One patient discontinued dupilumab during the follow-up period.

Conclusion A minority of individuals with SEA have a suboptimal response to eosinophil-targeted therapy with an anti-IL5/5R mAb. We report significant clinical improvements following initiation with dupilumab suggesting an important role for IL-4/-13 in these patients. The exact mechanisms require further research and are likely to lead to a reclassification of T2-high sub-phenotypes.

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P204

COVID-19 IN THE ABSENCE OF EOSINOPHILS: A CASE SERIES OF CONFIRMED INFECTION WHILST ON TREATMENT WITH BENRALIZUMAB

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Background Blood eosinopaenia was one of the earliest reported findings in hospitalised patients with COVID-19, questioning whether eosinophils could have an anti-viral or deleterious role in the immune response against SARS-CoV2. Benralizumab is an anti-IL5R monoclonal antibody licensed for the treatment of severe eosinophilic asthma (SEA) and causes the near-complete depletion of blood and tissue eosinophils. As such, it offers the opportunity to explore the impact of eosinopaenia at the time of infection on outcome with COVID-19.

Method Patients started on treatment with benralizumab (up until April 2021) for SEA at our regional asthma centre were contacted by telephone throughout May and June 2021 to establish whether they had experienced a confirmed (PCR-positive) SARS-CoV2 infection since commencing benralizumab. Clinical and demographic characteristics were recorded along with the outcome of infection, including the need for hospitalisation or intensive care admission. Patients requiring hospitalisation were compared to those experiencing mild infections.

Results Data on 268 patients treated with benralizumab was collected with 24/268 (9%) confirming SARS-CoV2 infection with a positive PCR test. Of these 18/24 (75%) experienced mild infections that did not require hospitalisation. Of the 6/24 requiring hospitalisation, the median (IQR) length of stay was 6 (1–8) days. No patients required ICU admission or mechanical ventilation. There was no significant difference in baseline characteristics between hospitalised and non-hospitalised patients. However, it is noteworthy that a higher proportion of hospitalised patients were male (50.0% vs 38.9%) and had a higher mean BMI (32.1 vs 29.5).

Discussion In the context of drug-induced eosinopaenia with benralizumab, 75% of patients with severe asthma experienced mild COVID-19 disease. This is likely to be an underestimate given that other patients may have experienced an asymptomatic infection or not pursued PCR testing in the context of mild infection. Although caution is needed due to the small sample size, these results do not support a significant role for eosinophils in SARS-CoV2 infection.

P205

ELECTIVE INPATIENT SYSTEMATIC EVALUATION OF DIFFICULT TO TREAT ASTHMA; CASE SERIES DEMONSTRATING THE CLINICAL VALUE AND IMPROVED PATIENTS OUTCOMES

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Background Whilst the assessment and management of difficult to treat asthma (DTA) is largely conducted in outpatient settings, this seems inadequate for a minority of patients presenting with complex disease and high healthcare utilisation. Structured multidisciplinary inpatient assessment for this group may delineate the main cause/s of their disease and allow planning and effective management strategies.

Aim To assess the Impact of elective admission for assessment and management of difficult to treat asthma patients presenting with frequent hospital admissions and/or excessive oral corticosteroids (OCS) dependency.

Methods Patient who were electively admitted and had multidisciplinary structured inpatient assessment at our tertiary severe asthma centre were considered for this analysis. Demographics and clinical details were retrieved from patients' medical and electronic records including the local dendrite system registry. Standard statistics were applied.

Results We included 21 patients, 81% females (17/21), mean age 41.6 years (23–73), mean BMI 35±10 kg/m², pre-admission prednisolone dose was 29.1±15.3mg/day, mean hospital admissions in the preceding year was 6.9±5.2, and the proportion with ITU admission ever was 71.4%.

The mean length of stay was 11.4 days (range 5–21) in which asthma diagnosis was confirmed in 67% of cases but severe asthma was excluded in the majority (70%) and only 30% of patients had high type 2 inflammation. This allowed significant reduction of maintenance prednisolone dose to a mean of 5.6±2.6 mg/day (figure 1) and 73% of cases were converted to replacement hydrocortisone. The primary drivers of symptoms were breathing pattern disorder (67%), inducible laryngeal obstruction (42%), excessive dynamic airway collapse (42%), and multiple diagnoses were often observed (median comorbidities 4.5, 95%CI 4–5.6).

Conclusions In this study we observed significant benefit to patients in establishing the correct diagnosis, revision of treatment and reduction of dependency on maintenance oral

Abstract P205 Figure 1

corticosteroids. Research is required to define the criteria for patients who would benefit from such systematic inpatient assessment and the longterm outcomes of such intervention.

