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| **Outcomes of biologic therapy in a tertiary Severe Asthma Clinic**  |
| S. Lee1, M. Andrabi1, B. Zhong1, A. Aminazad 1,2, F. Thien 1,2, C. Foo1,2 |
| *1 Respiratory and Sleep Department, Eastern Health, Melbourne, VIC, Australia**2 Eastern Health Clinical School, Monash University, Melbourne, VIC, Australia* |
| **Introduction/Aim:**Severe asthma affects up to 10% of asthmatics and is associated with increased morbidity, mortality, and healthcare costs. Asthma biologics improve asthma symptoms, reduce exacerbations, and reliance on oral corticosteroids (OCS). Despite this, switching biologics may be required to achieve good asthma control. This study describes a cohort of severe asthmatics initiated on biologics and their clinical outcomes, frequency of biologic switches, and referrals for bronchial thermoplasty (BT).**Methods:** Baseline demographics and asthma characteristics were obtained including age of onset; allergic and biochemical test results; baseline lung function tests; and number of exacerbations over the last 12 months. Initial and current asthma control questionnaire scores (ACQ), biologic therapy, and OCS utilization were also recorded, along with BT referral rates. **Results:** Baseline characteristics of 107 asthmatics are presented in Table 1. Median duration of follow-up was 32 (IQR 55-15) months. Omalizumab (52.3%) was the most common biologic initiated, followed by mepolizumab (19.6%), benralizumab (26.2%) and dupilumab (1.79%). Biologic therapy was altered in 28% of patients, of which 60% were switched, and 40% discontinued. Of those who underwent a biologic switch, 66.7% switched once with 33.3% switching twice. 17.8% also underwent BT. Mean ACQ reduced from 3.6±0.9 pre-biologic to 1.8±1.3 at most recent follow-up. OCS was also successfully weaned off in 64.4% of OCS-dependent patients. A further 15.6% managed to reduce their OCS dose. 48% of patients had no exacerbations in the 12 months prior to their latest follow-up.

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| **Characteristics (n=107)** | **Value** |
| Age (years) | 58.3±15.2 |
| Gender (male/female) | 43 (40.2%) / 64 (59.8%) |
| Asthma onset (childhood/adult) | 55 (51.4%) / 36 (33.6%) |
| Pre-biologic FEV1 (%predicted) | 58.7±18.9 |
| Atopic (RAST or SPT positive) | 84 (78.5%) |
| Eosinophilic (≥ 0.3x109/L) | 63 (58.9%) |
| FeNO >25ppb | 62 (57.9%) |
| Pre-biologic OCS-dependent | 45 (42.1%) |

\*data presented as mean±SD or number(%)FeNO, fractional exhaled nitric oxide; RAST, radioallergosorbent test; SPT, skin prick test; **Conclusion:** Majority of asthmatics achieved good asthma control with a single biologic agent although 16.8% required at least one biologic switch. Importantly, almost 1 in 5 patients were referred for BT despite treatment with an asthma biologic. This highlights the role of BT in the management of this unique cohort of patients. **Grant Support:** No grants to disclose.  |

**Key words:** Asthma, Biologics, Bronchial thermoplasty.