8 (8.3%) on combined therapy. Data on ER admissions (n = 171), 40 (23.4%) of which were 30-day readmissions, showed frequent symptoms of dyspnea (n = 162, 94.7%), cough (n = 134, 78.4%), sputum production (n = 93, 54.4%), and fever (n = 65, 38%). Blood-tests were performed on 167 cases (97.7%), arterial-blood-gases on 120 (70.2%), chest X-rays on 168 (98.2%), and chest CT-scans on 18 (10.5%). Top diagnoses included upper-respiratory-tract viral infection (n = 34, 19.9%), community-acquired pneumonia (n = 31, 18.1%), acute tracheobronchitis (n = 22, 12.9%), COVID-19 infection (n = 20, 11.7%). Fifty-eight admissions (33.9%, corresponding to 46 patients) resulted in hospitalization with a 22.4% (n = 13) mortality-rate.
Conclusions: ILDs significantly impact healthcare through high ER visits and frequent hospitalizations, with notable inpatient mortality. Improving management strategies, including potential day-hospital settings with early interventions, is essential to reduce this strain.

Keywords: *Insterstitial lung disease. Day hospital. Health resource management.*

CO 015. INTERSTITIAL LUNG DISEASE IN CONNECTIVE TISSUE DISEASE: PREVALENCE, IMAGING PATTERNS AND PROGRESSION

Inês Duarte, Filipa Canedo, Mário Pinto, João Rodrigues, Ana Magalhães, Nicole Murinello, António Miguel

Serviço de Pneumologia, Hospital Santa Marta-Unidade Local de Saúde São José.

Introduction: Interstitial lung disease (ILD) is a serious pulmonary complication associated with connective tissue diseases (CTD), resulting in significant morbidity and mortality. CTD-associated interstitial lung disease (CTD-ILD) may precede or follow the onset of rheumatic symptoms, as pulmonary manifestations can be the first sign of rheumatic disease or occur later during disease progression.
Objectives and methods: To characterize clinically, radiologically and functionally patients with CTD-associated lung interstitial disease (CTD-ILD), followed at the ILD outpatient clinic of a tertiary hospital. A retrospective analysis of patients' clinical files attended between 2018 -2024 was done.
Results: During the study period, 131 patients with CTD were attended. Most were female (80%), with an average age of 64 years. CTD-ILD was present in 99 (75.6%) of patients. Of those, 40 (40.4%) had no previous CTD diagnosis. On the remaining 59 patients, ILD was diagnosed on average 8.6 years after the diagnosis of CTD. Among the CTD-ILD patients, the most common CTD were systemic sclerosis (SSc) (n = 28), rheumatoid arthritis (RA) (n = 16), inflammatory myopathies (n = 11) and vasculitis (n = 11). The main radiological pattern identified on chest CT was non-specific interstitial pneumonia (n = 38), mostly associated with SSc (n = 19). It was also the commonest pattern in the remaining CTD, except for RA, where usual interstitial pneumonia prevailed, and vasculitis, where alveolar hemorrhage predominantly appeared. Regarding functional respiratory assessment, 52% of patients had a restrictive ventilatory impairment. Functional decline was noted in 47 patients, with an average decrease of 126 mL (6.40%)/year in CVF. Radiological progression was seen in 27 patients. Most received immunosuppressive therapy in multiple combinations (n = 83) and 12 met criteria for antifibrotic therapy. A total of 32 patients died.
Conclusions: Our analysis shows the variability in the presentation, prevalence and outcome of DTC-ILD, emphasizing the importance of an early recognition with the aim of improving disease outcomes and survival.

Keywords: *Connective tissue disease. Interstitial lung disease.*

CO 016. CLINICAL AND FUNCTIONAL OUTCOMES OF NINTEDANIB IN PATIENTS WITH FIBROTIC HYPERSENSITIVITY PNEUMONITIS: A RETROSPECTIVE STUDY

Inês Carvalho, David Coelho, André Alexandre, Hélder Novais-Bastos, Natália Melo, André Carvalho, Susana Guimarães, Conceição Souto-Moura, António Morais

Unidade Local de Saúde de São João.

Introduction: In fibrotic hypersensitivity pneumonitis (HP), nintedanib was recently approved in cases of progression. This study aims to evaluate clinical and functional outcomes in HP patients treated with antifibrotic (AF).
Methods: We present a retrospective observational study conducted at a tertiary center including all patients diagnosed with fibrotic HP who initiated nintedanib treatment from 2019 to 2023. Progression was defined according to the INBUILD criteria.
Results: The cohort comprised 59 patients with a median age of 75 years-old (IQR 70-79), of whom 61% (n = 36) where female. Regarding significant exposures, 29,6% (n = 16) were active or previous smokers, 74,6% (n = 44) reported avian exposures and 13,8% (n = 8) fungal exposure. Almost all patients (n = 58) were under immunosuppression: 52.5% (n = 31) with mycophenolate mofetil (MMF); 20.3% (n = 12) with MMF and corticosteroids; 8.5% (n = 5) with azathioprine (AZA); 4 patients with AZA and corticosteroids; 4 with corticosteroids alone; 1 with cyclophosphamide; 1 with rituximab. Median time to progression was 37 months (IQR 18-56). The most common progression type was functional decline (FVC of 5% to less than 10% of the predicted value) and worsening of respiratory symptoms or an increased extent of fibrosis (61.0%). Forced vital capacity (FVC) of patients before the start of AF (72.5%; IQR 61.2-83.8) did not differ significantly 1 year after the start of AF (70.8%; IQR 58.8-82.6) (p = 0.07). Similarly, diffusing capacity for carbon monoxide (DLCO) before the start of AF (39%; IQR 30.8-47.3) did not differ significantly from the DLCO 1 year after treatment (43%; IQR 30-56) (p = 0.79). In patients with previous function progression criteria, (n = 24), there was also FVC (p = 0.61) and DLCO stability (p = 0.97).
Conclusions: In patients with fibrotic HP, there was no significant change in FVC and DLCO 1 year after treatment with nintedanib. This suggests a positive impact in stabilizing patients' lung function.

Keywords: *Fibrotic hypersensitivity pneumonitis (HP). Nintedanib. Progressive fibrosis.*

CO 017. HOME 24-HOUR OXIMETRY FOR MONITORING AND MANAGING HYPOXIA IN INTERSTITIAL LUNG DISEASES

Maria Carolina Alves Valente, Josué Pinto, Pedro Ferreira, David Coelho, André Terras Alexandre, Beatriz Martins, Patrícia Caetano Mota, Natália Melo, Anabela Marinho, António Morais, Hélder Novais-Bastos

Unidade Local de Saúde São João.

Introduction: Exercise-induced hypoxia is a characteristic feature of interstitial lung diseases (ILD). This study evaluated the feasibility and usefulness of home 24-hour oximetry, the effects of oxygen supplementation, symptom improvement, and adherence to treatment.
Methods: We recruited patients with ILD having > 10% fibrosis on chest computed tomography and DLCO < 80%, and who were not on supplemental oxygen. In the first phase, SpO2 was monitored for 24 hours, and patients used a pedometer app to count walking distance. In the second phase, an incremental walking test evaluated the need for oxygen during exercise. Oxygen was prescribed when needed, and oximetry was repeated.
Results: In the first phase, 18 patients (15 male, median age 74 years, range: 57-85) were recruited, including fibrotic HP (n = 8), IPF (n = 4), FPF (n = 3), and unclassified ILD (n = 3). Thirteen patients were on antifibrotic drugs and 8 on immunosuppressants. Median DLCO was 39.5% and median FVC was 72% of predicted value. Through oximetry analysis, 16 patients (88.9%) showed exercise-induced hypoxia, with a median of 146 desaturation events. Median SpO2 was 92.8% and minimum SpO2 was 77%. Median walking distance was 2.72 km. Hypoxia during sleep was detected in 3 patients. In the second phase, 10 patients were enrolled, but 3 withdrew after the incremental walking test, not performing oximetry and refusing oxygen supplementation. During the incremental walking test, all patients presented desaturation below SpO2 85%, and oxygen was titrated until 3 minutes with SpO2 ≥ 88% were achieved. During 24-hour oximetry analysis with supplemental oxygen during exercise, the median SpO2 was 91.6%, and the median number of desaturation events was 130. Only five patients agreed to use ambulatory oxygen (AO) and reported improvement of symptoms, whereas 13 patients were asymptomatic and refused AO.
Conclusions: Home oximetry effectively detects exercise-induced hypoxia. However, most patients do not recognize symptom improvement and refuse AO.

Keywords: *Interstitial lung diseases. Home 24-hour oximetry. Exercise-induced hypoxia.*

CO 018. ROLE OF COMMON GENETIC VARIANTS IN THE DIFFERENTIAL DIAGNOSIS OF FIBROSING INTERSTITIAL LUNG DISEASES

Mara Sousa, Patrícia Caetano Mota, António Carlos Ferreira, Miguel Luz Soares, Rita F. Santos, Claudia Camila Dias, João Cavaleiro Rufo, Daniel Vasconcelos, André Carvalho, Susana Guimarães, Francisco Vasques-Nóvoa, Catarina Cardoso, Natália Melo, André Terras Alexandre, David Coelho, Oksana Sokhatska, Marília Beltrão, Hélder Novais-Bastos, António Morais

Centro Hospitalar Universitário São João.

Introduction: Recent research has highlighted the role of common genetic variants, particularly those found in the MUC5B gene promoter and TOLLIP single nucleotide polymorphisms (SNPs), in the pathophysiology of fibrosing interstitial lung diseases (fILDs). This study aimed to analyze the MUC5B and TOLLIP SNPs in idiopathic pulmonary fibrosis (IPF) and fibrotic hypersensitivity pneumonitis (fHP) to identify genetic associations with risk and prognosis that may help differentiate these two fibrotic phenotypes.
Methods: We conducted a case-control study involving 86 IPF patients, 97 fHP patients, and 112 healthy controls. The study analyzed the MUC5B promoter and five TOLLIP SNPs, as well as relevant haplotypes. We investigated associations with disease risk and survival by comparing these genetic markers across both conditions and against healthy controls.
Results: The minor allele (T) of MUC5B rs35705950 was significantly more prevalent among IPF (42.4% vs. 12.1%, $p < 0.001$) and fHP patients (40.7% vs. 12.1%, $p < 0.001$) compared to controls. Conversely, the minor alleles of TOLLIP SNPs rs3750920 (T), rs111521887 (G), and rs5743894 (C) were significantly more frequent in fHP patients than in controls (52.6% vs. 40.2%, $p = 0.011$; 22.7% vs. 13.4%, $p = 0.013$; and 23.2% vs. 12.9%, $p = 0.006$, respectively). Direct comparisons between IPF and fHP patients showed no significant differences in allele and genotype distributions for any of these SNPs. Haplotypes defined by the rs35705950-rs3750920-rs111521887-rs5743894 block showed no differentiation between the two diseases. However, one haplotype was identified that conferred significantly better survival in fHP carriers compared to IPF carriers (median survival: IPF = 59 months vs. fHP = 98 months; log-rank test $p = 0.006$).
Conclusions: Our study uncovered genetic similarities between IPF and fHP, along with distinctive genetic features affecting survival. TOLLIP and MUC5B variants and haplotypes emerged as valuable tools for risk assessment, prognosis, and patient stratification in fibrosing interstitial lung diseases.

Keywords: *Idiopathic pulmonary fibrosis. Fibrotic hypersensitivity pneumonitis. Single nucleotide polymorphisms.*

CO 019. CLINICAL AND ECONOMIC ASSESSMENTS OF A PERSONALISED SUPPORT PLAN TO IMPROVE ADHERENCE TO POSITIVE AIRWAY PRESSURE IN OBSTRUCTIVE SLEEP APNOEA PATIENTS IN PORTUGAL

Paula Pinto, Gustavo Reis, Fatima Teixeira, Vânia Caldeira, Bebiana Conde, Hélène Pasche, Henry Taupin, Sarah Alami, Ana Simoes, Sylvie Blais, Ceu Mateus, Joëlle Texereau, Cécile Delval, Joaquim Moita

Departamento de Tórax, Serviço de Pneumologia, Unidade de Sono e VNI, Unidade Local de Saúde Santa Maria Faculdade de Medicina de Lisboa, ISAMB.

Introduction: Adherence is a main factor to Positive Airway Pressure (PAP) effectiveness.
Methods: A multicentre randomised (1:1) controlled trial was performed to compare a personalised support plan based on patient needs (VitalCare) versus usual follow-up by the homecare providers in patients with Obstructive Sleep Apnoea (OSA) starting PAP in Portugal. Also, a health economic model relying on the established relationship between PAP use and effectiveness was developed.
Results: 107 patients were analysed (65 Males; 57 years (mean); Mean AHI: 30.4; Mean ESS: 9.9). The primary endpoint was not statistically significant (mean daily PAP use at 3 months equal to 4.61 (2.24) hours with VitalCare and 3.85 (2.62) with standard care (p-value = 0.059)). A trend in favour of VitalCare was observed at 6 months with mean daily PAP use equal to 4.63 (2.18) hours versus 3.86 (2.68) with standard care (p-value = 0.042). The rate of adherent patients (mean daily PAP use ≥ 4 h/day) was statistically higher with VitalCare at 6 and 12 months with respectively 64.3% and 69.6% patients versus 45.1% and 49.0% patients on usual follow-up (p-values respectively 0.046 and 0.030). The health economic model applied to the 6,500 patients currently followed by VitalCare in Portugal estimates that 398 cardiovascular events, 139 road traffic accidents, 98 new diagnoses of cancer and 7 occupational accidents are avoided yearly, resulting in potential savings of -1.7 M€ direct costs (-255€ per patient) and -1.4 M€ indirect costs (-220 € per patient).
Conclusions: Personalised support plans delivered by VitalAire homecare providers in Portugal improve PAP use. This could represent a health benefit and substantial savings.

Keywords: *Sleep apnea. Osa. Pap. Adherence. Homecare provider. Personalized support. Health economics. Costs.*

CO 020. NEW ONSET HYPERCAPNIA IN PATIENTS WITH CENTRAL SLEEP APNEA SYNDROME UNDER POSITIVE PRESSURE THERAPY

Inês Marques Macedo, Carolina da Silva Alves, Mónica Pereira, Cátia Pereira, Paula Pinto, Cristina Bárbara

Serviço de Pneumologia, Hospital de Santa Maria, ULS Santa Maria.

Introduction: Central Sleep Apnea Syndrome (SACS) can present with variable values of daytime partial arterial carbon dioxide pressure ($paCO_2$) according to its pathophysiological mechanism.
Objectives: To characterize patients with SACS undergoing positive pressure therapy who develop new onset hypercapnia.
Methods: Descriptive and retrospective analysis of patients with SACS undergoing positive pressure therapy, applied in the Sleep and Non-Invasive Ventilation Unit of a tertiary hospital, between 03/2023 and 04/2024. Patients who developed new onset hypercapnia were characterized in terms of demographics, classification of sleep disorders according to ICSD-3, degree of initial severity, daytime $paCO_2$ value and ventilation mode.
Results: Four patients (3%) were identified from a population of 134 patients. All were male, with a mean age of 75.3 years. The mean Apnea-Hypopnea Index (AHI) and initial Central Apnea Index were 55.3 and 49.6 events/hour, respectively. SACS was classified as: with Cheyne-Stokes breathing (CSB) (n = 1), due to medical pathology (cardiovascular) without CSB (n = 1), treatment-emergent (n = 1) and medication-related (buprenorphine) (n = 1). Despite therapeutic optimization under adaptive servoventilation, the onset of hypercapnia after the initiation of SACS therapy was detected in an average period of 8.1 ± 2.8 years. The average daytime $paCO_2$ was 48.7 mmHg and the average residual AHI was 27.6 events/hour. Four polygraphies were performed under positive pressure, identifying an average AHI of 51.6/h, with a predominance of obstructive events. The ventilation mode was changed in all patients to bilevel-ST, correcting hypercapnia and residual AHI. In three cases, there was an increase in weight, and in the remaining case, it was noted an improvement in cardiovascular pathology.
Conclusions: Although most cases of SACS occur with normo/hypocapnia, there is the possibility of developing hypercapnia through other mechanisms. This study reinforces the importance of regular

monitoring in patients with SACS, considering the complexity of the pathology and its interaction with comorbidities.

Keywords: *Hypercapnia. Central sleep apnea syndrome.*

CO 021. IMPROVING SLEEP APNEA SCORING WITH AUTOMATED EVENT CLASSIFICATION FROM FLOW SIGNAL ANALYSIS

Eva Almeida

MEDCIDS, FMUP.

Sleep apnea is a highly prevalent disease, affecting more than 10% of the global population. The current diagnosis and scoring of sleep apnea are performed manually by sleep technicians, who classify obstructive sleep apnea (OSA) using the Apnea-Hypopnea Index (AHI) according to the American Academy of Sleep Medicine (AASM) guidelines. This method is highly time-consuming and subjective. To address these limitations, we propose an automated scoring method utilizing signal processing techniques, specifically envelope analysis, to detect and classify breathing events such as apneas and hypopneas. Our method distinguishes between different types of events and classifies them based on their duration. To validate our approach, we analyzed data from 25 patients collected at St. Vincent's University Hospital Sleep Disorders Clinic, available in the PhysioNet dataset. Flow signals were exclusively used for this analysis and were processed using MATLAB 2024a. The results obtained from our automated method, regarding the number and duration of events, were compared to the manual scoring made by sleep technicians documented in the dataset. Our method identified 408 versus 645 manually scored apneas and 2353 versus 2496 manually scored hypopneas, achieving an accuracy per type of event of 63% for the apneas and 94% for the hypopneas. These findings demonstrate that flow signals are reliable for detecting and quantifying the duration of apnea-hypopnea events, and this innovative technique can significantly enhance the diagnosis, management, and treatment of sleep apnea.

Keywords: *Sleep apnea. Apneas. Hypopneas. Envelope analysis. Automated scoring.*

CO 022. CHARACTERISTICS OF CENTRAL SLEEP APNEA - EXPERIENCE FROM A TERTIARY CENTER

Patrícia Trindade, Sofia Magno Pinto, Carolina Alves, Diogo Baptista, Mónica Pereira, Cátia Pereira, Richard Staats, Paula Pinto, Cristina Bárbara

Departamento de Tórax, Serviço de Pneumologia; Unidade de Sono e VNI, Unidade Local de Saúde Santa Maria.

