S36 COIL TREATMENT FOR PATIENTS WITH SEVERE EMPHYSEMA AND BILATERALLY INCOMPLETE FISSURES; EFFECTIVENESS AND COMPLICATIONS AFTER ONE-YEAR FOLLOW-UP. A SINGLE-CENTRE EXPERIENCE

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Background The aim of this retrospective analysis, was to evaluate the safety and efficacy of Lung Volume Reduction with coils (LVR-Coil) treatment in a single-centre setting in patients with severe heterogeneous emphysema and bilaterally incomplete fissures

Methods In this retrospective analysis 86 patients with severe COPD (♂/♀:40/46, age: 64 ± 7 years) and bilateral incomplete fissures were included. A total of 10 coils were unilaterally implanted in a single lobe. 28 patients received additional treatment of a contralateral lobe. At 90, 180 and 365 days' follow-up changes in pulmonary function tests, 6-Minute-Walk-Test (6MWT) and modified Medical Research Council (mMRC) dyspnea scale, as well as possible complications were recorded.

Results FEV₁ improved significantly at the 90-day follow up (p:0.001) but the improvement was not sustained at 180 and 365 days (0.71 ± 0.21 L vs 0.76 ± 0.23 L vs 0.73 ± 0.22 L vs 0.69 ± 0.18 L). FEV₁ improved more than 12% (minimal clinically significant change, MCID) in 30 patients (38%). Vital Capacity improved significantly at the 90- (p < 0.001) and 180-day (p:0.13) follow up but improvement was lost after 365 days. RV improved significantly at 90 days (6.1 ± 1.4 L vs 5.5 ± 1.3 L, p < 0.0001) and at 180 days (6.1 ± 1.4 L vs 5.7 ± 1.2 L, p:0.008), but the improvement was not sustained at 365 days. 6MWT improved at 90 days (247 ± 90 m vs 278 ± 81 m, p < 0.0001) and 180 days (247 ± 90 m vs 267 ± 90 m, p:0.02) but the improvement was lost at the 365-day follow up. Forty-two from 71 (59%) patients improved by more than 26 m (MCID) at 90 days while 21 patients (30%) improved more than 54 m. mMRC improved significantly at 90 and 180 days. In a total of 114 procedures no periprocedural deaths occurred. Four patients died within the first 3 months after the treatment (mortality rate 3.5%). Complications observed within the first 90 days included pneumonia requiring hospital admission (28%), pneumothorax with chest tube insertion (6%), significant, persistent hemoptysis was documented in 4 cases (3.5%) and hypercapnia and hypoxemia in 4.4% and 1.75% respectively.

Conclusions LVR-coil improved PFT, 6MWT and mMRC initially but improvement was lost after 365 days. However, this improvement came at a cost of significant complications and with a 3.5% mortality rate.

S37 THE PERSISTENCE OF EOSINOPHILIC INFLAMMATION IN COPD OVER TIME – AERIS COHORT

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Introduction The importance of eosinophilic inflammation in COPD is in its ability to predict an enhanced response to treatment, such as corticosteroids. However, little is known about the persistence of higher eosinophils, or its associations with infectious aetiology during clinical stability and exacerbation. We investigated the natural history of eosinophilic inflammation over time and studied eosinophil-associated acute exacerbations of COPD and the impact of seasonality in a cohort of COPD patients.

Methods 127 subjects with moderate to very severe COPD were enrolled into the AERIS cohort (NCT01360398) and were reviewed monthly for scheduled visits and during exacerbations. Blood sampling was performed quarterly and at exacerbations. Higher blood eosinophils (BE) were defined as ≥2%. Based on frequency of higher BE over the study, subjects were divided into predominantly (PE), intermittent (IE) and rarely eosinophilic (RE) groups.

Results Blood eosinophil levels ≥2% were prevalent at baseline (68.3%) and at exacerbations (51.1%). Over the study 57.6% of subjects had predominantly, 16.16% intermittently and 26.26% rarely ≥2% blood eosinophils. Higher BE at enrolment was strongly associated with a predominantly high BE profile for the year (AUC 0.841 p < 0.001) and with greater odds of ≥2% eosinophils at exacerbation (OR 9.60 p < 0.001). The odds of ≥2% BE at exacerbation were higher in the PE group compared to the rarely group (OR 12.00, p < 0.001). A larger proportion of exacerbations were eosinophilic in the Summer than Winter (OR 2.57, p = 0.001). The odds of bacterial presence at exacerbation was higher in Winter than Summer among those in the PE group (OR 4.74, CI: 1.43; 15.71, p = 0.011), but not among those in the RE group (OR 1.15, CI: 0.29; 4.56, p = 0.838).

Conclusion Our data suggests that it is possible to stratify COPD patients by stable state blood eosinophil levels. This measure is easily accessible and provides important insights into the longitudinal inflammatory phenotype of COPD. Persistent higher blood eosinophil levels were associated with risk of bacterial infection at exacerbation, and seasonality of exacerbation. Intervention studies are required to establish clear treatment algorithms utilising this measure to stratify therapy.