P206 UTILITY OF ADHERENCE CHECKS IN PATIENTS WITH SEVERE ASTHMA ELIGIBLE FOR BIOLOGICS: A SINGLE CENTRE RETROSPECTIVE ANALYSIS

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Introduction United-Kingdom guidelines require good adherence to qualify for biologics, but reports suggest 25% of patients are nonadherent at time of initiation. The extent to which collaboration with a clinical pharmacist allows better fulfilment of guideline criteria has not been established.

Methods We retrospectively analysed adherence checks done in the Oxford Special Airways Clinic (Oxford, UK) prior to initiation of biologic treatment for severe asthma between Dec 2013 and Aug 2020. Adherence to inhaled corticosteroid and maintenance oral corticosteroids (OCS) was defined as $\geq 75\%$ of prescriptions collected out of the total expected in 1 year. Other guideline criteria for biologics are ≥ 3 OCS bursts and/or $\geq 50\%$ of previous year on maintenance OCS in optimally-treated severe asthma.

Results 280 of 289 patients on biologics had a pre-biologic adherence check available. The median adherence to ICS was 100% (IQR: 83%-100%) and the median number of asthma attacks in the previous year was 3 (IQR 1-6). Overall adherence and compliance with pharmaceutical criteria for biologics was shown in 249 patients (89%).

Conclusion An adherence check by a clinical pharmacist prior to initiating a biologic for severe asthma is associated with 89% compliance to prescription guidelines, emphasising the importance of multidisciplinary work.

Please refer to page A193 for declarations of interest related to this abstract.

P207 STEROID REDUCTION WITH OMALIZUMAB IN SEVERE ALLERGIC ASTHMA

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Introduction Omalizumab is a subcutaneous monoclonal antibody (MAB) which is licenced in the treatment of severe persistent allergic asthma. It works by binding to IgE, preventing activation of mast cells and basophils and reducing release of inflammatory mediators. The anti-IL-5 MABs used in severe asthma have been widely researched to show their steroid reducing capabilities. According to the NICE guidelines for omalizumab, patients require at least 4 courses of prednisolone to qualify. Little research has been done into its potential for steroid reduction.

Aim To assess the impact of omalizumab therapy on maintenance steroid dose and acute corticosteroid courses.

Method A retrospective review was carried out of patients starting omalizumab after MDT approval. We investigated oral

Abstract P207 Table 1 Clinical outcomes over the first 12 months of omalizumab treatment. Significance level (p) in change versus baseline by Wilcoxon signed ranks test

	n	Baseline	n	12 mo	p
ACQ	67	3.16 (2.15–3.83)	46	2.16 (1.31–2.79)	<0.05
AQLQ	65	3.3 (2.46–4.66)	37	4.83 (3.66–5.7)	<0.05
FEV1% predicted	57	65 (52–81.5)	24	65.5 (56.75–77.5)	0.45
FeNO ppb	53	21 (13–36)	27	24 (13.5–40)	0.17
Blood eosinophils $\times 10^9/L$	66	0.24 (0.11–0.40)	25	0.2 (0.15–0.32)	0.62
Adherence% pickup	63	91 (76–100)	28	90.5 (77.5–100)	0.90

ACQ: asthma control questionnaire; AQLQ: asthma quality of life questionnaire; FeNO: fractional exhaled nitric oxide.

corticosteroid dose (OCS), asthma control, blood eosinophils, FEV1/FVC, FeNO, adherence to ICS and exacerbation frequency over the first 12 months of treatment. Data were non-normally distributed and reported as median (interquartile range), and between-group comparisons made using Mann-Whitney U test

Results 71 patients were included (36 male). 25 patients were on a maintenance oral prednisolone dose at initiation of omalizumab [median (IQR) 10 (7.5–15) mg/d]. The dose reduced by 12 months of treatment (median (IQR) 7.5 (6.25–10) ($p < 0.05$)). Patients had minimum four exacerbations in the year preceding omalizumab initiation; over the first year of treatment this reduced to median (IQR) 0 (1). There was also a significant improvement in ACQ and AQLQ scores (see table 1).

Conclusion The original trials for omalizumab focussed on improvement in lung functions and asthma control. The introduction of anti-IL5 MABs has switched the focus to reduction in steroid exposure. The results show that patients on maintenance steroids can achieve a reduction in steroid dose and exacerbations whilst on omalizumab. Alongside this they can improve their asthma control and quality of life. Monitoring of adherence to inhaled corticosteroids has shown ongoing compliance. We previously found a 50% non-compliance rate in our omalizumab patients. We feel this shows service improvements implemented have led to improved compliance to ICS.

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P208 DOES OBESITY AFFECT FRACTIONAL EXHALED NITRIC OXIDE INTERPRETATION IN DIFFICULT ASTHMA?

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Introduction Obesity-associated asthma is a difficult-to-treat phenotype linked with poorer disease control, reduced quality of life and increased morbidity and mortality. This phenotype coupled with type 2 (T2)-high inflammation may respond to currently available biologic treatments. Previous studies have