Introduction: Central Sleep Apnoea (CSA) represents 5-10% of sleep-disordered breathing disorders; often linked to chronic heart failure, resulting in nonhypercapnic CSA. Treatment is complex, with adaptive servo-ventilation (ASV) typically a second-line therapy, necessitating careful evaluation. This study characterizes CSA patients at a tertiary hospital's Sleep and Non-Invasive Ventilation Unit.
Methods: The clinical files from patients with CSA between 01/10/2022 and 31/01/2024 were reviewed; focusing on demographic characteristics, comorbidities, CSA severity at diagnosis, ventilation mode and treatment response.
Results: Out of approximately 1,400 patients with sleep-disordered breathing disorders, 134 had CSA. Among these, 89% (n = 119) were male, with a mean age of 73.6 years. Relevant comorbidities included arterial hypertension in 79% (n = 106), heart failure in 51% (n = 70) and atrial fibrillation in 32% (n = 43). First-onset CSA was observed in 87% (n = 117), while 13% (n = 17) developed CSA during CPAP therapy. The apnoea-hypopnoea index (AHI) at diagnosis was mostly of moderate severity. Cheyne-Stokes respiration (CSR) was present in 49% patients (n = 65). Of the patients with CSR, 60% (n = 36) had heart failure, and only 10% (n = 6) were hypocapnic at diagnosis. There was no significant difference in hypocapnia compared to those without CSR. Patients with CSR had a significantly higher prevalence of atrial fibrillation (p = 0.015), but no significant differences in age, gender, other comorbidities, initial AHI, compliance or therapeutic success compared to the group without CSR. The predominant ventilation mode was adaptive servo-ventilation in 85% (n = 113) of patients. Thirteen percent (n = 19) used CPAP due to adequate control (n = 9) or significant cardiovascular pathology, including left ventricular ejection fraction < 30% (n = 10). Among treated patients, 88% (n = 116) were asymptomatic with controlled AHI.
Conclusions: These findings highlight the significant cardiovascular pathology in CSA patients, particularly those with Cheyne-Stokes respiration. Except for atrial fibrillation, there were no major differences between groups with and without CRS. Most patients under treatment were well-controlled.

Keywords: *Central sleep apnea. Servo-ventilation.*

CO 023. MORTALITY AND NEED OF HOME MECHANICAL VENTILATION IN AMYOTROPHIC LATERAL SCLEROSIS (ALS) PATIENTS – WHICH RESPIRATORY MUSCLE PRESSURE MEASUREMENT SHOULD WE USE?

Pedro Viegas, Leonor Roseta, Ricardo Lima, Raquel Marçoa, Sara Conde, Carla Ribeiro, Miguel Guimarães

Pulmonology Department, Unidade Local de Saúde de Gaia/ Espinho, Vila Nova de Gaia.

Amyotrophic lateral sclerosis (ALS) is a neuromuscular disease with progressive muscle weakness, associated with high morbidity and mortality. Home mechanical ventilation (HMV) is often used to support respiratory failure in these patients. Inspiratory and expiratory muscle pressures are measurements of respiratory muscle strength. Our aim was to evaluate the relationship between maximal inspiratory pressure (MIP), maximal expiratory pressure (MEP) and sniff nasal inspiratory pressure (SNIP), the need to initiate HMV and mortality in ALS patients. We performed a retrospective analysis of patients followed in an HMV outpatient clinic between January 2017 and January 2024. Respiratory muscle pressure values and demographic data were collected. The optimal values to predict our outcome were calculated using the youden method on the ROC curve values. Survival analysis regarding our outcomes was performed. A total of 60 patients were identified, mean age 67.7 ± 10.0 years with 31 males. The initial presentation of ALS was bulbar in 17 patients. Total mortality was 71.7%. A total of 79 MIP/MEP and 52 SNIP measurements were collected. The optimal cut-offs to predict need for HMV initiation at 6 months were MIP -50.5 cmH2O, MEP 53.0 cmH2O and SNIP -50.5 cmH2O. There were statistically significant differences in the survival analysis of the SNIP value. The cut-offs to predict mortality at 6 months were MIP -46.5 cmH2O, MEP 40.0 cmH2O and SNIP -39.5 cmH2O, all with statistically significant values. The optimal SNIP values, in our sample, to predict need of HMV and death at 6 months were -50.5 cmH2O and -39.5 cmH2O, respectively. MIP and MEP could be used to predict mortality.

Keywords: *Amyotrophic lateral sclerosis. Respiratory muscle pressures. Home mechanical ventilation. Mortality.*

CO 024. CONTINUOUS VENTILATORY SUPPORT FOR PROLONGATION OF LIFE IN AMYOTROPHIC LATERAL SCLEROSIS: PRELIMINARY RESULTS FROM A RETROSPECTIVE COHORT ANALYSIS

Fernanda L.C. Pereira, Betina S. Tomaz, Miguel R. Gonçalves

Faculty of Medicine, University of Porto.

Introduction: Amyotrophic lateral sclerosis (ALS) is a neurodegenerative fatal disorder that causes progressive muscle weakness and

respiratory failure. Managing ventilation remains a challenge according to disease progression.
Objectives: Describe the clinical course and survival of ALS patients that required continuous ventilatory support (CVS).
Methods: A retrospective cohort study was conducted, including ALS patients who progressively became dependent on CVS. Data related to pulmonary function, timing of CVS (noninvasive and invasive), outcomes of CVS and survival was analyzed.
Results: 94 ALS patients were included. 37 (20 women and 17 men) that became CVS dependent were studied. Bulbar onset was present in 27% (n = 10) while 73% (n = 27) had spinal onset. The median Vital Capacity and Peak Cough Flow at the timing of CVS was 835 ml (IQR 637.5-1,142.5) and 100 l/min (IQR: 0-145), respectively. The median time from diagnosis to noninvasive CVS was 18 months (IQR 4.7-36.3). Of the 37 CVS patients, tracheostomy was performed in 29.7% (n = 11). The median time from initiation of noninvasive CVS until tracheostomy was 8.4 months (IQR: 2.9-23.5) and from tracheostomy to death was 18.6 months (12.9-60.6). Of the 37 CVS patients, the median survival from diagnosis was 38.5 months (IQR 22.7-75.9). Of the 11 tracheostomized patients, the median survival from diagnosis was 48.3 months (IQR 34.4-88.4) and from initiation of CVS (noninvasive and invasive) was 43.6 months (IQR 25.4-70.9). Of the 26 patients that did not perform a tracheostomy the median survival from diagnosis was 34 months (IQR 18.1-59.3) and from initiation of CVS was 8.4 months (IQR 4.1-21.2).
Conclusions: In a group of ALS patients with respiratory failure, our results suggest that both noninvasive and invasive CVS prolong survival. Our preliminary results suggest that patients that perform a tracheostomy to continue CVS have better overall survival.

Keywords: *Amyotrophic lateral sclerosis. Continuous ventilatory support. Noninvasive ventilation. Tracheostomy. Palliative care. End of life care.*

CO 025. MAXIMAL INSPIRATORY AND EXPIRATORY PRESSURES AND PEAK COUGH FLOW IN PATIENTS WITH HOME MECHANICAL VENTILATION

Teresa Andreia Garcia, Tiago Sá, Mafalda Pais, Maria João Oliveira, Daniela Ferreira, Carla Nogueira, Sara Conde, Carla Ribeiro

Serviço de Pneumologia, Unidade Local de Saúde Gaia/Espinho.

Introduction: Maximal inspiratory pressure (MIP) and maximal expiratory pressure (MEP) can accurately assess respiratory muscle weakness. In addition, peak cough flow (PCF) assesses cough strength and identifies those at risk of developing respiratory infections.
Objectives: To analyze MIP, MEP and PCF of a group of patients on HMV.
Methods: We included patients from our Outpatient Ventilation Clinic of a terciary hospital from 1 May 2024 to 18 July 2024. For the measurement of MIP and MEP we used the Micro RPM® manometer and the Seretide® peak flow meter for PCF. Three MIP, MEP and PCF measurements were taken in the sitting position and the highest value was recorded in each of the three cases. Data were collected from electronic hospital records and analysis was performed using SPSS.
Results: Sixty patients were enrolled in this study. Almost 2/3 of patients had a PCF < 270 L/m and almost half had low MIP. In particular, 44,4% of patients with COPD and OHS in this sample presented with low MIP. We found no statistical association between low MIP or MEP and age, FEV1% and FVC%.
Conclusions: The majority of our patients had low PCF, which may indicate that they are more susceptible to secretion retention and infection. Also, our patients with COPD and OHS had low MIP, suggesting respiratory muscle weakness.

Keywords: *Home mechanical ventilation. Maximal inspiratory pressure. Maximal expiratory pressure. Peak cough flow.*

CO 026. NATIONAL FINGERPRINT OF PHYSIOTHERAPISTS IN INTENSIVE CARE UNITS

Filipa Ramalho, Ana Oliveira, Ana Machado, Vitor Azevedo, Miguel Gonçalves, George Ntoumenopoulos, Alda Marques

Lab3R-Respiratory Research and Rehabilitation Laboratory, School of Health Sciences, University of Aveiro (ESSUA). Hospital Professor Doutor Fernando Fonseca, Lisbon.

Introduction: The profile of Portuguese physiotherapists working in intensive care units (ICU) is unknown. Filling this knowledge gap is important to guide the effective use of available resources and promote improvements in ICU and physiotherapy care. This study aimed to characterize the profile of Portuguese physiotherapists in ICU.
Methods: A cross-sectional study was conducted. An online survey, built in the LimeSurvey platform, was disseminated through physiotherapists working in Portuguese ICU between November 2022 and January 2023. The survey consisted of 29 questions: 10 about the physiotherapist's profile, 11 about the hospital, four about the assessments and interventions of physiotherapists, and four examples of clinical cases to characterise physiotherapists' level of autonomy. Data analysis included descriptive and inferential statistics.
Results: Eighty-five percent of hospitals with adult ICU responded. Approximately 25% reported not having any physiotherapy intervention; 11% had a full-time physiotherapist and 51% had no early mobilization team. Physiotherapists (n = 181) working in ICU were on average 39 ± 8.8 years old, 76% female, 33% had a postgraduate specialization and 23% had a master's degree. Physiotherapy assessments commonly included direct observation, discussion of clinical charts, and application of consciousness, symptoms, and motor and respiratory scales. Interventions such as patient positioning, mobilization, exercise, muscle strengthening, and airway clearance techniques were commonly used and followed international guidelines. Lack of training and equipment availability were the main reasons hindering assessments and interventions by physiotherapists. The level of autonomy and decision making of Portuguese physiotherapists in ICU was high. Complete findings have been published elsewhere (Ramalho F, et al. Pulmonology. 2024:S2531-0437(24)00016-3).
Conclusions: Our study shows that efforts should focus on ensuring the presence of physiotherapists daily as ICU staff members, the creation of early mobilization teams, increasing the availability of equipment and physiotherapists' training and specialization in ICU.

Keywords: *Physiotherapy. Critical care. Portugal.*

CO 027. LINKING COUGH-RELATED QUALITY OF LIFE AND FUNCTIONAL CAPACITY IN CHRONIC RESPIRATORY DISEASES

Sara Nicolau, Alda Marques, Ana Oliveira, Ana Loureiro, Lídia Gomes

Unidade Local de Saúde de Trás-os-Montes e Alto Douro.

Introduction: Chronic cough (CC) significantly affects the daily function and quality of life of people with chronic respiratory diseases (CRD). Nevertheless, the characteristics of people with CRD and CC are still scarcely studied and the relationship between cough-related quality of life and functional capacity in this population remains unclear.
Objectives: To explore the characteristics of people with CRD and CC and the association between their cough-related quality of life and functional capacity.

Methods: A cross-sectional observational study was conducted with individuals with CRD. Functional capacity was assessed using the six-minute walk test (6MWT and 6MWT%predicted) and the one-minute sit-to-stand test (1minSTS and 1minSTS%predicted). Cough-related quality of life was evaluated using the Leicester Cough Questionnaire (LCQ). Differences between individuals with CRD with and without chronic cough were analysed with t-Student test or Mann-Whitney test and correlations were explored with Spearman's correlation coefficient.
Results: 31 individuals, 51.6% with CC and 48.4% without CC, participated. The mean LCQ score was significantly lower in participants with CC compared to those without CC (13.3 ± 3.6 vs. 20.0 ± 2.2; $p < 0.001$). No significant differences were observed between those with and without CC in the 6MWT (419.7 ± 118.0 vs. 427.2 ± 106.8m) or 6MWT%predicted (70.7 ± 15.8% vs. 71.6 ± 13.8%). In the 1minSTS, those with CC performed fewer repetitions (17.9 ± 5.7 vs. 24.6 ± 7.9; $p = 0.005$) and had a significantly lower 1minSTS%predicted (53.9 ± 16.3% vs. 71.6 ± 21.7%; $p = 0.008$) compared to those without CC. Moderate positive correlations were found between the total LCQ score and the 1minSTS ($rs = 0.574$; $p = 0.001$), indicating that participants with better cough-related quality of life performed more repetitions in the 1minSTS. No significant correlation was observed between the total LCQ score and the distance walked in the 6MWT ($rs = 0.215$; $p = 0.246$).
Conclusions: CC seems to significantly impair quality of life and functional capacity in individuals with CRD, as evidenced by lower LCQ scores and fewer repetitions in the 1minSTS. Targeted interventions are needed to improve outcomes for this population.

Keywords: *Chronic cough. COPD. ILD. Function.*

CO 028. PULMONARY REHABILITATION IN PLEURAL EFFUSION: OUTCOME PREDICTORS

Carolina Moreira, Bruno Cabrita, Sónia Silva, Vítor Vaz, Eva Gonçalves, Cláudia Simões

USF Marquês, ULS da Região de Leiria.

Introduction: Pulmonary rehabilitation (PR) is recognized as a complementary therapy for patients with pleural effusion (PE), however studies on the outcome of the treatment on this subset of patients are limited.
Methods: We made a retrospective review of a cohort of patients selected from the Pulmonary Rehabilitation Consultation between November 2023 and July 2024. Only adult patients with PE who underwent a 1-month PR protocol were selected for analysis. For this analysis, patients were divided in two groups for comparison: Group 1: patients with radiological improved PE; Group 2: patients with no radiological improvement of PE.
Results: We selected a cohort of 22 patients. Group 1 had 11 patients, mostly male (72.7%), median age was 63 ± 29 years ($p = 0.412$). 2 patients were still waiting for evaluation to assess improvement. The most common cause of PE in both groups was infection ($p = 0.523$) and the most prevalent symptom was pain ($p = 0.346$). In Group 1, most patients improved symptoms after PR (90.9%; $p = 0.285$), none had chronic PE ($p < 0.005$) and almost half had complete resolution of PE (45.5%; $p = 0.038$). Adhesion to the PR protocol was similar between groups ($p = 1$). We found no significant association between PE improvement and pleural catheter drainage ($p = 1$), repetition of the PR protocol ($p = 0.197$) or comorbidities ($p = 0.447$).
Conclusions: PR in patients with PE lack evidence and more studies are encouraged. In this cohort, we found a statistical significant association between PE improvement after 1 month of PR and PR offered in the acute phase ($p < 0.005$), as well as resolution of the PE ($p = 0.038$). We emphasize that extension of PR beyond 1 month and delivery of PR to chronic PE were not associated with significant improvements.

Keywords: *Pleural effusion. Pulmonary rehabilitation. Respiratory functional re-education.*

CO 029. PERSPECTIVE OF INFORMAL CARERS ON A HOME-BASED PHYSICAL ACTIVITY PROGRAM (ILIFE) FOR INDIVIDUALS WITH INTERSTITIAL LUNG DISEASE

Bárbara Costa, João Chagas, Cátia Paixão, Alda Marques

Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), University of Aveiro, Aveiro, Portugal; Institute of Biomedicine (iBiMED), University of Aveiro, Aveiro, Portugal

Physical activity (PA) is fundamental for the management of interstitial lung diseases (ILD), nevertheless, its practice is challenging. Home-based PA programmes overcome some of the identified barriers and may benefit individuals and their informal carers (IC). Perspectives of IC on such interventions are, however, scarce and improving our understanding of their experiences is important as they influence disease outcomes. In this study, we explored the impact of a home-based PA programme (iLiFE) for individuals with ILD, from the perspective of their IC. A qualitative study nested in the iLiFE trial (NCT04224233) was conducted. Data of IC on PA levels – steps/day with an accelerometer, support needs with the Carer Support Needs Assessment Tool (CSNAT) and health related quality of life with the World Health Organization Quality of Life Assessment – short version (WHOQoL-Bref) were collected at baseline to characterise the sample. Individual semi-structured interviews were conducted at the end of iLiFE to explore its impact according to IC's perspectives. Interviews were audio recorded, transcribed and analyzed with thematic analysis. Nine IC participated - 72 ± 8 years, 5 [55.6%] male, 3,819 ± 1,782 steps/day, main needs: "understanding their relative illness" and "knowing who to contact if there are concerned about their relative"; WHOQol-Bref overall score 272 ± 49 points (Physical domain- 49 ± 10 points; Psychological domain-58 ± 10 points; Social domain-63 ± 18 points; Environmental domain-51 ± 1 4points). Two main themes emerged: impact of iLiFE (e.g., decrease in burden of care) and thoughts about iLiFE (e.g., importance of healthcare professionals support). Home-based PA programmes not specifically targeted to IC of ILD individuals may have a positive impact on their perceived well-being and decrease the burden of care. Further research is needed to involve and support IC given their fundamental role in the daily management of ILD.

Keywords: *Impact. Functional exercise. Caregivers. Diffuse lung disease. Qualitative research.*

CO 030. THE INFLUENCE OF DISEASE SEVERITY ON SUPPORT NEEDS OF PEOPLE WITH COPD AND ILD

Cíntia Dias, Raquel Marinho, Ana Sofia Grave, Cátia Paixão, Patrícia Rebelo, Guilherme Rodrigues, M. Aurora Mendes, Sérgio Campainha, Chris Burtin, Alda Marques

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

People with chronic obstructive pulmonary disease (COPD) and interstitial lung disease (ILD) present multiple support needs. Disease severity may impact these needs. However, this is largely unknown, hindering the tailoring of support interventions. This study explored the characteristics and differences in the support needs of people with COPD and ILD according to the disease severity. A cross-sectional study was conducted. Participants' support needs, the relationship and nature of assistance and the weekly support hours received (≤ 8 h, 8-20 h, 20-40 h, ≥ 40 h or full-time) were collected. Support needs were grouped into instrumental, emotional/spiritual, social and informational. Disease severity was determined using the Glob-

al Obstructive Lung Disease (GOLD) groups and grades for COPD, and the ILD-Gender, Age and Physiology (ILD-GAP) model for ILD. Differences between groups were assessed using the Chi-squared test, one-way ANOVA or Welch's ANOVA (significance level $p < 0.05$). 184 participants: 68 people with COPD (71 ± 8y; 78% men; FEV1 58 ± 17%p) and 116 with ILD (68 ± 11y; 50.9% men; FVC 81 ± 21%p; DLCO 53 ± 20%p) were included. Most participants (COPD-75%; ILD-61%) relied on informal care, mainly from spouses (COPD-56%; ILD-36%) or a son/daughter (COPD-28%; ILD-27%), needing over 20 hours/week of care (COPD-45%; ILD-30%). Significant differences were found in instrumental needs across GOLD groups ($p = 0.038$), with more people in Groups B and E presenting this type of need. No differences were found for either GOLD grades ($p = 0.244$) or ILD-GAP model ($p = 0.139$). COPD and ILD populations heavily rely on informal care. Higher disease impact in COPD increases instrumental needs, although no differences in support needs were found across ILD-GAP and GOLD grades, which include only sociodemographic and physiological variables. These findings highlight the importance of informal care and suggest incorporating meaningful outcomes in disease severity indices. Further research is needed to understand and address the diverse support needs of these populations.

Keywords: *Support needs. Chronic obstructive pulmonary disease. Interstitial lung disease.*

CO 031. PRELIMINARY EVALUATION OF AUTOMATED ADMINISTRATION OF OXYGEN IN A PULMONARY REHABILITATION PROGRAM – A CROSS-OVER STUDY

Filipa Torres Silva, Sérgio Vaz, Vera Lordelo, Nelson Sousa, Sandra Dinis, Bebiana Conde, Ana Loureiro

ULS Trás-os-Montes e Alto Douro.

