CPS10241: A MULTI-DISCIPLINARY TEAMS' COLLABORATIVE APPROACH TO TRANSITION MEPOLIZUMAB DEPENDENT SEVERE EOSINOPHILIC ASTHMATIC PATIENTS TO SELF-ADMINISTRATION IN RESPONSE TO THE COVID-19 PANDEMIC

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INTRODUCTION

What was done? 87 severe eosinophilic asthmatic (SEA) patients treated with mepolizumab; a biologic agent targeting interleukin-5 (IL-5), at a specialist NHS asthma clinic, were transferred to self-administration at home compared to usual practice of administration in a hospital setting. 40 patients were transferred in late 2019 as a planned 'pilot' transition and 47 patients were transferred unplanned due to the COVID-19 pandemic.

Why was it done? The COVID-19 pandemic and resultant shielding requirements in the UK for patients deemed extremely clinically vulnerable (including asthma biologic recipients) necessitated the rapid transition of large numbers of patients onto home administration. Patients also continued to need to be initiated on biologic therapy in spite of the pandemic and innovative pathways were created to ensure rapid initiation of therapy and home administration.

METHOD

How was it done? A pharmacist-led project, alongside a multi-disciplinary team including pharmacists, pharmacy technicians, specialist nurses, doctor and physios conducted a variety of in-person and virtual (telephone and video) consultations to consent and train patients on self-administration in their own homes in a rapid transfer to home administration. As the optimal time to transition to home care and the impact of administering biologic therapy at home are largely unknown, we investigated whether patients deteriorated following their transition. Patients receiving mepolizumab via home care were stratified according to those who had a "planned" transition prior to 1st Feb 2020 versus those who had an "unplanned" transition after this date (that is necessitated by the COVID-19 pandemic). The last maintenance corticosteroid (mOCS) dose, Asthma Control Questionnaire-6 (ACQ6), and peak expiratory flow rate (PEFR) measured in clinic (baseline) was compared with that collected by virtual 8-12 weeks and 8-12 months pharmacist clinics following transition to home administration.

RESULTS

87 mepolizumab patients were identified, but several were subsequently excluded due to missing data. Of 46 "planned" patients, 3 were uncontactable at 8-12 months; while of 41 "unplanned", 1 could not be contacted and 1 switched from mepolizumab during the study. The impact of transition on the remote mOCS wean was not investigated because there were too few patients receiving mOCS (2 planned patients, 1 was not for asthma; 11 unplanned patients, 7 were not for asthma). However, at 8-12 months, the mean annualised exacerbation rate of the planned group was significantly lower (0.16) than the 0.51 of the unplanned patients (p=0.04).

At baseline, the planned group had been receiving mepolizumab longer, were slightly younger, and had a female predominance. The mean BMI and FeNO were similar.

There was a statistically significant difference between groups with the planned group having better asthma control (p=0.015) and higher PEFR (p=0.0127).

