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Late Breaking Abstract - Effect of Benralizumab on airways remodeling in patients with severe eosinophilic asthma (preliminary data of the BREATH study)

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Purpose: We investigated the efficacy of Benralizumab treatment by assessing airway remodeling and patient characteristics associated with treatment response.

Methods: Breath is multicenter study including 2 Pulmonary Clinics in Greece. Patients with severe eosinophilic asthma were eligible to be administered anti-ILR treatment. Twenty-five patients were recruited in Breath study. Bronchial biopsies were obtained before treatment initiation and after 12 months of Benralizumab treatment. Airway remodeling was assessed via changes from baseline in endobronchial biopsy basement membrane thickness, airway smooth muscle area, epithelial integrity and sub-mucosal eosinophil number. Clinical parameters such as exacerbation rate, spirometry values, ACT score, blood eosinophil counts were also evaluated before and after treatment initiation. This trial is registered with ClinicalTrials.gov, number NCT06288516.

Results: Preliminary results from fifteen patients are presented. Treatment with Benralizumab resulted in a significant reduction from baseline to 12 months of treatment in basement membrane thickness ($p=0.012$), airway smooth muscle area ($p=0.041$), and sub-mucosal eosinophil numbers ($p=0.011$). Significant improvements were also found in exacerbation rate, respiratory parameters, ACT score and blood eosinophil count post treatment ($p<0.05$).

Conclusions: In our study, 12 months of anti-IL5R treatment in patients with severe eosinophilic asthma leads to the reduction of basement membrane thickness, airway smooth muscle area and sub-mucosal eosinophil number consistent with previous studies that have suggested the modification effect of biologic treatment in severe asthmatics with eosinophilic phenotypes.