Introduction and objectives: Automated devices of oxygen titration (namely O2matic Pro100®) have shown to decrease the hypoxemia time and improve the endurance and symptoms of patients, in walking tests, with the advantage of not requiring a healthcare professional manual titration. The application of this device in the pulmonary rehabilitation context, when applied in patients with chronic respiratory conditions, embodied by highly variable desaturation, is not yet established.
Methods: We conducted an experimental cross-over study, including patients with chronic respiratory insufficiency (at rest or with exertion), integrated in pulmonary rehabilitation program. Each patient used the device O2matic Pro100® during 4 weeks of the program, with a total of 8 aerobic training sessions, alternating between 4 Automatic Setting (AS) sessions and 4 Manual Setting (MS) sessions. The main outcomes were the Borg Modified Scale and peripheral oxygen saturation (SpO2).
Results: A preliminary analysis included 8 patients, with a mean age of 72.00 ± 9.88 years old, mostly men (n = 7; 87.50%). In 87.5% (n = 7), COPD prompted the referral to the program. The overall results can be observed in Table 1. Both AS and MS sessions showed a comparable work load. No significant difference was observed in dyspnea, fatigue and SpO2 parameters between AS and MS sessions, although the AS sessions showed a trend for lower time outside SpO2 range.
Conclusions: In this preliminary analysis, the use of automatic devices of oxygen titration, during aerobic training in pulmonary rehabilitation, showed a non-inferior oxygen delivery and symptomatic management, in comparison with healthcare professional manual titration. This study suffers from a significant limitation, due to the currently low recruitment of patients and the high variability the chronic respiratory patients exhibit, even with the applied cross-over design.

Keywords: *Pulmonary rehabilitation. Supplemental oxygen therapy. Automatic oxygen titration.*

CO 032. DETERMINANTS AND OUTCOMES OF EDUCATION IN PULMONARY REHABILITATION

Maria Aurora Mendes, Guilherme Rodrigues, Daisy J.A. Janssen, Martijn A. Spruit, Alda Marques

Pulmonology, Unidade Local de Saúde da Região de Aveiro (ULSRA). Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), University of Aveiro. Institute of Biomedicine (iBiMED), University of Aveiro. Department of Health Services Research, Care and Public Health Research Institute, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht.

Introduction: Education and psychosocial support are core components of pulmonary rehabilitation (PR) and are highly valued by people with chronic respiratory diseases, informal carers and healthcare professionals. Paradoxically, these components have been highly neglected in research and clinical practice. Most PR programmes do not assess personal factors that may impact the learning process, nor do they evaluate the effectiveness of PR in outcomes specific to this domain. Guidance for identifying and measuring the determinants and outcomes of education in PR might help researchers/healthcare professionals to overcome this gap, ultimately, optimising patients' outcomes. A narrative review was conducted to summarise the evidence and expert opinion on determinants and outcomes of education in PR. Literature searches were conducted on PubMed from inception until June 2024.
Methods: Personal factors, including cognitive function, health literacy, psychological status and social connection may influence learning of people with chronic respiratory diseases, and therefore, their assessment is important to shape education delivery in PR. Education should aim to target individuals' knowledge, skills and confidence, which are essential for effective self-management. However, the lack of studies aimed at assessing the effects of PR beyond those of exercise training has led to significant challenges in understanding and valuing the true impact of education. The scarcity of validated measurement instruments for different chronic respiratory diseases further aggravates the difficulties when wanting to measure the effectiveness of PR in this domain.
Conclusions: This review provides guidance on education-related determinants and outcomes of PR that should be routinely assessed by researchers/healthcare professionals, fostering our ability to design person-centred education and assess its effects. Further research is urgently warranted, to leverage these fundamental components of PR for the daily life of people with chronic respiratory diseases, namely evaluating the measurement properties of existing instruments and/or developing new ones.

Keywords: *Education. Pulmonary rehabilitation. Chronic respiratory diseases.*

CO 033. NON-HOSPITALIZED PATIENTS WITH POST-COVID-19 CONDITION UNDER TELEREHABILITATION

Renato Reis, Margarida Sequeira, Madalena Gomes da Silva

NOVA National School of Public Health; Comprehensive Health Research Centre.

Introduction: Post-COVID-19 condition is a set of long-term symptoms after COVID-19. Fatigue, sleep disorders, anxiety and depression are reported symptoms. There is little evidence regarding the characteristics of patients with post-COVID-19 condition who have not been hospitalized, namely in the Portuguese context. The aim of the study is to characterize a sample of Portuguese non-hospitalized patients integrated in the telerehabilitation program "Recovery from COVID-19".
Methods: RECOV19 was an online program, involving exercise and educational sessions. Each exercise session was divided in breathing

control, thoracic mobility, aerobic, resistance and flexibility training. Education included symptoms' self-monitorization, pacing techniques, action plan for symptom management and recommendations for physical activity. Assessment tools were 1-Minute Sit-to-Stand (exercise capacity) and 5-Seconds Sit-to-Stand (lower limb strength), FACIT-F (fatigue), mMRC (dyspnea), HADS (anxiety and depression), PCFS (functional status) and WHOQoL-bref (quality of life). Results were analyzed through descriptive statistics.
Results: Eighteen non hospitalized patients (age M = 48.8; SD = 10.9; 39% male; 61% female) with a mean of 132.3 days post infection (SD = 91.5) and 55.6% with pneumonia diagnosis, participated in the program. Thirty percent did not report comorbidities, 44% reported one and 20% two or more. Reported symptoms were fatigue (83%); dyspnea (44%); memory loss (39%); chest pain (28%); cough (22%); anxiety and brain fog (17%); loss of smell and taste, and dizziness (11%). Participants showed reduced exercise capacity (M = 23; SD = 9.4 repetitions), reduced lower limb strength (M = 14; SD = 5.8 seconds), fatigue (M = 31; SD = 9.5) dyspnea (M = 2; SD = 1), anxiety (M = 6; SD = 3.2), depression (M = 8; SD = 4.4), reduced functional capacity (M = 2; SD = 0.8). Quality of life assessment suggests a greater reduction in physical (M = 57; SD = 18.6) and psychological domains (M = 65; SD = 15.1).
Conclusions: The characteristics of non-hospitalized patients with post-COVID-19 condition appear to be similar to patients with the same condition with hospitalization, some of them with complex long-term symptoms. For both groups, there should be greater consensus on the therapeutic approaches to be adopted, including telerehabilitation.

Keywords: *Telerehabilitation. COVID-19. Post-COVID-19 condition. Long COVID. Symptoms.*

CO 034. OPTIMIZING NSCLC MOLECULAR PROFILING: COMPARING EBUS/EUS AND TRANSTHORACIC LUNG BIOPSY

Joana Gameiro Duarte, Luís Vaz Rodrigues, Paulo Matos, Michele De Santis, Ana Luísa Fonseca, Pedro Gil Agostinho, Lourdes Barradas, Vítor Sousa

Hospital Beatriz Ângelo-ULS Loures Odivelas.

Introduction: With the advent of molecular testing and targeted therapies, obtaining high-quality tumor samples is crucial for profiling Non-Small Cell Lung Cancer (NSCLC). Our study aims to compare the feasibility of samples obtained via Endobronchial Ultrasound and Endoscopic Ultrasound through the esophagus (EBUS/EUS) versus Transthoracic Needle Biopsy (TTNB) in achieving molecular diagnosis (MD) in NSCLC.
Methods: A retrospective observational study was conducted using data from patients with confirmed NSCLC for whom MD was requested between September 2019 and July 2024.
Results: From 302 patients meeting the above criteria, 79 underwent TTNB (91.1% CT-guided; 8.9% ultrasound-guided) and 139 underwent endoscopic procedures (56.8% EBUS; 43.2% EUS). The cohort's median age was significantly lower in the EBUS/EUS group (67.0 vs. 71.0 years; p = 0.004). Most patients (86.1%) had an ECOG Performance Status ≤ 1 at diagnosis, despite a high percentage of metastatic disease (67.2%). Nearly all TTNB procedures sampled the primary tumour site (96.2%). In contrast, most EBUS/EUS sampled suspected lymph nodes (64.7%) and a third sampled the primary tumour (32.4%). Adenocarcinoma predominated in both groups. Next Generation Sequencing (NGS) was the most performed molecular test, with sequential single-gene testing used less frequently. No difference was observed between TTNB and EBUS/EUS regarding the overall qualitative feasibility for MD, irrespective of test type or sampled site (p = 0.948). Nonetheless, the median percentage of tumour cells quantified on NGS was significantly higher in primary tumour samples obtained via EBUS/EUS (55.0% vs. 30.0%; p = 0.003). Despite initially undergoing TTNB, nine patients later required EBUS/EUS for complete histomolecular diagnosis.
Conclusions: Ultrasound-guided endoscopic procedures such as EBUS and EUS can provide a high yield of tumor cells for MD in NSCLC. Through careful case-by-case consideration, some patients may benefit from EBUS/EUS as the primary diagnostic procedure, potentially reducing the need for additional invasive procedures and ensuring effective patient care.

Keywords: *NSCLC. EBUS. EUS. Transthoracic needle biopsy. Molecular diagnosis.*

CO 035. MEDICAL THORACOSCOPY FOR SPONTANEOUS PNEUMOTHORAX – A PORTUGUESE COHORT STUDY

Rita Santos Martins, Catarina Gameiro, Francisco Henriques, Diana Amorim, Maria João Silva, João Neiva Machado, Rebeca Natal, Salvato Feijó

Unidade Local de Saúde da Região de Leiria.

Spontaneous pneumothorax (SP), classified as primary or secondary, has high recurrence rates. Current guidelines are focused not only on evacuating air from pleural space but also on preventing recurrences. However, the optimal treatment remains a subject of debate. The aim of this study was to evaluate the efficacy and safety of medical thoracoscopy (MT) with "talc poudrage" pleurodesis in patients with SP. A retrospective cohort study included all patients submitted to MT with pleurodesis for the treatment of SP at the Local Health Unit of Leiria Region between September 2016 and June 2024. Recurrence and complications after the procedure were evaluated until July 2024. From a total of 81 thoracoscopies performed on patients with SP, 4 patients were excluded due to vascular changes requiring Thoracic Surgery evaluation, precluding them from undergoing pleurodesis. This study involved 66 MT (85.7%) performed on patients with primary spontaneous pneumothorax (PSP) and 11 (14.3%) on patients with secondary spontaneous pneumothorax (SSP). Most patients were male (88.3%), the average age was 29 ± 12 years, 49.4% were smokers, and 15.6% were ex-smokers. Thirty-four patients had a prior pneumothorax, and 6 had undergone pleurodesis before. After the procedure, 9 patients (11.7%) had an ipsilateral recurrence, with 3 having SSP (27.3%) and 6 having PSP (9.1%). Of these, 6 patients were referred to Thoracic Surgery, 1 received another MT with "talc poudrage" pleurodesis and 1 patient underwent "talc slurry" pleurodesis. There was one patient with partial lung expansion, who was transferred to Thoracic Surgery. Post-procedure complications included one case of large-volume subcutaneous emphysema requiring close surveillance, and one patient with suture site infection, treated effectively with antibiotic therapy. This study demonstrated that MT with "talc poudrage" pleurodesis had low recurrence rates and minimal complications after the procedure, making it a good first option for treating SP.

Keywords: *Spontaneous pneumothorax. Medical thoracoscopy. Pleurodesis.*

CO 036. BRONCHOSCOPY UNDER NON-INVASIVE VENTILATION SUPPORT: EXPERIENCE OF AN INTERVENTIONAL PULMONOLOGY UNIT

Catarina Couto, Vera Figueiredo, Carolina Da Silva Alves, Anatilde Trindade, Luís Carreto, José Pedro Boléo-Tomé, Fernando Rodrigues

Serviço de Pneumologia na ULS Amadora/Sintra.

Introduction: Some patients with severe acute respiratory failure have mandatory indications to undergo fiberoptic bronchoscopy (FOB). However, performing this procedure can worsen hypoxemia, increasing the risk of complications and the need for intubation.

Non-invasive ventilation (NIV) can be used to prevent intubation and worsening of the clinical status.
Objectives: To describe the demographic characteristics, indications and outcomes of FOB performed under NIV.
Methods: Retrospective analysis of FOBs performed with NIV as respiratory support, in an Interventional Pulmonology Unit, in a 5-year period.
Results: 19 FOBs were performed on patients undergoing NIV: 68% (n = 13) were male, with a mean age of 75.7 ± 11.5 years. All patients had acute respiratory insufficiency, 68.4% (n = 13) of which were type 2. Before the procedure, 47% (n = 9) was under NIV and 53% (n = 10) under supplemental oxygen. The main causes for respiratory failure were pneumonia (n = 9) and atelectasis (n = 9). FOBs were performed for diagnostic (n = 10) and therapeutic (n = 9) purposes, 79% (n = 15) of which under light sedation. The following techniques were performed: 16 bronchial aspirates; four bronchial biopsies; one transbronchial lung biopsy. During the procedure, oxygen saturation fell to < 90% in three patients (16%); the lowest value recorded was 78%. Overall, four complications were registered: one minor bleeding and the three cases of worsening hypoxemia. No deaths were attributable to the procedure. In the first 24 hours after the procedure, the rate of worsening of respiratory support was 21% (n = 4), one patient required intubation, one HFNO and two patients started NIV; the remaining patients maintained the same ventilatory support; however, four of them had reduced FiO2. Based on clinical and blood gas analysis, 26% (n = 5) of patients improved shortly after bronchoscopy.
Conclusions: FOB under NIV support seems to be a safe procedure for patients with severe acute respiratory failure, particularly when a therapeutic goal is essential.

***Keywords**: Fiberoptic bronchoscopy. Non-invasive ventilation. Acute respiratory failure.*

CO 037. BRONCHOCOPY FOR OESOPHAGEAL CARCINOMAS STAGING, STILL A NECESSARY PROCEDURE?

David Noivo Gomes, Daniela Cardoso, Telma Sequeira, Ambrus Szantho, Jorge Dionísio

ULS Arrábida.

Introduction: Most oesophageal carcinomas (OC) are unresectable at presentation. The bronchoscopic Choi-Baisi classification plays an important role in assessing tracheobronchial invasion and resectability, classifying patients in: category I (normal) II (compression with: A-Normal posterior tracheal wall movement; B-abnormal) and III (mucosal infiltration/fistula).
Methods: Retrospective data was collected on patients who performed OC staging bronchoscopy on an oncology institute in Portugal during 2019.
Results: A total of 95 patients with OC were screened, 18 (18.9%) were excluded due to other concomitant cancer. Most patients were male (n = 81, 85.3%), mean age was 66.4 ± 8.9 years. 52.6% were locally advanced and 28.9% metastatic. Bronchoscopy was performed and the Choi-Baisi classification was applied, 40 (51.9%) were classified as I, 13 (16.9%) as IIA, 12 (15.6%) as IIB and 12 (15.6%) as III. Most direct signs of mucosal infiltration were on the posterior wall of the trachea (n = 8; 66.7%), while the rest were on the left principal bronchus. Chest tomography and bronchoscopy were discordant in 17 (22.1%) patients (in one, chest CT suggest airway invasion but had a normal bronchoscopic and 16 showed no invasion on chest CT, but were classified as category IIA, IIB or III). 22 patients underwent radical esophagectomy (mostly were classified as I, three were classified as IIA), no patient had airway invasion. Patients classified as III had a lower median overall survival (OS) than those without (p = 0.017). Those with the classification of I had a higher OS than those with any other classification (p = 0.004). On our subanalysis, there was no difference between the OS of patients classified as IIA and IIB.
Conclusions: Bronchoscopy still is a valuable tool in the staging of OC. It can also be useful in stratifying patients for surgery, preventing unnecessary procedures considering the direct visualization of the mucosa and identifying functional changes suggesting adjacent structures invasion.

***Keywords**: Bronchoscopy. Oesophageal cancer. Staging.*

CO 038. ENDOBRONCHIAL ULTRASOUND-GUIDED MEDIASTINAL CRYOBIOPSY – THE EXPERIENCE OF THE FIRST CASES IN A SINGLE CANCER INSTITUTION

André Nunes, Telma Sequeira, Ambrus Szantho, Jorge Dionísio

Centro de Responsabilidade Integrado de Pneumologia, Hospital de Torres Vedras, Unidade Local de Saúde do Oeste.

Endobronchial ultrasound (EBUS) has become a critical tool for the diagnosis and staging of thoracic malignancies, reducing the need for surgical mediastinoscopy in many cases. It is used together with transbronchial needle aspiration (TBNA), resulting in a high diagnostic yield, especially for primary lung cancer. However, its diagnostic yield for other malignant neoplasms (such as lymphoma) and non-malignant lesions (like sarcoidosis or tuberculosis) is lower. Recently, mediastinal cryobiopsy has gained popularity in addressing the limitations of TBNA. This technique enables the acquisition of histological material by introducing a cryoprobe into the lymph node or lesion being evaluated, under ultrasound guidance. With this new method, the diagnostic yield for lymphomas and benign entities seems to have increased, with a good safety profile. We present the experience of the Pulmonology Service of the Francisco Gentil Portuguese Institute of Oncology of Lisbon (IPOLFG). Twelve patients were included, mostly females (n = 7; 58.3%), with a mean age of 59.3 years. Most patients had a previous diagnosis of a lymphoma (n = 7; 58.3%) and were referred for suspicion of disease relapse. Four patients (33.3%) had no prior definitive diagnosis. TBNA and cryobiopsy results were concordant in 9 patients (75.0%). Cryobiopsy provided a diagnosis (with non-diagnostic TBNA) in 2 patients (16.7%). The cryobiopsy sample was non-diagnostic in one patient (8.3%). Only one patient presented a slight hemorrhage after cryobiopsy. The combination of TBNA and cryobiopsy allowed diagnosis of lymphomas in four cases (including their subclassification), sarcoidosis in three cases, tuberculosis and lung adenocarcinoma in one case each. Although further experience and a larger patient sample are needed, EBUS-guided cryobiopsy seems to be a safe procedure, allowing a reduction in the number of non-diagnostic interventions, especially in the setting of suspected lymphoma or benign entities.

***Keywords**: Endobronchial ultrasound. Cryobiopsy. Mediastinal lymphadenopathy. Lung cancer. Lymphoma.*

CO 039. EMPYEMAS - THE EXPERIENCE OF ULS AMADORA-SINTRA

Vera Figueiredo, Rúben Costa, Ricardo Petinga Fortes, Catarina Figueiredo Roquete, Catarina la Cueva Couto, Marisa Anciães, Fernando Rodrigues

ULS Amadora-Sintra.

Introduction: Empyema is a collection of pus in the pleural space or isolation of a bacterial agent in pleural fluid. Its etiology is primarily infectious, however it can also be associated with trauma or post-surgery. Due to high morbidity and mortality, proper diagnosis and treatment are crucial.
Objectives and methods: Retrospective analysis of empyemas from all services of ULS Amadora-Sintra over 10 years (January 2014 to March 2024).