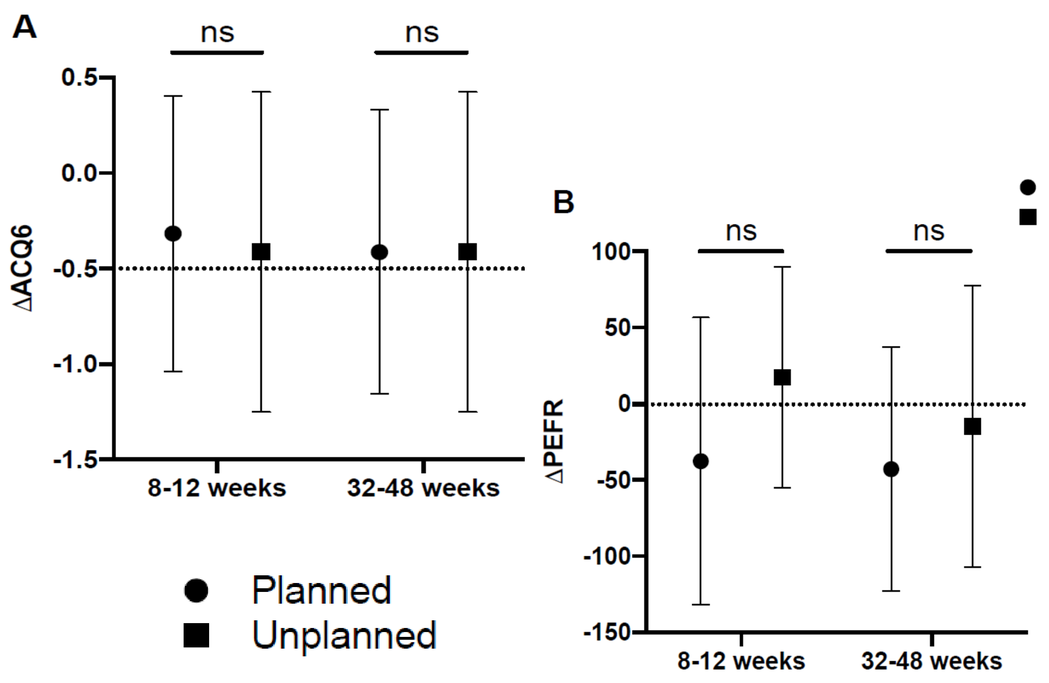
Table 1 - Baseline Characteristics

	Duration of mepolizumab at transition (months)	**Age** (years)	**BMI**	**FeNO** (ppb)	**ACQ-6**	**PEFR** (L/min)
Planned (n=43, 14 male)						
Mean	25.8	52.1	29.6	51	1.24	411
SD	5.5	14.1	6.6	63	1.11	138
Unplanned (n=39, 18 male)						
Mean	20.4	55.2	28.1	47	1.80	332
SD	12.4	16.7	5.3	44	1.11	165
					p=0.015	p=0.0127

Figure A and B - Change in ACQ-6 and Peak Flow from baseline to 8-12 weeks and 8-12 months after transition

A There was a statistically significant decrease in ACQ-6 for both planned and unplanned patients 8-12 weeks following their transition to home administration of mepolizumab (-0.32, p=0.0054 and -0.41, p=0.0030 respectively), but no difference between groups (p=0.4744).
At 8-12 months, the statistically significant improvement from baseline was maintained in both groups (-0.41, p=0.0004 and -0.35, p=0.0002 respectively), but again, there was no difference between groups.

B 8-12 weeks after transition, the planned group had a statistically significant decrease in PEFR (-38mL/min; p=0.0047). The unplanned patient group had a non-significant increase (+17mL/min; p=0.05251). There was no difference in PEFR between groups (p=0.0893).
At the 8-12 month follow up, the planned cohort saw a statistically significant decrease in PEFR -43mL/min (p=0.0013) from baseline, whilst those in the unplanned group had a non-significant decrease of 15mL/min (p=0.5572). There was no significant difference in PEFR between groups (p=0.1328).



All home administration patients were invited to take part in a satisfaction survey run by the homecare company. 41 responded with 35 (85.37%) extremely satisfied with home administration. A survey conducted by Asthma UK & British Lung Foundation[1] found that convenience was the most positive impact of home administration in 82% of those surveyed with reduced need to travel to clinic for appointments and reduced time off work the most commonly cited improvements. Over a third of those surveyed felt that they were more in charge of their condition after switching to home administration and 25% of respondents felt their quality of life had improved.

[1] Personal correspondence with Asthma UK & British Lung Foundation (AUK-BLF) [In Press]

DISCUSSION & CONCLUSION

This data provides considerable reassurance as to the utility of home administration of mepolizumab. Patients had begun to transfer to home administration prior to the COVID-19 pandemic, with preferential transition offered to the most stable patients first. However, when shielding restrictions were announced, it was felt that the risks of continuing clinic administration were outweighed by the benefits of transitioning patients earlier than had been originally planned. Not only did symptoms not deteriorate after transition, there was a significant improvement in ACQ-6. While this was not clinically significant (MCID >0.5), it is notable that patients had been receiving mepolizumab for ~2 years, so any further improvement is surprising. Caution is advised in interpreting the clinical significance of the variation in PEFR as the baseline clinic values were from a spirometer and home PEFR measurements provided from a manual peak flow device. While the exacerbation rate in the unplanned group was statistically higher, re-assurance can be taken from the actual rates being so low across both groups. It is encouraging to see positive patient experiences in the majority of those who responded to the surveys and in particular that home administration can help improve quality of life and may give people more control over their condition. There are limitations to this work. Unfortunately several patients could not be contacted for the second follow up and commonly measured biomarkers (FeNO, eosinophil count) and spirometry data could not be gathered virtually. However, as remote monitoring technology and increased access to biomarker measurement in primary care progresses, the capacity to safely monitor biologic patients will progress similarly.

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