Results: A total of 223 empyemas were recorded. Average patient age was 55.6 years old (minimum: 3 months and maximum: 94 years old); 65.5% were female. Regarding etiology, the vast majority were para-pneumonic (n = 164; 73.5%). Remaining patients: infected malignant pleural effusions (n = 18; 8.1%); infectious and malignant effusions in post-obstructive pneumonia due to neoformative lesion (n = 4; 1.8%); abdominal origin (n = 14; 6.3%), either due to fistulas, abscesses, abdominal peritonitis or post-abdominal surgery; effusions due to tuberculosis (n = 9; 4.0%) and secondary to thoracic trauma (n = 5; 2.2%), with rare cases of etiology to be clarified. Agent isolation occurred in 34.1% of patients. Most common agents were *Streptococcus pneumoniae*, Methicillin-Sensitive *Staphylococcus aureus* and *Klebsiella pneumoniae*. 10 cases had matching blood culture isolations. All patients, except one, underwent antibiotic treatment for 2-6 weeks. Pleural drainage was placed in 89.7% of patients. Conservative approach was chosen for 23 patients due to small pleural chamber (43.5%), failed drain placement (26.1%), chronic empyema (4.3%), comfort measures (17.4%), or unspecified reasons (8.7%). Additional treatments: 18.8% (n = 42) received fibrinolytics, 10.8% (n = 24) were referred to Thoracic Surgery, of which 14 underwent VATS and 10 underwent thoracotomy, namely decortication, debridement or lobectomy, and 4.9% (n = 11) patients underwent pleurodesis.
Conclusions: Pleural drainage and antibiotic therapy are first-line treatments for empyemas. Each case requires individualized approach based on clinical and imaging evolution. Early additional therapies like pleural lavage and intrapleural fibrinolysis may benefit patients.

Keywords: *Empyema. Pleural drainage. Antibiotic therapy.*

CO 040. PNEUMOMEDIASTINUM - A 5-YEAR RETROSPECTIVE ANALYSIS

Catarina Figueiredo Roquete, Ricardo Petinga Fortes, Carolina Sousa, Fernando Rodrigues

Hospital Professor Doutor Fernando Fonseca.

Introduction: Pneumomediastinum can result from a variety of etiologies. Although self-limiting and benign, it may be associated with serious and potentially fatal underlying conditions.
Methods: Retrospective data analysis from adult patients diagnosed with pneumomediastinum between 2019 and 2023. Demographic data, associated pathologies, clinical severity, therapeutic approach, and mortality were evaluated.
Results: A total of 93 patients diagnosed with pneumomediastinum were identified. The majority were male (67.7%), with a mean age of 60. Most patients had no underlying respiratory disease (60%, n = 53) and were non-smokers (76.3%, n = 71). Of all the cases observed 92 were secondary pneumomediastinum and only one spontaneous. The majority were associated with severe COVID-19 disease and/or barotrauma (n = 55, 59.8%), followed by iatrogenic cause (n = 13), pneumothorax (n = 5), associated with pneumonia (n = 4), asthma (n = 4, in 2 cases it was initial presentation), chest trauma (n = 4), structural lung disease with exacerbation (n = 3), esophageal perforation (n = 3) and barotrauma (n = 1). Diagnosis of pneumomediastinum was made by computed tomography in all cases. It did not appear to modify clinical evolution in most cases (n = 74, 79.6%). However, 21 patients with evolving pneumonia and/or pulmonary thromboembolism showed worsening respiratory failure. The majority of patients (88.2%, n = 82) had partial respiratory failure, 44.1% (n = 41) were admitted to the intensive care unit, 35.5% (n = 33) underwent invasive mechanical ventilation, 18.3% (n = 17) non-invasive ventilation, and 9.6% (n = 9) high-flow nasal oxygen therapy. The pneumomediastinum approach was mostly conservative (n = 76, 81.7%). Eighteen patients presented with pneumothorax and a chest drainage was placed in 15 patients. When imaging reassessment was performed (n = 8), the pneumomediastinum resolved averaging 12.6 days. The all-cause mortality rate was 34.4% (n = 32).
Conclusions: This study demonstrates that underlying diseases are determinants of clinical severity rather than the diagnosis of pneumomediastinum itself. COVID-19 and its clinical severity during the pandemic resulted in a high mortality rate.

Keywords: *Pneumomediastinum.*

CO 041. DIAGNOSTIC YIELD OF CRYOBIOPSY - EXPERIENCE OF A REFERENCE CENTER

Alexandra Tenda da Cunha, Michele De Santis, Paulo Matos, Luís Vaz Rodrigues, Lourdes Barradas

Centro Hospitalar e Universitário Coimbra-Unidade Local de Saúde de Coimbra.

Introduction: Endobronchial ultrasound-guided cryobiopsy (CryoEBUS) has emerged as a promising technique for obtaining larger samples of mediastinal lesions. This can be particularly important in lymphoproliferative and granulomatous diseases, where endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has a lower diagnostic yield, often requiring more invasive procedures.
Objectives: Evaluate performance and diagnostic yield of cryoEBUS.
Methods: A retrospective observational study (12 months) was conducted at the Portuguese Institute of Oncology in Coimbra. The Wilcoxon test was used to evaluate the diagnostic yield between procedures.
Results: 36 patients performed EBUS-TBNA and CryoEBUS simultaneously. Median age was 58.5 ± 14.1 years, with the majority being male (n = 26, 72.2%). Procedures were performed for diagnostic purposes. Fourteen patients had prior negatives diagnostics procedures: BTT (n = 1), EBUS (n = 8), EUS-B (n = 6). CryoEBUS was primarily performed at stations 11L (n = 17, 47.2%) and 7 (n = 12, 33.3%). Between 1 and 4 cryobiopsies were performed. Minor hemorrhage (grade 1) was observed in two patients and was resolved with simple aspiration; no major adverse events or late complications were observed. There was no statistically significant difference in the representativeness of lymphatic tissue between EBUS-TBNA and CryoEBUS. There was statistically significant difference ($z = -2.887$, $p = 0.004$) in diagnostic capability between EBUS-TBNA and cryoEBUS. This difference was notable in patients with sarcoidosis (diagnosis with EBUS-TBNA n = 7, 19.4%; diagnosis with CryoEBUS n = 13, 36.1%) and lymphoma (diagnosis with EBUS-TBNA n = 0, 0%; diagnosis with CryoEBUS n = 3, 8.3%). Both procedures performed similarly for other malignancies.
Conclusions: Although both techniques are equally effective in sampling lymphatic tissue, cryobiopsy significantly increased the diagnostic yield, particularly in the specific context of benign and lymphoproliferative diseases. Further studies are needed to compare the diagnostic yield of CryoEBUS, EBUS-TBNA, and mediastinoscopy. Selection criteria for CryoEBUS are lacking.

Keywords: *Endobronchial ultrasound-guided cryobiopsy. Endobronchial ultrasound-guided transbronchial needle aspiration.*

CO 042. MALIGNANT PLEURAL EFFUSION – PREDICTING SURVIVAL USING LENT AND PROMISE SCORES

Laura Lopes, Pedro Gonçalo Ferreira, Tiago Alfaro, Jessica Cemlyn-Jones, Fernanda Gamboa, Yvette Martins

Unidade Local de Saúde de Coimbra.

Introduction: Due to the short overall survival of malignant pleural effusion, accuracy in prognosis assessment is crucial. The LENT and

PROMISE scoring systems are available. Our aim was to evaluate the performance of these scores in predicting survival.
Methods: We evaluated 75 patients with an average age of 69 years admitted to our unit during 2023. LENT and PROMISE scores were calculated as were risk categories. The Kaplan-Meier method was used in survival analysis and intergroup survival comparisons were made with log-rank test (Mantel-Cox).
Results: At the end of the 6 months data screening, 63% of patients died. The median overall survival was 33 days. Regarding LENT, 27% of patients were in the high-risk group, 70% in the moderate risk and 3% in the low-risk. According to the single-variable log-rank analysis using LENT, the median survival of moderate-risk patients was 35 days and of high-risk was 17 days. In PROMISE, 21% of patients were in category A, 45% in category B, 25% in category C and 8% in category D. The median survival of patients in category A was 39 days, 33 days in category B, 20 days in category C, and 14 days in category D. Survival decreased significantly as the risk increased according to LENT and to PROMISE. Neither the LENT nor the PROMISE were effective in predicting 1-month mortality risk. In PROMISE, category D showed increase in 3-month mortality risk. Category B and D showed increase in 6-month mortality risk. The LENT was not effective in predicting mortality at 3 and 6 months life.
Conclusions: In our study, according to multivariate analysis results, mortality risk at 3 and 6 months increased significantly in PROMISE category D and showed that the LENT score was not effective in predicting survival at 1, 3 and 6 months.

Keywords: *Malignant pleural effusion. Scores. Lent. Promise. Survival.*

CO 043. THE ROLE OF BRONCHOSCOPY IN HIV/AIDS-RELATED DISEASES WITH RESPIRATORY INVOLVEMENT

João Couto, Diogo Canhoto, Adriana Dias, Joana Marinho, Yvette Martins, Alexandra Tenda

Pulmonology Department of Coimbra Hospital and University Centre.

Respiratory involvement by HIV/AIDS-related diseases can be a diagnostic challenge. Bronchoscopy and its subsidiary techniques have a significant role in managing these patients, enabling early diagnosis and targeted treatment. Retrospective observational study, with selected group of 39 patients with HIV infection and infectious respiratory illness, admitted to the ward of Infectious Diseases department of a tertiary hospital over the course of 18 months. These patients underwent bronchoscopic evaluation and collected samples were analyzed for bacterial, viral and fungal evidence of infection. The study's sample was predominantly male (71,8%), middle aged (mean: 49.5 years), with inaugural HIV infection (56.1%), CDC stage C3 (69.2%) and presented mild to moderate respiratory failure (58.9%). Common radiological findings included diffuse micronodulation and ground glass opacities on CT-scans, mainly associated to *P. jirovecii* pneumonia, CMV infection or their co-infection. After bronchoscopy, a diagnosis of the causative agent was made in 29 cases (74.4%). Bronchoalveolar lavage (BAL) had a diagnostic accuracy of 76.5%, followed by bronchial aspirate (BA) (75%) and bronchial biopsy (50%). The most common AIDS-defining disease was P. jirovecii pneumonia (30.4%), followed by pulmonary tuberculosis (13%). Despite the number of CMV positive samples (n = 19; 48.7%), only 9 cases had strong evidence of CMV infection (supported by serum/BAL viral load). CMV-*P. jirovecii* and CMV-M. tuberculosis co-infection was the most common finding (77.7%) in this group. Twenty-five patients (64%) switched from initial antimicrobial therapy to targeted therapy accordingly to sample results, allowing narrowing of antimicrobial spectrum in an interesting 40% of cases. Bronchoscopic evaluation is of the outmost importance for the management and treatment of the immunocompromised patient with respiratory compromise, allowing for fast and accurate diagnosis, as well as targeted treatment. This effect is likely paralleled by a convenient decrease in the risk of proliferation of multidrug-resistant bacteria, a pressing concern for contemporary public health.

Keywords: *Bronchoscopy. Bronchoalveolar lavage. Aids-related opportunistic infection.*

CO 044. A 5 YEAR RETROSPECTIVE ANALYSIS OF CHEMICAL AND SURGICAL PLEURODESIS IN A NORTHERN PORTUGAL HOSPITAL CENTRE

Nuno De Barros Ferreira, Anita Paiva, João Lima Fernandes, Cláudia Sofia Pinto, Pedro Fernandes, Ana Castelo Grande, Francisco Cadarso Vazquez

Pulmonology department of Unidade Local de Saúde do Tâmega e Sousa.

Introduction: Pneumothorax is defined by the presence of air in the pleural space. When treatment is necessary, air drainage may be needed. When air drainage is insufficient, chemical pleurodesis or surgical intervention may be performed.
Methods: We retrospectively evaluated pneumothorax with prolonged air drainage who underwent chemical pleurodesis with talc or blood patch at ULS Tâmega e Sousa and those referred from this hospital to the Thoracic Surgery of ULS São João for surgical pleurodesis (lung abrasion and talc application) and lung resection via video-assisted surgical pleurodesis, between May 2019-2024. Demographic, clinical, and imaging data of the patients were collected. For measuring pneumothorax dimension at admission, we used interpleural distance measured at three different locations on a supine anteroposterior chest X-ray (Collins Formula). Descriptive analysis with measures of central tendency and dispersion was performed using IBM SPSS Statistics®. Missing data was treated using complete case analysis. Forty patients were identified - 25 surgical pleurodesis (SURG) and 15 chemical pleurodesis only (MED) with an average age of 35 [± 14.6] years in the SURG group and 63.7 [± 9.7] years in the MED group. There were no deaths, and all patients were discharged with clinical resolution of the condition.
Results: Complications included, in the SURG group, a case of postoperative hemothorax with hemostatic revision and a case of bacterial infection after procedure. In the MED group a vasovagal syncope was identified after a blood patch pleurodesis.
Conclusions: Both procedures proved to be safe and effective. The surgical approach is more effective in both rates of recurrence and in hospital stay after procedure, but more laborious. MED patients had more comorbidities and a higher rate of recurrence. Both procedures have their place in clinical practice, and the approach to these patients should be multidisciplinary.

Keywords: *Pneumothorax. Air leak. Pleurodeses. Chemical. Surgical. Clinical outcomes. Recurrence.*

CO 045. RADIAL ENDOBRONCHIAL ULTRASONOGRAPHY FOR DIAGNOSIS OF PERIPHERAL PULMONARY LESIONS - EXPERIENCE OF A TERTIARY CENTER

Mariana Ribeiro, Gabriela Fernandes, Adriana Magalhães, Catarina Sousa, Maria Jacob, Francisco Machado, Claúdia Freitas, David Araújo, Helder Novais Bastos, Conceição Souto Moura, Susana Guimarães, André Carvalho, Nuno Silva

Unidade Local de Saúde de São João, Porto.

Introduction: Wider access to CT-scan increased detection of peripheral pulmonary lesions (PPL), often inaccessible to direct view on conventional bronchoscopy. Radial endobronchial ultrasonography (rEBUS) is used to overcome this limitation. We aimed to characterize the initial cohort of patients that underwent rEBUS-guided transbronchial lung biopsy (TBB) and evaluate factors influencing its diagnostic yield.

Methods: We reviewed rEBUS performed between 11/2021-08/2023, classifying them as diagnostic/non-diagnostic, the latter including non-visible lesions. Patients with non-diagnostic rEBUS were further investigated/remained under surveillance. Logistic regression was used to identify predictors of diagnostic test.
Results: 91 patients underwent rEBUS, of which 79 performed TBB. In the remaining 12, no lesion was found on inspection. Most procedures used conscious sedation, without guide sheath or fluoroscopy. Median PPL size was 35 mm (9-100), with 51 lesions ≥ 30 mm. The majority of lesions were in RUL, the median distance from lesion to pleura was 40 mm and 2 subsegmental divisions from the main carina. Lesions were classified as solid (n = 72) and partially solid (n = 7). Bronchus and vessel sign on CT were visible in 71 and 51 patients, respectively. rEBUS sign was concentric in 62% cases and 38% were eccentric/adjacent to the lesion. Of 91 patients, 50 (55%) had a definitive diagnosis through this exam (46 of which with diagnosis of malignancy). Among 41 undiagnosed patients (including those who didn't undergo TBB due to non-visible lesion), further studies identified 18 additional malignant cases. rEBUS's sensitivity for diagnosing neoplasia was 71.9%. In multivariate analysis, concentric lesion (OR 5.016, p = 0.012), lesions size ≥ 30 mm (OR 13.111, p < 0.001) and longer distance to pleura (OR 1.052, p = 0.001) were independent factors influencing rEBUS's diagnostic yield.
Conclusions: rEBUS-guided TBB is effective at diagnosing PPL, with a sensitivity of 71,9% in diagnosing neoplasia. PPL position relative to the probe, size and distance to pleura revealed important to diagnostic power.

Keywords: *Malignancy. Peripheral pulmonary lesions. Radial endobronchial ultrasonography. Transbronchial lung biopsy.*

CO 046. EXPERT CONSENSUS ON THE IDENTIFICATION, TREATMENT, AND FOLLOW-UP OF SEVERE ASTHMA IN ADULTS

Jorge Ferreira, Ana Luísa Fernandes, António Fernandes, Laura Simão, Liliana Ribeiro, Lurdes Ferreira, Maria Inês Costa, Nuno Pires, Rita Boaventura, João Renato Travassos, Ricardo Lima

Unidade Local de Saúde Entre Douro e Vouga.

Severe asthma is a subset of difficult-to-treat asthma that does not respond to optimized therapy or that worsens if the treatment dose is decreased, with poor control, exacerbations, and side effects of medication. It remains a challenge for patients, physicians, and health systems, causing health, social, and economic burdens. In this study, we propose a guidance protocol for the diagnosis, treatment, and follow-up of patients with severe asthma. In 2022, a survey in hospitals of the North Region of Portugal evidenced high heterogeneity of procedures for managing patients with severe asthma. Considering this data, a consensus group, composed of specialists from those hospitals, was gathered to harmonize the global approach to severe asthma patients and discuss their identification and diagnosis, treatment, and follow-up. A full protocol for severe asthma patients' diagnosis, treatment, and follow-up was developed. Overall, we recommend the confirmation of asthma diagnosis, the distinction between type two (T2) and non-T2 inflammation, the subdivision of patients into allergic and non-allergic, the evaluation of comorbidities, patient referral to a respiratory consultation, and selection of the most appropriate treatment, with a particular focus on biologicals (considering eosinophils count, FeNO, and allergy) and progressive reduction of oral corticosteroids. For follow-up, we suggest a step-by-step approach including interventions at specific time points, since the beginning of biological treatment. We expect that this protocol can be adopted at healthcare institutions, including primary care, to increase the success rates of patient identification, severe asthma control, and the quality of life of patients.

Keywords: *Severe asthma. Treatment. Diagnosis. Follow-up. Biologicals. Corticosteroids.*

CO 047. EFFECTIVENESS OF A TAILORED HOME-BASED EXERCISE PROGRAM ["KIDMOVE"] ON THE AEROBIC CAPACITY AND QUALITY OF LIFE OF CHILDREN WITH CYSTIC FIBROSIS

Sandra Gagulic[1,2], Ana Bártolo[3], Alda Marques[4,5]

[1]Centro de Investigação em Atividade Física, Saúde e Lazer (CIAFEL) da Faculdade de Desporto da Universidade do Porto (FADEUP), Porto, Portugal; [2]Insight: Piaget Research Center for Ecological Human Development, Instituto Piaget-ESS/Piaget, Viseu, Portugal; [3]CINTESIS@RISE, CINTESIS.UPT, Portucalense University, Porto, Portugal; [4]Respiratory Research and Rehabilitation Laboratory (Lab3R), School of Health Sciences (ESSUA), University of Aveiro, Aveiro, Portugal; [5]iBiMED – Institute of Biomedicine, Department of Medical Sciences, University of Aveiro, Aveiro, Portugal

Introduction and objectives: There has been a growing interest in the potential of regular exercise and habitual physical activity in the quality of life of children with cystic fibrosis. However, logistical barriers such as school routines and parents' work schedules often hinder regular exercise, which can be overcome with home-based approaches. This study aimed to explore the efficacy of a tailored home-based exercise program on the aerobic capacity, as well as health-related physical fitness components, lung function, and health-related quality of life of children with cystic fibrosis.
Methods: A quasi-experimental study with two arms intervention group [IG] vs. wait-list control group [CG]) was conducted. The intervention lasted 12 weeks and consisted of a total of 35 exercises targeting aerobic capacity, strength, balance, flexibility, and cool-down. Aerobic capacity was assessed using Modified Shuttle Walking Test (primary outcome measure) before (T0) and after the completion of the intervention (T1). Additionally, body composition, muscular strength, flexibility, dynamic postural control, respiratory function and health-related quality of life were also assessed. Efficacy was assessed using a per-protocol analysis through generalized estimating equations (GEE) modeling.
Results: The study included 46 children aged between 6 and 18 years (10.36 ± 3.86 years). A significant group-by-time interaction was also found for Modified Shuttle Walking Test. Although both groups showed improvements over time, these improvements were significant and clinically relevant only in the IG. An interaction effect was also observed for postural control (excursion distance anterior right stance), knee flexion, and quality of life at the level of emotional functioning, with children in the IG showing more pronounced improvements from pre- to post-test.
Conclusions: The home-based exercise program effectively improved aerobic capacity and quality of life in children with cystic fibrosis, demonstrating the potential of home-based approaches as a cost-effective alternative for managing the condition.

Keywords: *Cystic fibrosis. Pediatric. Shuttle walking. Home-based. Physical exercise.*

CO 048. PREVALENCE OF DIFFICULT-TO-TREAT (DTT) AND SEVERE ASTHMA: THE EPI-ASTHMA STUDY

Cristina Jácome, Dinis Brito, Pedro Teixeira, Janete Quelhas-Santos, Liliana Amorim, Maria João Barbosa, Cláudia Bulhões, Marina Rodrigues, Diana Gomes, Ana Silva, Filipa Lopes, Ana Margarida Pereir, Marisa Pardal, Filipa Bernardo, João Almeida Fonseca, Jaime Correia de Sousa

Center for Health Technology and Services Research (CINTESIS), Faculty of Medicine, University of Porto.

Population-based studies on the prevalence of asthma subgroups are needed. We determined the prevalence of DTT and severe asthma in Portugal. A population-based study targeting adults was

implemented in 38 primary care centres of the Portuguese National Health Service. A stepwise approach was used: Stage 0-phone call invitation to randomly selected adults; Stage 1-phone interview assessing respiratory symptoms; Stage 2-clinical assessment, with physical exam, diagnostic tests and patient-reported outcome measures, for those with possible asthma; Stage 3-evaluation of patients with asthma after 3 months based on electronic health record (EHR) review and a phone interview. DTT and severe asthma were defined based on the 2023 GINA DTT & severe asthma guide. Asthma estimates were weighted to be generalized to the Portuguese population. A total of 12520 adults accepted to participate (Stage 0), and 7,556 were interviewed (Stage 1). At stage 2, 1,857 (25%; 54 [43-66] y; 40% male) were assessed and 518 (28%; 52 [41-65]y; 38% male) were diagnosed with asthma. More than half (n = 353; 68%) had their disease uncontrolled (Control of Allergic Rhinitis and Asthma Test ≤ 24). In the past year, 152 (29%) had ≥ 2 exacerbations, 83 (16%) ≥ 1 emergency department visit and 13 (2.5%) one hospitalization. Stage 3 was completed by 457 patients (88%), 305 (66%) had asthma registered in the EHR. The prevalence of asthma was 7 (6.3-8.0)%, DTT asthma of 13.5 (11.0-16.5)% and severe asthma of 3.1 (1.7-5.6)%. The prevalence of DTT and severe asthma in Portugal is in line with international data. EPI-ASTHMA will provide comprehensive data to better understand patients' characteristics, which are vital for shaping integrated asthma care pathways.

Keywords: *Severe asthma. Difficult-to-treat (DTT).*

CO 049. THE UTILITY OF INDIVIDUALIZED FENO AS A SCREENING TOOL TO RULE OUT ASTHMA: A SECONDARY ANALYSIS OF EPI-ASTHMA

Diana Gomes, Rita Amaral, Cristina Jácome, Tiago Jacinto, Ana Alves da Silva, Janete Quelhas-Santos, Filipa Lopes, João Almeida Fonseca, Jaime Correia de Sousa, Filipa Bernardo, Epi-Asthma Research Group

Center for Health Technology and Services Research (CINTESIS), Faculty of Medicine, University of Porto.

Introduction: Fractional exhaled nitric oxide (FeNO) is a useful tool in clinical practice to aid in asthma diagnosis; FeNO is commonly classified with fixed cutoffs, but they do not consider individual differences in the predicted normal values.
Objectives: We aim to evaluate the predictive ability of individualised FeNO for the diagnosis of asthma.
Methods: We've used data from EPI-Asthma. Adult participants randomly recruited from 38 primary healthcare centres in Portugal were analysed. Participants were invited to a diagnostic visit that included clinical history, physical examination, spirometry, inflammatory biomarker testing (FeNO and blood eosinophil count) and patient-reported outcome measures. Asthma diagnosis was defined by the presence of respiratory symptoms (wheezing, shortness of breath, chest tightness or cough) and supported by variable expiratory airflow limitation and elevated FeNO. Diagnostic accuracy was assessed using receiver operating characteristic (ROC) curves and predictive values. Individualised FeNO cut-offs (% predicted) were compared with the commonly used cut-off of 50 ppb, according to ATS recommendations.
Results: A total of 1,383 participants (median[p25-p75] 54 [43-65] years) were included, of whom 60.2% were female and 11.7% were current smokers. Asthma was diagnosed in 258 (18.7%) participants, who had significantly higher FeNO levels compared to non-asthmatic participants (23.0 [13.0-43.75] ppb vs. 16.0 [11.0-25.0] ppb, $p < 0.001$). Predicted FeNO levels had a slightly higher discriminatory power (AUC 0.64 [95%CI 0.60-0.69]) compared to absolute levels (AUC 0.63 [95%CI 0.58-0.67]). A cut-off of 100% predicted to exclude asthma had a significantly higher sensitivity (68.4% vs. 22.5%, $p < 0.001$) and higher NPV (86.8% vs. 84.4%) than the absolute cut-off of 50 ppb.
Conclusions: Predicted FeNO values show moderate discriminatory power in the diagnosis of asthma. Introducing individual characteristics such as age, sex, and height into the model also provides us with specific cut-off points that could rule-in or rule-out the condition, allowing more accurate decision making in clinical practice.

Keywords: *Asthma. Biomarkers. Inflammation. Nitric oxide.*

CO 050. PHYSICAL ACTIVITY INTENSITY LEVELS BASED ON VARIABLES FROM CARDIOPULMONARY EXERCISE TESTS IN PEOPLE WITH COPD

João Domingues, Alda Marques, Patrícia Rebelo, Ana Filipa Machado, Joana Antão, Maria Aurora Mendes, Joana Gomes

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

Physical activity (PA) is essential for the management of people with chronic obstructive pulmonary disease (COPD). The current PA prescription is based on the American College of Sports Medicine (ACSM) cutoffs of physiologic parameters. Nevertheless, these cutoffs have only been established for young healthy individuals and may not apply to individuals with COPD. Therefore, this study aimed to compare the exercise responses at the first ventilatory threshold (VT1) with the thresholds proposed by the ACSM in people with COPD. This retrospective study retrieved cycle ergometer cardiopulmonary exercise tests (CPETs) performed by people with COPD. Data from 96 maximal CPETs performed by individuals with COPD (65 ± 9 years, 85% male, 51% [39;67]%FEV1pred) were extracted. Data was also compared between individuals with mild-to-moderate and those with severe-to-very severe airflow obstruction. Observed PA intensity levels differed from those established by the ACSM for all parameters: 65.6% of individuals for heart rate reserve (%HRR); 57.3% for oxygen uptake reserve (%VO2R); 49% for maximum oxygen uptake (%VO2max); 38.5% for maximum heart rate (%HRmax) and 22.9% for metabolic equivalent of task (METs). For the majority of participants, the intensity determined by %HRmax, %VO2max and METs corresponded to a moderate PA intensity level, and by %HRR and %VO2R to a very light to light intensity PA level. Individuals with severe-to-very severe airflow obstruction presented a larger classification error (20-71% depending on the variable) than individuals with mild-to-moderate airflow obstruction (26-63% depending on the variable). For the same PA intensity level, a large percentage of people with COPD (23%-66% depending on the variable) are misclassified when ACSM's cutoffs are applied. METs was the parameter registering a higher correct classification rate and, therefore, presents a greater potential for PA prescription and monitor. New PA intensity thresholds specific for people with COPD are needed.

Keywords: *Exercise capacity. Evaluation. Intervention. Chronic respiratory disease.*

CO 051. EFFECTIVENESS OF ELEXACAFTOR-TEZACAFTOR-IVACAFTOR IN A PORTUGUESE MULTICENTRIC COHORT OF CYSTIC FIBROSIS PATIENTS WITH NON-F508DEL MUTATIONS

Maria Beatriz Martins

Serviço de Pneumologia, Centro Hospitalar Universitário São João, Unidade Local de Saúde de São João, Porto.

Introduction: The efficacy of elexacaftor-tezacaftor-ivacaftor (ETI) has been well established for cystic fibrosis (CF) patients with one or two F508del alleles. Its efficacy on non-F508del mutations has recently been supported by some retrospective and in vitro studies.

Objectives: To assess the efficacy of off-label ETI in a Portuguese population of CF patients with non-F508del mutations.
Methods: We conducted a multicentric retrospective analysis of CF patients on off-label ETI and evaluated its effects on clinical outcomes, lung function, rate of exacerbations and adverse effects.
Results: Thirteen patients were included. Ten (76.9%) were female, with a median age of 30 (min 17, max 50) years. Median time on ETI treatment was 25 months (min 3, max 34). There was a statistically significant improvement ($p < 0.001$) in the mean FEV1 (pre-ETI 1.54 ± 0.69 L vs. post-ETI (12 ± 3 months) 2.50 ± 0.91 L). We observed a decline in the mean number of exacerbations when comparing the 12 months prior to ETI (3.80 ± 1.39) and the 12 months after ETI (1.00 ± 1.88), with statistical significance ($p = 0.012$). The mean BMI after ETI also improved significantly (20.9 ± 4.13 vs. 22.9 ± 4.33 Kg/m^2, $p = 0.039$). Three patients (23.1%) were on supplemental oxygen therapy due to hypoxemic respiratory failure before ETI initiation; one was able to quit long-term oxygen therapy and another no longer needed ambulatory oxygen therapy. Two patients were in the lung transplant waiting list; one dropped out due to clinical and functional improvement. The adverse effects that were observed were: liver function abnormalities (n = 3, 23.1%), creatine kinase elevation (n = 1, 7.7%), cutaneous rash (n = 1, 7.7%), headaches (n = 1, 7.7%) and arterial hypertension (n = 1, 7.7%).
Conclusions: Our study demonstrates the safety and efficacy of ETI in patients with non-F508del mutations. More studies are needed on this topic since they are essential for strengthening the evidence of using this therapy in these patients, thus facilitating their access to it.

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

CO 052. IMPROVING ASTHMA CARE: PATIENT FEEDBACK ON TELEMONITORING

Anita Trigueira, João Marques Macedo, Luís Santos Silva, Lúcia Gonzalez, Rita Matos Gomes, Jorge Ferreira

ULS Entre Douro e Vouga.

Introduction: The telemonitoring of patients with severe asthma is an innovative follow-up strategy for this particularly unpredictable group. We have implemented a pioneering telemonitoring program for severe asthma in our hospital, aware that patient satisfaction with this approach has serious implications for its success.
Objectives: To assess the level of satisfaction among patients enrolled in the telemonitoring program.
Methods: We performed a telephone-based cross-sectional study and administered the Telehealth Usability Questionnaire (TUQ), an internationally validated instrument for evaluating the usability and satisfaction of telehealth systems. The TUQ, consisting of 11 statements, utilizes a 7-point Likert scale, with 1 representing strong disagreement and 7 strong agreement.
Results: The survey reached out to all 18 severe asthma patients in the program, 56% were men, with a mean age of 51 years (± 15). Participants agreed that the telemonitoring system was user-friendly and easy to learn, with a median rating of 7 (range 4-7). The instructions given were seen as concise and easy to comprehend (median 7, range 4-7). Interacting with medical professionals via the system was described as simple and pleasant (median 7, range 4-7). Overall, patients were very satisfied with the system and expressed a willingness to recommend it to others (median 7, range 4-7). The perceived ability to reduce asthma symptoms had a median score that was slightly lower, at 6 (range 4-7). The majority of patients thought that asthma control would improve with ongoing use of the system (median 7, range 5-7).
Conclusions: The telemonitoring system for severe asthma is well-liked by users, who particularly value its easy-to-use interface, capacity for professional communication, and general degree of contentment. Even though the perceived ability to manage asthma symptoms was slightly reduced, it was still seen as successful. The results indicate that telemonitoring is a feasible choice for controlling severe asthma.

Keywords: *Telemonitoring. Severe asthma. Patient satisfaction.*

CO 053. ELX/TEZ/IVA HAS BENEFICIAL EFFECTS ON CLINICAL OUTCOMES AND QUALITY OF LIFE IN PEOPLE WITH CYSTIC FIBROSIS IN THE REAL-WORLD TRAJECTORY STUDY

Craig Mckinnon, Amparo Solé, Felix Ratjen, Carsten Schwarz, Jamie Duckers, Pilar Azevedo, Valeria Daccò, Bradley S. Quon, Molla Imaduddin Ahmed, Esther Quintana, Fernanda Gamboa, Marco Cipolli, Marvin Heyne, Christina Scirica, Sivagurunathan Sutharsan

Vertex Pharmaceuticals Incorporated.

Objectives: To describe changes in clinical outcomes and quality of life (QoL) in people with CF (PwCF) after initiation of ELX/TEZ/IVA in a real-world setting.
Methods: TRAJECTORY is a multi-country, observational, longitudinal study utilizing medical record (MR) abstraction to assess clinical characteristics and QoL in PwCF aged ≥ 6 yrs starting treatment with ELX/TEZ/IVA August 2019 to June 2022. MR data are collected for 12 months prior to, and up to 5 years post ELX/TEZ/IVA initiation. This interim analysis focused on the first 24 months of ELX/TEZ/IVA treatment.
Results: Of 370 PwCF included, 48.9% were male, 51.9% were homozygous for F508del-CFTR, and 28.6% were heterozygous for F508del-CFTR and a minimal function mutation. At ELX/TEZ/IVA initiation, the mean (SD) age was 31.7 (12.5) yrs, mean ppFEV1 was 59.4 (23.6), 23.0% had ppFEV1 < 40, 39.5% had ppFEV1 ≥ 40 to < 70, 17.3% had ppFEV1 ≥ 70 to ≤ 90, 11.9% had ppFEV1 > 90. ELX/TEZ/IVA treatment led to mean increases in ppFEV1 (10.6 percentage points [10.7]), BMI (1.3 kg/m2 [1.5]), and decreases in the annualized event rates of PEx (0.3 to 0.1) and hospitalizations (0.3 to 0.2). We observed improvement in mean scores of all CFQ-R domains after 12 months, regardless of prior CFTRm use. Notable increases in mean (SD) absolute change from baseline were observed in Respiratory Symptoms (25.1 [19.8]), Health Perceptions (16.3 [20.5]), Physical Functioning (14.9 [20.9]) and Vitality (11.6 [19.4]) domains. Sustained increases in all domains were observed after 24 months. PwCF with baseline ppFEV1 < 40 showed numerically greater improvements than those with baseline ppFEV1 ≥ 40 in Respiratory, Body Image, Health Perceptions, Physical Functioning, Treatment Burden, and Vitality domains of CFQ-R.
Conclusions: These data demonstrate that ELX/TEZ/IVA treatment in the real-world setting is associated with sustained improvement in clinical outcomes and QoL measures over 24 months.

Keywords: *ELX/TEX/IVA. Quality of life. Real world. Portugal. Cystic fibrosis.*

CO 054. CONTINUOUS POSITIVE AIRWAY PRESSURE DELIVERED BY HELMET INTERFACE IN PATIENTS WITH MODERATE TO SEVERE ACUTE RESPIRATORY DISTRESS SYNDROME: PREDICTORS OF SUCCESS OUTSIDE THE INTENSIVE CARE UNIT

Betina Santos Tomaz, Isabella de Melo Matos, Maria Da Penha Uchoa Sales, Gabriela Carvalho Gomes, Antonio Brazil Viana Junior, Miguel R. Gonçalves, Marcelo Alcantara Holanda, Eanes Delgado Barros Pereira

Walter Cantídio University Hospital/Federal University of Ceará.

Introduction: The application of Helmet CPAP with a light sedation protocol may improve patient´s tolerance, allowing prolonged pe-

riods with helmet in patients with ARDS treated outside the intensive care unit (ICU). In this setting, predictors of endotracheal intubation (ETI) and mortality are still unclear. Objectives: Describe the predictors of intubation and mortality in patients with ARDS treated with Helmet CPAP with a light sedation protocol outside the ICU.
Methods: Retrospective cohort study that examined patients with ARDS due to COVID-19 treated with a helmet model for CPAP use developed in Brazil (the ELMO™) associated with a light sedation protocol in a pulmonology ward. Demographic, clinical, imaging, and laboratory data, as well as the duration and response to the Helmet CPAP sessions, were analyzed.
Results: One hundred and eighty patients were studied. Intubation avoidance rate was 72.8%. Non-intubation had positive correlation with younger age, > 24-hour continuous Helmet use in the 1st session, < 75% pulmonary involvement on CT, and ROX index > 4.88 in the 2nd hour. Mortality was 18.9%, 3% in non-intubated vs. 61.2% in intubated patients. Advanced age increased mortality risk by 2.8 times, escalating to 13 times post-intubation.
Conclusions: The application of Helmet CPAP with light sedation was successful in more than 70% of patients with moderate to severe ARDS due to COVID-19 treated outside the ICU. Younger age, pulmonary involvement at hospital admission, ROX index, and a first Helmet CPAP session duration were associated with no need for ETI. Older age, and, especially, intubation was related to mortality.

Keywords: *Respiratory distress syndrome. COVID-19. Continuous positive airway pressure. Helmets. Dexmedetomidine.*

CO 055. INTER-OBSERVER RELIABILITY, TRANSLATION, AND CULTURAL ADAPTATION INTO EUROPEAN PORTUGUESE OF THE JOHNS HOPKINS - HIGHEST LEVEL OF MOBILITY SCALE

Joana Ferraz, Cristina Argel De Melo, Vitor Hugo Azevedo

PM&R Unit, Centro Hospitalar do Tâmega e Sousa, E.P.E., Penafiel.

Admission to intensive care units impacts short-, medium-, and long-term health outcomes, affecting functionality, increasing mortality, comorbidities, and generating substantial healthcare costs. Physiotherapy interventions in this context have positive outcomes widely described in scientific literature. Standardized assessment tools that objectively describe and quantify patient function can aid prognosis, identify functional changes, evaluate intervention success, and optimize post-hospital discharge support for patients and families or caregivers. Instruments measuring functionality have potential benefits across the continuum of intensive care. The Johns Hopkins - Highest Level of Mobility Scale is part of a program aiming to foster a culture of mobility in hospitals. It allows quick, objective assessment of patient performance in activities underlying their autonomy and defines mobility goals. A cross-sectional observational study was conducted in an intensive care medicine department. Semantic, linguistic, and content equivalence of the Johns Hopkins - Highest Level of Mobility Scale was established, and inter-observer reliability was determined (n = 27). The translated instrument was deemed conceptually and ambiguously clear by the translators' panel. Minimal changes were proposed by the second panel of judges, resulting in the final version. The study successfully adapted the Johns Hopkins - Highest Level of Mobility Scale into European Portuguese, demonstrating excellent inter-observer reliability among physiotherapists in an ICU setting (ICC (95%CI) = 0.993). This aligns with previous studies indicating high reliability. The scale's simplicity in assessing incremental mobility levels likely contributes to semantic, linguistic, and content equivalence, suggesting consistent interpretation across cultures. The use of independent translator pairs and the retro-translation method was crucial for achieving a strong translation process, resulting in an instrument comparable to the original, enabling cross-cultural comparisons. The European Portuguese version of the Johns Hopkins - Highest Level of Mobility Scale proved to be easily comprehensible and clinically applicable by ICU physiotherapists, demonstrating excellent inter-observer reliability.

Keywords: *Early mobilization. ICU. Physiotherapy. Rehabilitation.*

CO 056. THE UTILITY OF A MULTIPLEX PCR SYSTEM IN DIAGNOSING RESPIRATORY INFECTIONS IN INTENSIVE CARE UNIT PATIENTS

Maria Joao Moura, R. Salgueiros, S. Arroja, M. Ribeirinha, P. Lopes, E. Costa, R. Alves

Serviço de Pneumologia, Unidade Local de Saúde de Matosinhos.

Introduction: The multiplex PCR system enables precise etiological diagnosis of respiratory infections within approximately 1 hour, facilitating enhanced patient management and targeted treatment during the early stages of disease progression.
Objectives: This study aims to assess the effectiveness and impact of implementing the multiplex PCR panel on bronchial/bronchoalveolar lavage for diagnosing respiratory infections in ICU patients.
Methods: A retrospective analysis of requests from November/2022 to March/2024 was conducted at a hospital ICU. Positive results were evaluated for clinical impact and compared with culture and antibiogram results.
Results: In total, 52 samples were analyzed, with 40.3% (n = 21) yielding positive results and a median result time of 21.9 hours. Therapy remained unchanged in 61.9% (n = 13) of cases, 9.5% (n = 2) of patients died before results were available, and 28.6% (n = 6) underwent prescription changes. The panel identified all bacteria detected by culture (n = 19) with a median time advantage of 19.2 hours and identified 5 additional bacteria not identified by culture. The antibiogram confirmed all resistances identified by the panel's antimicrobial resistance genes (n = 3). One sample showed phenotypic resistance to cephalosporins without the CTX-M resistance gene detected by the panel.
Conclusions: The time required to obtain results from the panel exceeded expectations. However, it provided an advantage over culture tests, enabling more informed and timely therapeutic interventions. The results demonstrated good agreement among the panel, culture tests, and antibiograms. The increased number of bacteria detected by the panel reflects differences between the molecular method (target DNA copies) and the culture method (viable organisms). The findings underscore the necessity for improvements in the intra-hospital circuit to optimize result turnaround time, aligning them with clinical expectations and needs, potentially enhancing outcomes for critically ill patients through rapid and precise therapeutic decisions.

Keywords: *Multiplex PCR system. Respiratory infections. Intensive care unit.*

CO 057. DIFFUSE ALVEOLAR HEMORRHAGE INDUCED BY DESFLURANE

Helena Isabel Carvalho, Filipa Correia, Maria Inês Costa, Maria Sucena, Inês Rodrigues

Department of Pulmonology, Unidade Local de Saúde de Santo António.

Introduction: Desflurane is a halogenated inhalated general anesthetic agent used for induction and maintenance of general anesthesia. Respiratory side effects include cough (5-11%), apnea (2-6%), laryngeal spasm (2-8%), and respiratory depression. There are only a few previously published case reports describing postopera-

tive diffuse alveolar hemorrhage (DAH) in patients who received inhaled halogenated agents. Herein, the authors report two cases of DAH attributed to the inhaled anesthetic desflurane, administered during elective surgeries.
Case reports: Clinical Case 1: A 25-year-old patient, transitioning from female to male, underwent a bilateral mastectomy in a private hospital. Anesthetic maintenance was conducted with desflurane. At the time of extubation, the patient developed hemoptysis and type 1 respiratory failure. The patient was administered tranexamic acid due to persistent hemoptysis and was transferred to our hospital. An angio-CT scan revealed multiple ground-glass opacities suggestive of DAH. This was assumed to be in the context of the immediate postoperative period with anesthetic maintenance involving desflurane. The patient did not experience further episodes of hemoptysis and was successfully weaned off oxygen therapy. The patient was discharged completely asymptomatic after 4 days. Clinical Case 2: A 21-year-old man, without significant medical history, underwent subcutaneous mastectomy for unilateral left gynecomastia at a private hospital. Anesthetic maintenance was conducted with desflurane. Postoperatively, he developed hemoptysis and desaturation. Tranexamic acid was administered, and the patient was transferred to our hospital. A thoracic CT scan described extensive bilateral ground-glass opacities, suggestive of DAH. The patient showed good clinical progression, allowing for weaning off oxygen therapy. He was discharged while asymptomatic within 5 days.
Discussion: Given the absence of underlying systemic disease and the immediate onset of symptoms postoperatively, inhaled desflurane appears to be the most likely causative agent. This underscores the need for awareness of this complication among clinicians using desflurane as an anesthetic.

Keywords: *Pulmonary hemorrhage. Anesthesia. Desflurane.*

CO 058. IMMUNOGENICITY OF V116 (21-VALENT PCV) IN ADULTS ≥ 50 YEARS OF AGE BY TIME SINCE PRIOR PNEUMOCOCCAL VACCINATION: SUBGROUP ANALYSIS OF A PHASE 3 TRIAL (STRIDE-6)

Doreen Fernsler, Paul Scott, Nancy Gallagher, Jianing Li, Tiantian Zeng, Heather Platt, Joao Romano

MSD Research Laboratories, Merck & Co., Inc., Rahway, NJ, USA.

Introduction: V116 is an investigational PCV containing the most prevalent serotypes associated with adult pneumococcal disease (PD) in regions with established pediatric vaccination programs. In the Phase 3 STRIDE-6 study (NCT05420961), in pneumococcal vaccine-experienced adults ≥ 50 years of age, V116 elicited comparable immune responses to common serotypes compared with PCV15 or PPSV23, and higher immune responses to the unique serotypes in V116. This STRIDE-6 subgroup analysis evaluated immunogenicity by time since prior pneumococcal vaccination.
Methods: Cohort 1 previously received PPSV23 and were randomized 2:1 to receive V116 or PCV15, respectively; Cohort 2 previously received PCV13 and were randomized 2:1 to receive V116 or PPSV23, respectively; Cohort 3 previously received PPSV23+PCV13, PCV13+PPSV23, PCV15+PPSV23, or PCV15 and received open-label V116. Serotype-specific opsonophagocytic activity (OPA) geometric mean titers (GMTs) were evaluated 30 days post-vaccination and summarized by time since most recent prior pneumococcal vaccination (1-4, 5-9, or ≥ 10 years).
Results: V116 elicited comparable OPA GMTs for both common and unique serotypes, 1-4, 5-9, and ≥ 10 years after PPSV23 vaccination (Cohort 1), and 1-4 and ≥ 5years after PCV13 vaccination (Cohort 2. In Cohort 3, V116 was immunogenic for all 21 serotypes 1-4 years and ≥ 5 years after prior pneumococcal vaccination.
Conclusions: In pneumococcal vaccine-experienced adults, V116 elicits immune responses for all 21 serotypes, regardless of time since prior pneumococcal vaccination. These findings support V116 as a novel population-specific vaccine for the prevention of PD in adults.

Keywords: *V116. PCV. Pneumococcal disease.*

CO 059. A PHASE 3 CLINICAL STUDY TO EVALUATE THE SAFETY, TOLERABILITY, AND IMMUNOGENICITY OF V116 IN PNEUMOCOCCAL VACCINE-EXPERIENCED ADULTS 50 YEARS OF AGE OR OLDER (STRIDE-6)

Paul Scott, Miwa Haranaka, Yi-Ching Yang, Junghyun Choi, Helen Stacey, Marc Dionne, David Greenberg, Carlos G. Grijalva, Walter A. Orenstein, Doreen Fernsler, Nancy Gallagher, Tiantian Zeng, Jianing Li, Heather Platt, Joao Romano

Merck & Co., Inc., Rahway, NJ, USA.

Introduction: Pneumococcal diseases (PD), including non-invasive disease such as pneumonia and invasive disease such as meningitis, cause considerable morbidity and mortality in adults. V116 is an investigational 21-valent pneumococcal conjugate vaccine (PCV) specifically designed to protect adults from pneumococcal serotypes responsible for the majority of residual PD. This phase 3 study evaluated safety, tolerability, and immunogenicity of V116 in pneumococcal vaccine-experienced adults ≥ 50 years.
Methods: A total of 712 generally healthy adults were vaccinated with a single dose of pneumococcal vaccine as follows: Cohort 1 previously received PPSV23 and were randomized 2:1 to receive V116 or PCV15, respectively; Cohort 2 previously received PCV13 and were randomized 2:1 to receive V116 or PPSV23, respectively; Cohort 3 previously received PPSV23+PCV13, PCV13+PPSV23, PCV15+PPSV23, or PCV15 and all received open-label V116. Immunogenicity was evaluated 30 days postvaccination using opsonophagocytic activity (OPA) geometric mean titers (GMTs) for all V116 serotypes. Safety was evaluated as the proportion of participants with adverse events (AEs).
Results: V116 was immunogenic across all 3 cohorts as assessed by serotype-specific OPA GMTs postvaccination for all 21 serotypes. V116 elicited comparable immune responses to serotypes shared with PCV15 (Cohort 1) or PPSV23 (Cohort 2), and higher immune responses to serotypes unique to V116. The proportions of participants with solicited AEs were generally comparable across cohorts.
Conclusions: V116 is well tolerated with a safety profile comparable to currently licensed pneumococcal vaccines, and generates functional immune responses to all V116 serotypes, regardless of prior pneumococcal vaccine received.

Keywords: *Pneumococcal conjugate vaccine. Pneumococcal vaccine experienced. Safety. Immunogenicity. V116.*

CO 060. INVASIVE PNEUMOCOCCAL DISEASE 2.0 - WHAT CAN WE STILL IMPROVE?

Ana Rita Ribeiro, Catarina Abreu, João Aurélio, Benedita Ferreira, Marta Duarte, Rui Ferreira, Luísa Arez, Lígia Pires, Inês Belchior

Serviço de Pneumologia, Unidade Local de Saúde do Algarve, Portimão,

Invasive Pneumococcal Disease (IPD) continues to be a cause of morbidity and mortality. This disease can be prevented with vaccination, which is indicated for certain risk groups. We conducted a retrospective study, more comprehensive compared to that presented in 2023, in the same hospital unit, analyzing patients with IPD over the last 5 years. IPD was defined as having a positive blood culture result for Streptococcus pneumoniae. The vaccination status was consulted through the platform https://servicos.min-saude.pt/profissional/pds/Account/Login. During this period, 55 cases of IPD were detected. The patients were predominantly male (67.3%) with a mean age of 61.3 years. Most cases of IPD originated from

the respiratory system, with pneumonia in 92.7% of the cases. The severity of the disease was mild to moderate in 63.6% of the cases. Sepsis was identified in 12.7% of the cases, and septic shock in 23.6% of the patients. Pulmonary complications occurred in 18.2% of IPD cases, the most common being pleural effusion, with one case of empyema and several cases of lung abscesses and cavitary pneumonias. Approximately 18.2% of the patients died during the course of the infection. Regarding vaccination status, only 3 patients had been vaccinated previously. Of the remaining patients, none had been vaccinated, although 78.9% had an indication for it. After the initial infection, among the surviving patients, only 20% were subsequently vaccinated. Invasive pneumococcal disease is a severe condition associated with complications; however, it can be prevented as vaccines are available, making their prescription essential. The analysis of this population reveals a persistent lack of vaccination and the need to remain vigilant about this disease.

Keywords: *Vaccination. Pneumonia. Prescription.*

CO 061. HOW MANY ISOLATED FUNGI ARE TREATED? WHAT IS THE RELEVANCE OF GALACTOMANNAN IN BRONCHOALVEOLAR LAVAGE? - A 12-MONTH STUDY IN AN INTERVENTIONAL PULMONOLOGY UNIT (IPU)

Raquel Santos Silva, Patrícia Trindade, Maria João Santos, Filipe Modesto, João Dias Cardoso, Francisco Freitas, Paula Monteiro, Cristina Bárbara

Departamento de Tórax, Serviço de Pneumologia, Unidade Local de Saúde Santa Maria.

Introduction: Identification of fungi is relatively common in bronchoscopy, but not always valued.
Objectives: To identify the fungi isolated in bronchoscopies and correlate them with the immunosuppression state, galactomannan in bronchoalveolar lavage (BAL), and prescribed treatment by the attending physician.
Methods: Retrospective, observational, longitudinal study. A cohort of adults who underwent bronchoscopy between 01/06/2023-30/06/2024 was analyzed, and patients with fungal isolates were selected to evaluate the variables under study. The Galactomannan cut-off used was 0.5.
Results: Of the 771 individuals evaluated, 9.24% (n = 72) presented at least 1 fungal isolation. The average age was 65.5 years. Of these, 34.72% (n = 25) were immunocompromised (most common hemato-oncological cause). 48.61% (n = 35) were hospitalized patients. In total, 79 fungi were isolated, 70.83% (n = 51) from the *Aspergillus* family, with 38 cases of *A. fumigatus*; 22.22% (n = 16) from *Candida* family; 8.33% (n = 6) *Pneumocystis jirovecii* identification in immunocompromised patients; 3 cases of *Schizophyllum* family, 2 cases of *Mucor* family and 1 identification of *Fusarium dimerum*. More than half (54.17%) were isolated only in bronchial secretions (BS), with 23.61% (n = 17) in BS plus BAL, 18.05% (n = 13) only in BAL, and 1 case in BS plus BAL and also bronchial biopsies. The presence of hyphae was documented in only 3 cases. Galactomannan BAL was collected from 24 individuals, with a positivity rate of 12.5% (n = 3). The most common negative values were [0.05-0.09] in 9 exams. Infection was assumed in 19.44% (n = 14) individuals, of which 13 started antifungals. Of these, 10 were immunocompromised.
Conclusions: The identification of fungi in bronchoscopies is often undervalued by the attending physicians, with treatment being verified in only 13 cases, which may have occurred due to additional bacterial isolations, known colonization, absence of complaints, or bronchoscopies requested for another reason. Galactomannan in BAL demonstrated lower sensitivity in this study compared to 75% sensitivity predicted in literature.

Keywords: *Fungi. Bronchoscopy. Galactomannan. Fungi therapy.*

CO 062. SYSTEMATIC REVIEW ON NONTUBERCULOUS MYCOBACTERIA PULMONARY DISEASE REFRACTORY TO GUIDELINE-BASED THERAPY

Diana Sousa, Beatriz Martins, Ana Aguiar, Raquel Duarte

Unidade Local de Saúde da Cova da Beira.

Introduction: The crescent incidence of nontuberculous mycobacteria (NTM)-pulmonary disease (PD) has been highlighting the challenge of treating patients unresponsive to guideline-based therapy (GBT).
Objectives: This study aimed to systematically review the available literature on the approach to treatment-refractory NTM-PD.
Methods: The search expression "nontuberculous mycobacteria AND treatment AND antibiotic" was applied to the PubMed database, with inclusion of cross-sectional, case-control, and cohort studies and clinical trials, on 12th April 2023. The library extracted was reviewed using EndNote20.2.1. A posterior backward citation tracking was performed. The information was extracted to answer three pre-defined questions: (1) "What are the clinically relevant predictors that could favor treatment intensification with curative intention, and de-escalation for treatment of symptom suppression, in patients with treatment-refractory NTM-PD?";(2) "What supportive measures, including non-pharmacological, should be offered?"; (3) "What treatment strategies with curative intention are currently available for treatment intensification?". The risk of bias was evaluated following a mixed methods appraisal tool (Version 2018).
Results: Of the 5,507 retrieved studies, 26 were included for analysis – with posterior addition of 8 papers - that were mainly non-randomized controlled studies with heterogeneous content. The authors grouped the selected studies according to each question. Before intensification/de-escalation of therapy, clinicians may consider microbiological factors such as acquired resistances, change in the isolated NTM species, and co-infections. More than five changes in antibiotic therapy and radiological severity can be related to the recurrence probability and treatment success. Pulmonary rehabilitation/airway clearance techniques and nutritional advice are relevant supportive measures. Surgery and amikacin liposome inhalation suspension (for specific NTM species) are reasonable options for treatment intensification. The use of alternative antibiotic schemes and phage therapy are currently under evaluation.
Conclusions: The decision on how to manage GBT failure NTM-PD must consider the patients' expectations aligned with the treatment goal. Newer therapies are under study, but the actual evidence is insufficient to support the patients' needs.

Keywords: *Nontuberculous mycobacteria. Treatment failure. Antibiotic. Supportive therapies.*

CO 063. LUNG ABSCESS IN A DISTRICT HOSPITAL - A COHORT STUDY

Sofia Fontão Alves, S. Pimentel, L. Mateus, M. Cavaco, A. Nunes, J. Ferra, T. Falcão

Torres Vedras Hospital.

Introduction: Lung Abscess (LA) is a localised lung parenchyma infection associated with high socio-economic costs and mortality.
Objectives: Identify risk factors for LA outcomes and their classification.
Methods: A cohort study of patients with LA between 2017-2023 in a district hospital. Demographics, clinical data, and treatment details were investigated.
Results: 42 patients, 67% male, median age 60 years (IQR 48-76). Risk factors associated with primary LA included poor dental hygiene (n = 12.2 8.6%) high nutritional risk (n = 13, 68.4%) alcohol abuse (n = 10, 23.8%) use of sedatives (n = 15, 35.7%) and dysphagia (n = 2, 4.8%). Risk factors associated with secondary LA included diabetes mellitus (n = 6, 14.3%), immunosuppression (n = 3.7,1%)

and neoplasia (n = 8, 19%). 13 patients had no risk factors. 35.7% (n = 15) LA were classified as primary and 33.3% (n = 14) as secondary, of which 8 had overlap risk factors with primary LA. The duration of the median hospitalisation was 20 days (IQR 13-26), with a median antibiotic treatment duration of 22.5 days (IQR 14.75-28). Bronchoscopy was performed in 67% of patients. A microbial pathogen was isolated in 41% of cases, 3 of them in the blood. All-cause mortality rate was 12%. Patients with diabetes mellitus or who used sedatives had longer hospitalisations (p = 0.004/0.029). The ones who underwent bronchoscopy had longer treatments (p = 0.048). No statistical significance was found for length of hospitalization, duration of treatment and mortality concerning other factors.
Conclusions: The study aligns with the literature, showing male dominance and a high prevalence of risk factors. Identifying risk factors for LA is crucial as it contributes to early diagnosis and treatment. Diabetes and sedative use may influence the time of hospitalisation. Bronchoscopy is associated with longer treatment, probably due to more complicated cases.

Keywords: *Lung abscess. Primary lung abscess. Secondary lung abscess.*

CO 064. EFFICACY AND SAFETY OF CONSOLIDATION DURVALUMAB AFTER QRT: THE EXPERIENCE OF TWO CENTERS

Sofia Silva, Joana Duarte, Carla Simão, Margarida Felizardo, Filipa Todo Bom, Sofia Furtado

Pulmonology Department, Hospital Beatriz Ângelo, ULS Loures-Odivelas.

Introduction: Locally advanced non-small cell lung cancer (NSCLC) requires the intervention of a multidisciplinary team, often including chemotherapy and radiotherapy (CRT). Durvalumab as consolidation therapy for patients with PD-L1 ≥ 1% who do not progress after QRT, may improve response duration and survival. This study assesses the efficacy and safety of durvalumab in this context.
Methods: Retrospective study of NSCLC patients treated with QRT followed by durvalumab at two centers over the past 5 years. We evaluated patient demographics, tumor characteristics, QRT type (concomitant vs. sequential), complications, imaging results, time to durvalumab initiation and disease recurrence.
Results: Thirty patients were enrolled; three were excluded due to insufficient data. 70.4% were male and mean age was 65.4 ± 8.6 years. Most were smokers (25.9% current, 59.3% former). No patients had ILD, and 14.8% had COPD. Adenocarcinoma was diagnosed in 59.3% of patients, and squamous cell carcinoma in the remainder. All had locally advanced disease without distant metastasis (IIIA 25.9%, IIIB 55.6%, IIIC 18.5%). Seventy percent received concurrent QRT. Adverse effects occurred in 66.7% of patients, including esophagitis (37.0%), radiation pneumonitis (29.6%), hematological toxicity (22.2%), and paresthesias (3.7%). Time to durvalumab initiation ranged from 8 to 170 days (mean 47.3 ± 39.0 days). Durvalumab toxicity affected 51.9% of patients, with pneumonitis (29.6%), thyroiditis (14.8%), and cardiotoxicity (7.4%). Only 44.4% completed the one-year treatment. Disease recurrence led to early discontinuation in 31.8% of patients. Among those who completed, three experienced recurrence, all with distant metastases. One patient had surgery for a second primary lung cancer.
Conclusions: Durvalumab consolidation therapy yielded mixed results. While 44.4% of patients completed treatment, 31.8% experienced recurrence leading to early discontinuation. Significant toxicity was noted, emphasizing the need for better patient selection and management to improve treatment outcomes and minimize adverse effects.

Keywords: *Consolidation durvalumab. Non-small cell lung cancer. Locally advanced.*

CO 065. CLINICAL OUTCOMES OF CHEMOTHERAPY PLUS IMMUNOTHERAPY FOR EXTENSIVE STAGE SMALL CELL LUNG CANCER – A REAL-WORLD SINGLE CENTRE STUDY IN PORTUGAL

David Noivo Gomes, Maria Bragança, Ana Sofia Vilariça, Filipa Ferro, Andrea Lopes Machado, Direndra Hasmucrai, Paula Alves

ULS Arrábida.

Introduction: Small cell lung cancer (SCLC) is an aggressive type of lung cancer. Recent studies, such as the IMpower133 trial, have provided a new hope by adding Atezolizumab to the standard treatment of extensive disease SCLC (E-SCLC). This study aimed to evaluate the real-life performance of atezolizumab plus chemotherapy in extensive stage SCLC in a Portuguese setting.
Methods: Data was collected on patients in treatment in a tertiary hospital in Portugal with E-SCLC treated with chemotherapy and atezolizumab between July/2022 and February/2024.
Results: Twenty patients were included. 70% were male with a mean age of 66.9 years. Most had smoking history. 75% had a PS-ECOG of 0-1. All patients received a carboplatin plus etoposide regimen in combination with atezolizumab. The overall response rate was 55% and the disease control rate was 70%. No patient achieved a complete response, 11 (55%), 3 (15%) and 6 (30%) achieved partial response, stable disease, and disease progression, respectively. The median follow-up time was 6.04 months (range: 0.8-20.33 months). The median OS and PFS was 9.7 (95%CI: 5.08-14.32) and 7.17 (95%CI: 3.28-11.05) months, respectively. In total, 13 (65%) patients experienced disease progression and 10 (50%) died during follow-up from events related to the disease. Patients with a PS score > 1 had lower PFS (p = 0.003) and OS (p = 0.001).
Conclusions: To our knowledge, this is the first real-world clinical study in Portugal to evaluate real life outcomes for this combination therapy. Comparing data with IMpower 133 trial and other real-life studies, we found a lower OS (9.7 vs. 13.2 months) but an improved PFS (7.2 vs. 5.2 months), although our sample is small which makes it difficult to draw conclusions. More fragile patients seem to benefit less from this therapy. More studies, namely multicentric are needed to evaluate real-life outcomes and which patients benefit more from this combined therapy.

Keywords: *Atezolizumab. Lung cancer. Small cell lung cancer. Chemotherapy.*

CO 066. EVALUATION OF THE FREQUENCY AND CLINICAL IMPACT OF MOLECULAR ALTERATIONS AND ITS ASSOCIATION WITH CLINICOPATHOLOGICAL VARIABLES ON PATIENTS WITH NON-SMALL CELL LUNG CANCER IN HOSPITAL OF BRAGA

Maria Joana Pereira Catarata, Isabel Pascoal, Luis Cirnes, Rui Reis, Rodrigo Cavagna

Hospital of Braga.

Lung cancer is the leading cause of mortality globally and in Portugal, with non-small cell carcinoma being the most frequent histological subtype. In this study, we aimed to assess the frequency and clinical impact of molecular alterations in patients with non-small cell lung cancer (NSCLC) at Hospital of Braga. We collected clinicopathological and epidemiological data from 179 patients diagnosed with NSCLC between January 2019 and June 2021. In this context, we evaluated the frequency and impact of mutations in oncogenes, particularly actionable ones. Our population had a median age of 70.0 years, with the majority being male (60.9%). Regarding smoking, 52.5% were smokers or ex-smokers, with the predominant histological subtype being adenocarcinoma (97.2%). Concerning molecular variables, 57.5% of patients had actionable mutations. The most prevalent mu-

tations were EGFR (31.3%), KRAS (26.3%), MET (7.8%), PIK3CA (6.7%), ALK (5.6%), BRAF (3.9%), RET (3.4%), and ROS1 (2.2%). For the EGFR gene, most mutations occurred in exon 21, with the L858R variant being the most prevalent. For KRAS, the G12C and G12V variants were the most common. We observed significantly worse survival for men, as well as for smokers or ex-smokers, patients without actionable mutations, and EGFR wild type. Patients under targeted therapy had significantly better prognosis. We found statistical significance associations between EGFR and females, as well as more advanced stages. We also found statistical significance between KRAS and smokers, as well as males. At the multivariate analysis of a binary logistic regression, it was noted that the lack of actionable mutations and advanced stages were independent risk factors for death. In conclusion, females present with a greater overall survival than males, non-smokers also revealed better prognosis as well as patients with oncogenic driver mutations. This study also highlights the importance of molecular testing to harness targeted therapies and improve patient survival.

Keywords: *Lung cancer. Oncogenic driver mutations. Molecular study.*

CO 067. THE ROLE OF DRUG DESENSITIZATION IN ALLERGIC REACTIONS TO CHEMOTHERAPY IN LUNG AND PLEURAL TUMOURS

Marta Carvalho Silva, Ana Rita Pedroso, Raquel Gomes, Margarida Mesquita, Cármen Botelho

Serviço de Pneumologia Hospital de Braga.

Introduction: Inherent to the increased prevalence of cancer and the use of chemotherapy (CT) agents a higher frequency of hypersensitivity reactions especially concerning taxanes and platinum has been observed, despite premedication. These can be mediated by antibodies (mainly immediate with anaphylaxis risk), cells, immune complexes, T lymphocytes or cytokine release syndrome. Symptoms severity varies from cutaneous, respiratory, gastrointestinal manifestations or anaphylactic shock. In selected cases pharmacological desensitization (DZT) may be indicated inducing a temporary tolerance state with the intention of treatment maintenance.
Objectives: Analyse the impact of DZT in the treatment of patients with allergic reactions (AR) to CT in lung cancer (LC) and pleura tumours (PT).
Methods: Retrospective analysis of AR to CT in the treatment of LC and PT at Hospital de Braga between 2013 and 2023 with DZT indication.
Results: 15 DZT were successfully performed in 5 LC patients (adenocarcinoma-1, SCLC-1, squamous cell carcinoma-3) and 1 mesothelioma who presented immediate AR during CT. D1: 2nd docetaxel cycle. Anaphylactic reaction. DZT decided not performed because CT treatment was suspended. D2: 2nd etoposide cycle. DZT in the 3rd and 4th cycles, successfully. D3: 2nd paclitaxel cycle. DZT in the 2nd cycle with severe reaction. Changed treatment. D4: 1st paclitaxel cycle. DZT in 6 subsequent cycles, successfully. D5: 3rd cycle of retreatment with paclitaxel. DZT in 3 subsequent cycles, successfully. Due to tumor recurrence, treatment regimen was repeated. In the 4th carboplatin + paclitaxel cycle, AR to carboplatin. Suspended CT. D6: 3rd cycle of retreatment with carboplatin (9th exposure). Changed treatment.
Conclusions: DZT can be performed in certain AR especially IgE-mediated anaphylactic reactions. It is a high-risk effective procedure that allows the continuation of the most appropriate treatment for each patient, which can increase survival. A combined approach with Immunoallergology may be appropriate in these clinical situations.

Keywords: *Drug desensitization. Allergic reactions. Chemotherapy.*

CO 068. INSIGHTS FROM A PORTUGUESE CENTER: LUNG TRANSPLANTATION IN PATIENTS WITH SUBEROSIS

Matilde Ferreira De Almeida, Zenito Cruz, Filipa Canedo, Inês Estalagem, Paulo Calvinho, Luísa Semedo

Hospital Garcia de Orta.

Introduction: Suberosis (SUB) is a type of hypersensitivity pneumonitis caused by repeated inhalation of *Penicillium glabrum*, which contaminates cork and is particularly prevalent in Portugal. Managing environmental exposures remains the mainstay of treatment, but a significant risk of mortality may warrant consideration for lung transplantation (LT).
Methods: We performed a descriptive, observational, and retrospective analysis of patients diagnosed with SUB undergoing LT at the Portuguese LT center, between 2016 and 2023.
Results: Five patients, predominantly male (80%, n = 4), underwent LT due to SUB. The median disease duration from diagnosis to transplantation was 17 years, with a median waiting list time of 13 months. All underwent induction immunosuppressive therapy. Patients had a median hospital stay of 40 days, primarily undergoing bilateral LT (n = 3). The median cold ischemia time per lung was 360 minutes. Two patients required extracorporeal circulation, one of whom as a bridge to LT. The most prevalent postoperative complication was pulmonary or bloodstream infection (n = 4), alongside anastomotic stenosis (n = 2) and pulmonary graft disfunction (n = 2). No cases of acute rejection were identified. The median FEV1 was 49% six months post-transplant. One patient died during hospitalization. The one-year, three-year and five-year survival rate was 80% (n = 4), 60% (n = 3) and 40% (n = 2), respectively.
Conclusions: Despite the small sample size, it is undeniable that LT emerges as the sole alternative with significantly impact on the survival outcomes of these end-stage disease patients.

Keywords: *Hypersensitivity pneumonitis. Suberosis. Lung transplantation. Postoperative complications. Survival rates.*

CO 069. PROGNOSTIC IMPACT OF SPREAD THROUGH AIR SPACES (STAS) IN LUNG CANCER

Márcia Araújo, Eloisa Silva, Ana Ribeiro, Margarida Dias, Joana Cabral, Joao Santos, Daniel Coutinho, Ana Barroso

Hospital Pedro Hispano.

Spread Through Air Spaces (STAS) corresponds to the presence of clusters, solid nest, or single cells beyond the edge of the tumor in the air spaces of the surrounding lung parenchyma. Some studies report controversial findings regarding its prognostic impact. The 9th TNM staging discusses the possibility of integrating STAS into the T staging in the future. This study aimed to investigate the prognostic impact of STAS in patients who underwent curative lung cancer surgery at UMTT of ULSGE between the years of 2018 and 2021. We included 76 patients with NSCLC, the mean age was 67 ± 9 years, with 52.9% males. The mean follow-up was 45 ± 12 months. Lobectomy was performed in 89.3% of patients, pneumonectomy in 3.9%, and limited resection in 15.8%. STAS was identified in 25% of the cases. Recurrence occurred in 17.1%, the rate of all-cause death was 17.1%, and death related to disease progression was 9.2%. Recurrence was associated with the presence of vascular invasion ($p = 0.002$, $K = 0.345$), pleural invasion (0.025, $K = 0.249$), lymphatic invasion ($p = 0.006$, $K = 0.311$) and higher staging ($p < 0.001$) but was not associated with the presence of STAS ($p = 0.729$, $K = 0.052$). Mean recurrence-free-survival (RFS) was 37 ± 17 months and the mean overall-survival (OS) was 40 5 months. There were no differences in the RFS ($p = 0.388$) or OS ($p = 0.480$) between patients with and without STAS, including those underwent limited resection. RFS was inferior in patients with pleural ($p = 0.018$), lymphatic ($p = 0.015$), vascular invasion ($p = 0.020$) and higher staging ($p \leq 0.001$).

OS was only affected by the staging (p = 0.018) and was not affected by the other factors. There were no statistically significant differences between in recurrence or mortality between non-squamous cell carcinoma and squamous cell carcinoma. Prognostic impact of STAS in surgically treated patients remains controversial. Limitations of this study include a small sample size and short follow-up period.

Keywords: *Spread through air spaces. Lung cancer.*

CO 070. DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF PATIENTS WITH RET-ALTERED LUNG CANCER IN A UNIVERSITY HOSPITAL

Amélia Simas Ribeiro, Andrea Lopes Machado, Filipa Ferro, Ana Sofia Vilariça, Direndra Hasmucrai, Paula Alves

Hospital de Nossa Senhora do Rosário, Unidade Local de Saúde Arco Ribeirinho.

Introduction: RET is a proto-oncogene encoding the receptor tyrosine kinase RET. RET gene fusions/rearrangements are present in about 2% of non-small-cell lung cancers (NSCLC).
Objectives: We aimed to characterise the RET-altered NSCLC population followed at a Portuguese thoracic tumours centre.
Methods: We performed a retrospective study of NSCLC patients with RET fusions/rearrangements detected from January 2019 to January 2024. Data was collected from the patients' files from January to June 2024.
Results: We identified 17 patients with RET-altered NSCLC, mostly female (58.8%). The mean age was 63.5 ± 13.7 years. Ten patients were never-smokers, six former smokers and one an active smoker. The performance status (PS) at diagnosis was 0 in 52.9% of patients and 1 in 29.4%, while the percentage of PS 2, 3 and 4 was 5.9% each. Seven patients had a previous diagnosis of malignancy: haematological (n = 4), dermatological (n = 2), gastrointestinal (n = 1) and urological (n = 1). One had concomitant breast cancer. The most frequent non-malignant comorbidities were cardiovascular (n = 6), metabolic (n = 5), respiratory diseases (n = 3) and chronic kidney disease (n = 2). Regarding tumour histology, all patients had adenocarcinoma. Most cases (n = 12) were stage IV at diagnosis, one with brain metastasis. Their initial treatment was: chemotherapy (n = 5), immunotherapy (n = 2), targeted therapy (n = 2) and best supportive care (n = 3). In total, five patients were treated with selpercatinib: two as first-line treatment, two as second-line and one as fourth line. The most frequent adverse events were arterial hypertension (n = 3), elevation of transaminases (n = 2), xerostomia (n = 2) and paladar changes (n = 2). In two patients, selpercatinib was briefly suspended twice for elevation of transaminases (n = 2), thrombocytopenia (n = 1) and worsening of chronic kidney failure (n = 1).
Conclusions: The RET-altered NSCLC population was relatively young and mostly never smokers often diagnosed at stage IV. Selpercatinib has shown a longer progression-free-survival than chemotherapy/immunotherapy, and in our patients it was a well-tolerated drug.

Keywords: *Non-small-cell lung cancer. Ret rearrangements. Selpercatinib.*

CO 071. WHY SO MANY? EVALUATION OF EMPYEMAS IN A THORACIC-SURGERY CENTER

Maria Da Cunha, Catarina Figueiredo, Zenito Cruz, Catarina Moita, Ana Inácio, João Eurico Reis, João Maciel Barbosa, Ana Rita Costa, Paulo Calvinho

Hospital de Vila Franca de Xira.

Introduction: Empyema is a complication of several lung diseases. Primary strategy for treatment is antibiotic therapy and thoracic drainage; referral to Thoracic Surgery timing remains unclear, although less than 4 weeks after hospitalization is suggested.
Objectives: To evaluate patients with empyema who underwent surgical treatment.
Methods: Retrospective study of patients with empyema submitted to surgery in Hospital de Santa Marta between 2022 and the first trimester of 2024.
Results: 84 patients underwent surgery for empyema. Mean age 52.5 ± 16.7y, 76.2% male; 55.9% were current-/former-smokers. Comparative analysis of the first trimester of each year showed a 40% increase in empyemas referred for surgery between 2022-2024. Most were right-sided (60.7%). Regarding technique, given the majority of phase III empyemas (54.8%), decortication (55.9%) via thoracotomy (57.1%) were individually the most common, which suggests late-referral of patients, since recommended surgery technique is debridement via VATS; other features of late-referral were observed: mean total admission time was 40.8 ± 26.5 days (21.14 ± 21.36 days pre-op), with 22.17 ± 11.86 days of chest drainage (10.63 ± 9.7 days pre-op), specifically critically-ill patients (defined as hospitalized in ICU, 35.71%); 35.7% of patients had surgical complications. Overall, microbiological isolation was possible in 70.2% of cases, specifically with gram positive bacteria (n = 44, 74.6%): *Staphylococcus* (33.9%) and *Streptococcus* spp (32.2%). Patients were treated with large spectrum antibiotics, 72.6% with piperacilin-tazobactam (mean 36.0 ± 14.4 days). Most patients were transferred to respective units post-op (51.2%), and 5 patients died in current admission (all critically-ill). If current numbers remain, there is a predicted 89% increase in empyema surgeries from 2022 to 2024.
Conclusions: This study suggests that surgical approach of empyema is increasing, with patient referral in late-stage disease. More studies are essential to define the timing of referral to Thoracic Surgery.

Keywords: *Empyema. Pleural pathology. Pleural infection. Thoracic surgery.*

CO 072. TARGETED THERAPY IN HER2-MUTANT NON-SMALL-CELL LUNG CANCER: OUR CENTRE'S EXPERIENCE

Rita Enriquez, Margarida Felizardo, Catarina Custódio, Carla Simão, Nídia Caires, Telma Lopes, Filipa Todo Bom, José Alberto Teixeira

Pulmonology Department, Hospital Beatriz Ângelo, ULS Loures-Odivelas.

Introduction: HER2 mutations (HER2m) occur in approximately 2-4% of non-small-cell lung cancer (NSCLC) patients, with recent approval of the anti-HER2 antibody-drug conjugate, Trastuzumab-Deruxtecan (T-DXd), as second-line treatment in metastatic NSCLC patients with HER2m. This study aims to characterize a population of metastatic NSCLC HER2-mutant patients from a secondary centre treated with T-DXd and analyse related outcomes.
Methods: This retrospective descriptive study included patients from a Pulmonology/Oncology unit diagnosed with metastatic NSCLC since January 2016, and HER2m detected by next-generation sequencing who were treated with T-DXd after progression. Analyzed data included patient demographics, initial presentation, CNS metastasis, histology, HER2m type, prior therapies, T-DXd treatment duration, toxicities, progression-free survival (PFS) and follow-up duration.
Results: Seven patients were included (mean age at diagnosis, 61 ± 13.9 years; five males). Four had smoking history, mostly light smokers. Six patients were stage IV at diagnosis, two with CNS metastasis, and one was initially stage III, but progressed with CNS disease and received first-line therapy for stage IV. All patients had adenocarcinoma with negative PD-L1 expression. HER2m identified were exon 20 insertions (n = 6) and exon 18 amino acid substitution (n =

1). Six patients received first-line chemotherapy with/without immunotherapy and one with an EGFR driver mutation received first-line Osimertinib. T-DXd median treatment duration was 11.2 (4.5-14) months, with five patients still undergoing treatment at the time of analysis. Median PFS and median follow-up duration were 8.1 (1.4-13.4) and 11.2 (4.5-15.5) months, respectively. Reported toxicities included grade 2 skin rash (n = 2) with one patient requiring dose reduction, and grade 2 pulmonary toxicity (n = 1).
Conclusions: T-Dxd efficacy and safety results in our population corroborate those reported in larger clinical trials, with similar median PFS and manageable toxicities. The slightly longer median treatment duration observed could be influenced by the small sample size, molecular and treatment-related heterogeneities, highlighting the need for longer follow-up.

Keywords: *Non-small-cell lung cancer. Her2. Trastuzumab-deruxtecan. Targeted therapy.*

CO 073. ALECTINIB IN ALK-POSITIVE NSCLC - A CENTER'S EXPERIENCE

Adriana Sofia Correia Dias, L Lopes, A M Figueiredo, F Barata

ULS Coimbra.

Lung cancer treatment has undergone significant advancements due to the research of target mutations and the creation of targeted therapies. The translocation of anaplastic lymphoma kinase (ALK) is uncommon but currently constitutes an indication for treatment with tyrosine kinase inhibitors (TKIs). The aim of this study is to evaluate the therapeutic response to Alectinib in patients with ALK-positive non-small cell lung cancer (NSCLC) in our hospital. A total of 19 patients who started treatment with Alectinib between 2019 and 2023 were identified, of which 2 were excluded due to lack of data. Of the 17 patients analyzed, 11 were women, with an average age at diagnosis of 58 years. The majority (70%) were non-smokers. Eleven patients had at least one known comorbidity, the most common being hypercholesterolemia and hypertension. Ninety-four percent of the patients had a histological diagnosis of adenocarcinoma, and the majority expressed PD-L1 (9 between 1-49%, and 5 were ≥ 50%). At date of diagnosis, 6 patients had brain metastasis, one of whom was symptomatic and underwent radiotherapy and another had surgery. The best response observed was a complete response in 1 patient and partial response in 13 patients. Three patients discontinued the therapy due to toxicity: pneumonitis (2) and hepatitis (1). Four patients discontinued Alectinib due to disease progression, with an average treatment duration of 547 days until progression (17 months). The remaining patients had a median progression-free survival of 40 months. Three patients died while on Alectinib, two of them in less than a year. Alectinib is a well-tolerated and effective drug for ALK-positive NSCLC, showing an improvement in survival and quality of life for these patients.

Keywords: *Alectinib. Survival. Lung cancer. ALK.*

CO 074. STEREOTACTIC BODY RADIOTHERAPY IN EARLY STAGE LUNG CANCER: EXPERIENCE OF A PORTUGUESE CENTER

Joana Vieira Naia, Sara Simões, Diogo Lopes, Raquel Pereira, Carlos Fardilha, Isabel Rodrigues, Sara Campos Silva

Hospital de Braga.

Introduction: Stereotactic body radiation therapy (SBRT) serves as a substitute for surgical intervention in patients with clinical stage I or II non-small cell lung cancer (NSCLC) who either have substantial comorbidities that make resection unsafe or those who opt against surgery. It is a treatment aimed at cure, boasting high rates of local control
Methods: Retrospective analysis of early-stage lung cancer patients that were referred for SBRT in a Portuguese center between January 2020 and July 2022. Clinical characteristics, dosimetric planning/study, treatment-related outcomes and toxicities were analyzed.
Results: 17 patients were included, 82% male, with a median age of 74 years (56-89) and a ECOG performance status of 0 or 1 in 82%. Tumors were mostly adenocarcinomas (59%) and squamous cell carcinomas (24%). 41% patients were staged as IA (T1N0), 24% as IB (T2aN0) and IIA and 12% as IIB (T3N0). The majority of the tumors (76%) were peripherally located, with a median size of 22 mm (7-50). 50 Gy in 4 fractions was the most prescribed scheme (24%), followed by 50 Gy in 5 fractions (21%). Median follow-up was 30 months. No grade 3 toxicity was reported. Grade 1 pneumonitis occurred in 47% of patients and acute toxicity with radiodermatitis was verified in 1 patient. Radiological control at 12 and 24 months were, respectively, 82% and 71%. Overall, 29% experienced disease progression, with a mean progression-free survival of 17 months (7-42). Median overall survival was 16 months (10-25), with death occurring in 5 patients (29%).
Conclusions: Pulmonary SBRT, which is well tolerated and safe, has shown high rates of local control of early stage patients, with good survival outcomes and toxicity profile. The inclusion of more patients and further follow-up will provide a more comprehensive understanding of its impact on the toxicity, survival, and local control of the disease.

Keywords: *Lung cancer. Stereotactic body radiotherapy. Early stage.*

CO 075. CHARACTERIZATION OF KRAS MUTATED PATIENTS WITH NON-SMALL CELL LUNG CARCINOMA

Joana Vieira Naia, Isabel Pascoal, Diogo Lopes, Ana Daniela Marques, Raquel Pereira, Beatriz Fernandes, Maria Joana Pereira

Hospital de Braga.

Introduction: KRAS mutations are prevalent in non-small cell lung cancer (NSCLC). There are no effective therapies targeting KRAS, making it a significant area of research. This study aimed to determine clinical characteristics and clinical outcomes.
Methods: Retrospective analysis of patients with NSCLC KRAS mutated identified by Next-Generation Sequencing (NGS) in a tertiary hospital between 2019-2021. Survival curves were performed through Kaplan-Meier test and Log-Rank model.
Results: 47 patients were analyzed, 38 (81%) were male with a mean age of 66 (SD 39-82). Most patients (81%) had a history of tobacco exposure and all patients had adenocarcinoma. The majority were diagnosed at stage IV (n = 31, 66%). Metastatic patients received chemotherapy (QT) as first-line treatment (n = 13, 42%), combination QT and immunotherapy (n = 4, 13%) and immunotherapy in 1 patient (3%). The p.Gly12Cys and p.Gly12Val variants were equally common and 36.2% presented co-mutations. The median progression-free survival was 5 months (CI 1-32) and median overall survival (OS) was 6 months (CI 0-62) with 17% of patients alive at 5 years. Regarding OS, there was no difference between patients with co-mutation and no co-mutations identified [mean 20.1 months (CI 9.6-30.7) vs. 16.2 months (CI 8.3-24.1), p = 0.471], no differences regarding levels of PD-L1 [mean 21.5 months (CI 7.5-35.5) for PD-L1 > 50% vs. 16.3 months (CI 9.4-23.2) for PD-L1 < 50%, p = 0.722], no differences concerning smoking history (p = 0.677) and presence of variant G12C (p = 0.596). As expected, patients diagnosed at stages III/IV had significantly lower OS (mean 11.1 months, CI 5.7-16.5) when compared with patients at stages I/II (mean 38.2 months, CI 28.9-47.5), p < 0.001.
Conclusions: While this study enhances our understanding of NSCLC patients KRAS mutated, the limited sample size restricts the ability

to draw definitive conclusions. More comprehensive research is crucial to grasp the nuances of NSCLC subgroups.

Keywords: *Non-small cell lung carcinoma. KRAS mutation.*

CO 076. VENOUS THROMBOEMBOLISM IN LUNG CANCER PATIENTS: INCIDENCE AND SCREENING PROTOCOL

Joana Ferreira, Pedro Ferreira, Catarina Sousa, Cláudia Freitas, David Araújo, Hélder Bastos, Adriana Magalhães, Gabriela Fernandes

ULS São João.

Introduction: Venous thromboembolism (VTE) is a major cause of morbidity and mortality in cancer patients, particularly in those with lung cancer. Although this association is well established, worldwide estimates of incidence and prevalence vary widely. The potential impact of VTE on both the quality of life and overall prognosis of cancer patients warrants a need for accurate stratification of those in higher risk of developing such disease, through robust and reliable risk assessment tools.
Objectives: To evaluate the incidence of VTE in a sample of patients with newly diagnosed lung cancer.
Methods: Prospective observational cohort study, including patients with newly diagnosed lung cancer. A standardized screening protocol was applied at baseline and at 3-month reassessment, which included blood-sample analysis (blood coagulation tests, D-dimers levels) and both a contrast-enhanced chest CT-scan and lower limb complete duplex-ultrasound. Clinical and demographic data was also collected for pooled assessment of the study population.
Results: A total of 102 patients were included. The most frequent histologic subtype was lung adenocarcinoma (66.7%), and almost half the patients presented metastatic disease at diagnosis (45.1%). A total of 16 patients (15.7%) were diagnosed with VTE during active screening. Most of the positive screenings occurred at baseline (n = 10; 62.5%); lower limbs deep-vein-thrombosis was the most frequent form of confirmed VTE (n = 8; 80%). VTE was significantly more frequent in male patients (p = 0.031), those with confirmed COPD (p = 0.004) and in patients with metastatic disease (p = 0.038). Screening revealed an overall incidence of 7.8% for VTE, resulting in a Number Needed to Screen of approximately 35 patients, when considering a global incidence of ~5%.
Conclusions: The incidence of VTE was higher in our sample when compared to global incidence estimates, highlighting the importance of implementing robust screening protocols in lung cancer patients, instead of only performing such exams when symptoms begin.

Keywords: *Thymic epithelial tumours. Thymoma. Myasthenia gravis. Staging.*

CO 077. BEHAVIOUR OF THYMIC EPITHELIAL TUMOURS, A RETROSPECTIVE STUDY IN A TERTIARY HOSPITAL

Diana Sousa, David Araújo, Maria Gabriela O. Fernandes, Mariana Cascais, David Gomes, Claúdia Freitas, Catarina Sousa, Susana Guimarães, Conceição Souto Moura, Hélder Bastos, Maria Adriana Magalhães

Unidade Local de Saúde da Cova da Beira.

Introduction: Thymic epithelial tumours (TET)-thymomas, thymic carcinomas, and neuroendocrine thymic tumours (NTT)-are rare neoplasms with a heterogeneous presentation, often autoimmune-linked.
Objectives: To review the characteristics, therapeutic approaches, and survival of patients with TET.
Methods: All TET histological diagnoses at a tertiary hospital from 1997 until 2024 were included. Therapeutic options, progression/recurrence, and survival rates were analysed.
Results: A total of 66 patients were included, mostly female (65.2%; n = 42), with a median age of 59 years. Thymomas were the most frequent TET (93.9%; n = 62), followed by thymic carcinomas (4.5%; n = 3) and 1 NTT. The most frequent TNM staging was I (71.2%; n = 47). For the analysis, Masaoka-Koga staging system was used. Most patients were stage-I (47.0%; n = 31), and stages IVA and IVB registered 1 patient each. Autoimmune diseases were observed in 36.4% (n = 24) patients– most commonly myasthenia gravis (70.8%; n = 17) and haematological diseases (16.6%; n = 4)- and weren't significantly related to the histological subtype (p = 0.44) or mortality (p = 0.51). The 10-year survival of patients with thymoma was 79.0% (86.0% in stage-I, 60.0% in stage-II, 45.0% in stage-III; stage IV patients died before 10 years) and 33.0% in carcinoma cases. The NTT patient died in the 8th follow-up year. Of the patients treated with curative intention, recurrence was observed in 9 patients, after a median 7 years of follow-up. Thymoma registered a 10-year recurrence rate of 26% (n = 7). Among the stage-I treated with surgery, 13.0% (n = 4) experienced recurrence, and none of the stage-III treated with surgery and adjuvant-radiotherapy had recurrence. Although not statistically significant, surgical margin invasion presented higher recurrence rates (18.2% R1/2 vs. 9.5% R0). Surgery was the most common treatment for recurrence (n = 5), with or without adjuvant radiotherapy, resulting in disease-free follow-up in half of the cases (n = 3).
Conclusions: This work emphasises the link between TET and autoimmune diseases, and their high probability of recurrence several years after treatment. These tumours exhibit heterogeneous clinical behaviour, requiring a multidisciplinary approach and long-term follow-up for optimal treatment.

Keywords: *Lung cancer. Venous thromboembolism. Pulmonary embolism. Deep vein thrombosis.*

CO 078. CHEMO-IMMUNOTHERAPY IN STAGE IV NON-SQUAMOUS NON-SMALL CELL LUNG CANCER: A RETROSPECTIVE STUDY

Maria Santos, Filipa Ferro, Andrea Machado, Ana Sofia Vilariça, Direndra Hasmucrai, Paula Alves

ULS Santa Maria.

Objectives: First-line therapy for metastatic non–small-cell lung cancer (NSCLC) without targetable mutations is platinum-based chemotherapy plus pembrolizumab if programmed death ligand 1 (PD-L1) is < 50%. This real-life retrospective study aims to assess efficacy and safety of this therapy.
Methods: This retrospective observational study was conducted at the Pulmonary Oncology Department in ULS Santa Maria, Lisbon, Portugal. Inclusion required stage IV non-squamous NSCLC with PD-L1 < 50% that started pembrolizumab plus platinum and pemetrexed between July 2020 and December 2022. Follow-up was carried until September 2023. Primary endpoints were progression-free survival (PFS) and overall survival (OS). Secondary endpoints were response rate and safety.
Results: 67 patients were included. Median age 67 years, 73.1% male, 92.6% PS 0-1, 91.0% current/former smokers. 22.4% had brain metastases and 14.9% had liver metastases. PD-L1 < 1% in 62.7%. Median OS 12.2 months and PFS 6.7 months. 22.4% of patients were alive and progression-free at the time of cutoff. Objective response rate (ORR) was 41.8% (partial response). The disease control rate was 70.1%. Adverse events (AE) occurred in 92.5%, 43.3% had grade 3-4 AE. The most common were anaemia (50.7%), neutropenia (40.3%), asthenia (35.8%). Treatment was discontinued in 3 patients due to AE. There were no treatment-related deaths reported.
Conclusions: Our findings provide evidence on the effectiveness and safety of chemotherapy-pembrolizumab in metastatic non-oncogenic non-squamous NSCLC in a real-world setting. With a median PFS and OS of 6.7 and 12.2 months respectively and no new safety

signals, these results complement data from clinical trials providing a more diverse population sample.

Keywords: *Non-small cell lung cancer. Pembrolizumab. Pemetrexed. Platinum.*

CO 079. REAL LIFE EFFICACY AND SAFETY OF OSIMERTINIB: HOSPITAL STUDY IN PATIENTS WITH NON-SMALL CELL LUNG CANCER (NSCLC) EGFR POSITIVE

Laura Lopes, Inês Jordão, Ana Maria Figueiredo, Fernando Barata

Unidade Local de Saúde de Coimbra.

Introduction: Osimertinib is an irreversible, third-generation epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor. It has been recommended as first-line treatment for adult patients with locally advanced or metastatic NSCLC. Its safety and tolerability profiles still require careful evaluation.
Methods: We carried out a retrospective evaluation of all patients treated with Osimertinib in the Pulmonary Oncology department at ULS de Coimbra. We included demographic data, lifestyle habits, neoplasm staging based on TNM and biomarkers, overall survival (OS), duration of response (DoR), progression-free survival (PFS) and adverse effects (AEs).
Results: A cohort of 60 patients with NSCLC that started Osimertinib as first line treatment. With a mean age of 69 ± 11.8 years (36-86 years), 70% were female. Stage IV was the most prevalent (97%). The EGFR mutation in exon 19 was found in 31 patients (51.66%), in exon 21 in 28 patients (46.66%) and in exon 20 in 1 patient (1.66%). PD-L1 status was strong positive (TPS > 50%) in 23.33% of the patients, positive PD-L1 (TPS 1-49%) in 20% and the remain were negative. 68% of the patients were identified as non-smokers and 23.3% as ex-smokers. The overall median follow-up of the whole group at the time of this analysis was 16 months. The median DoR was 8 months with a median PFS of 12 months. The median OS was 15 months. The most prevalent AEs were gastrointestinal (diarrhea in 21% of patients, nausea in 10% and anorexia in 7%) and skin (rash in 21%, paronychia in 8% and dry skin in 6%). 9 patients required dose reduction due to AEs and 2 patients even suspended treatment.
Conclusions: This analysis provides important information regarding real-world experience with Osimertinib, particularly as first-line systemic therapy. These findings also contribute to the understanding of AEs and possible factors that affect treatment outcomes.

Keywords: *Lung cancer. Osimertinib. Real life.*

CO 080. SMOKING BEHAVIOUR AND EXPOSURE TO ENVIRONMENTAL TOBACCO SMOKE IN PORTUGUESE UNIVERSITY HEALTH SCIENCE STUDENTS

Catarina Gonçalves Vaz, Pedro Aguiar, Jorge Bonito, Sofia Ravara

Universidade da Beira Interior, Faculdade de Ciências da Saúde, Covilhã, Portugal.

Introduction: Health professionals should play a crucial role in tobacco control. Aim: To analyse 1) smoking behaviour and exposure to environmental tobacco smoke (ETS) of Portuguese final-year health science students and associated factors; 2) as well as their tobacco control opinions in regard to smoking cessation and smoke-free university campus.
Methods: Questionnaire-based nation-wide cross-sectional study carried out in 2016 among medical, nursing, pharmacists, and dental medicine students. Convenience sampling. We performed a bivariable descriptive analysis using Chi-square, Fisher's exact, Mann-Whitney U, and Kruskal Wallis tests; followed by multivariable analysis. The level of statistical significance considered was 5%.
Results: 2,095 students answered the questionnaire (34.5% response rate): 79.5% females, mean age was 23.9 years (95%CI: 23.7-24.0 years). Of the participants, 19.4% were smokers [24.1% of males (95%CI: 19.96-28.13%); 18.1% of females (95%CI: 16.16-20.04%), p = 0.003]. Nursing students smoked more (22.1%), and medical students smoked less (12.4%), p < 0.001. Of the participants, 21.5% were exposed daily in the home, and 28.5% in other places. Being exposed to ETS (home: OR 2.65; 95%CI: 2.07-3.41, p < 0.001; other places: OR 3.37; 95%CI: 1.92-5.91, p < 0.001); being male (OR 1.54; 95%CI: 1.17-2.02, p = 0.002); and not being a medical student (OR 1.45; 95%CI: 1.04-2.04, p = 0.03), were the factors associated with being a smoker. Of the students, 82.0% and 81.9% agreed that the regulatory ban on smoking is enforced in university buildings and clinical practice sites, respectively. Of the participants, 45.0% disagreed that a health professional who smokes is less likely to advise their patients to stop smoking.
Conclusions: The high prevalence of smoking and ETS exposure indicates that attending health sciences courses does not promote smoking prevention or cessation. Stronger measures are needed for national tobacco control, as well as a tobacco control curricula in health sciences studies, developed jointly with universities and health services.

Keywords: *Smoking. Tobacco. Health sciences students. Secondhand tobacco smoke. Environmental tobacco smoke.*