CPS10245: A MULTI-DISCIPLINARY TEAMS' COLLABORATIVE APPROACH TO TRANSITION BENRALIZUMAB DEPENDENT SEVERE EOSINOPHILIC ASTHMATIC PATIENTS TO SELF-ADMINISTRATION IN RESPONSE TO THE COVID-19 PANDEMIC

Stewart-Kelcher N, Bains S, Rahman S, Hearn A, Kavanagh J, Roxas C, Green L, Thomson L, Fernandes M,
Kent BD, Nanzer AM, Jackson DJ, Dhariwal J, d'Ancona G

Guy's Severe Asthma Centre, Guy's and St. Thomas' NHS Foundation Trust, London and Asthma UK Centre in Allergic Mechanisms of Asthma, King's College London, UK

INTRODUCTION

What was done? 246 severe eosinophilic asthmatic (SEA) patients treated with benralizumab; a biologic agent targeting the human interleukin-5 receptor (IL-5Rα), at a specialist NHS asthma clinic, were transferred to self-administration at home in response 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.

The impacts of administering biologic therapy at home are largely unknown. We investigated whether patients deteriorated following their transition. Patients with SEA receiving home benralizumab were stratified according to those who had received ≥3 doses prior to transfer to home care ("established" patients) versus those who were transferred having had less than 3 doses in clinic ("new" patients). We compared the Asthma Control Questionnaire-6 (ACQ6), PEFR, and maintenance oral corticosteroid (mOCS) dose last measured in clinic, with that collected by virtual 8-12 weeks and 8-12 months pharmacist clinics following transition to home administration.

RESULTS

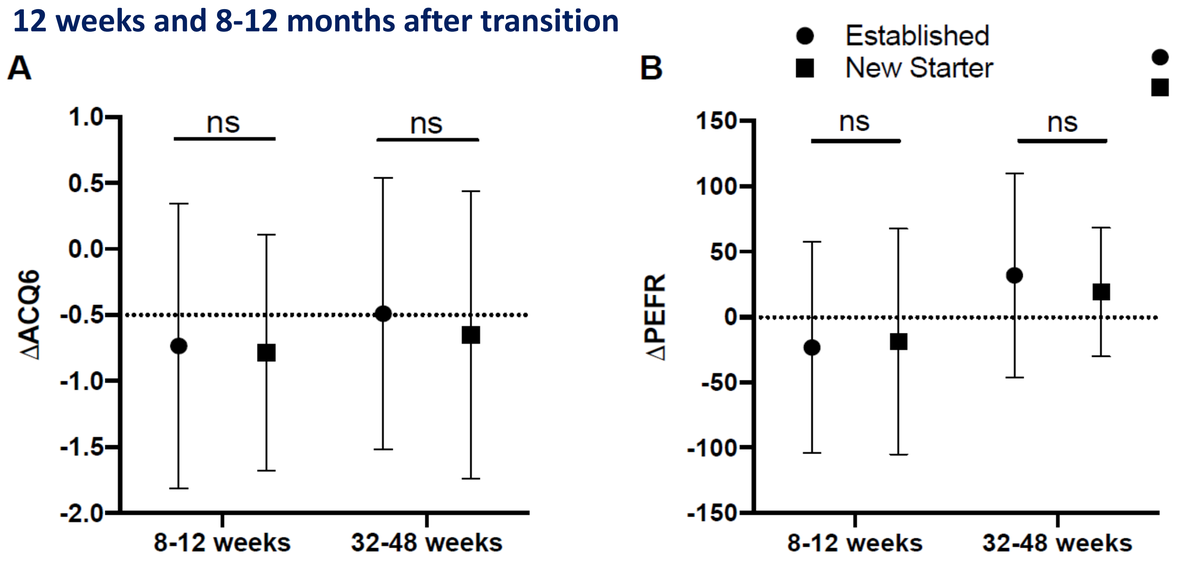
246 benralizumab patients were identified, but between the first and second home data collection points, 12 patients were excluded (1 new patient could not be contacted; 7 established patients were uncontactable and 4 were switched to another biologic agent). A full data set was available for 186 established and 48 new benralizumab patients.

New patients had 2 doses of Benralizumab in clinic 4-weeks apart then moved to home administration. Established patients had at least 3 doses in clinic 4 weeks apart, then further doses 8 weekly. There was no significant difference between groups pre-transition (baseline) for age, BMI, FeNO, ACQ-6 or PEFR.

Table 1 - Baseline Characteristics

	Duration of benralizumab at transition (months)	**Age** (years)	**BMI**	**FeNO** (ppb)	**ACQ-6**	**PEFR** (L/min)
Established (n=186, 72 male)						
Mean	12.3	54.7	31.1	58	1.97	384
SD	6.5	13.5	7.2	66	1.4	144
New (n=48, 16 male)						
Mean	1.2	52.1	28.5	63	2.12	382
SD	0.4	13.8	4.9	67	1.5	157
					p=0.5297	p=0.9042

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 in new and established patients at 8-12 weeks (-0.79 and -0.73 respectively; p<0.0001). This improvement was sustained at 8-12 months (-0.65, p=0.0004 and -0.49, p<0.0001 respectively).

B At 8-12 weeks, there was a decrease in PEFR. It was statistically significant in the established group (p=0.0066), but not in the new patient group (p=0.3417). At 8-12 months, the PEFR had recovered to above baseline value. It had increased significantly for the established patients only (p<0.0001).

Table 2 - Change in maintenance corticosteroid dose from baseline to 8-12 weeks and 8-12 months after transition

mOCS dose (prednisolone equivalent mg)	**Established** n=57	**New** n=17	**Between group p-value**
Baseline	5 (4-7.5)	5 (5-10)	0.1069
At 8-12 weeks	5 (3-6)	5 (3-7.5)	0.3656
At 8-12 months	4 (2-5)	3 (0.5 – 5)	0.3571
Percent reduction at 8-12 weeks	0 (0– 40)	25 (0-61)	0.1989
Percent reduction at 8-12 months	25 (0 – 50)	50 (29-90)	**0.0070**
Within group p-value			
Δ 8-12 weeks	**P=0.0251**	P=0.1665	
Δ 8-12 months	**P=0.0001**	**P=0.0003**	

64 established and 20 new patients were taking mOCS at transition, however 10 patients were excluded from the analysis due to their OCS wean being hampered by a non-respiratory indication (adrenal insufficiency or rheumatological disease).

Established patients had a statistically significant decrease in mOCS at 8-12 weeks (p=0.0251), but this was not seen in new patients (p=0.1665). In contrast, at 8-12 months, there was a significant decrease in prednisolone dose for both established and new patients (p=0.0001 and p=0.0003 respectively).

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 work provides much needed reassurance that the transition to home administration of benralizumab is not associated, in the short or longer term, with a deterioration in clinical outcomes as assessed by ACQ-6, peak flow or the ability to wean mOCS. The improvement in ACQ-6 was statistically and clinically significant (an increase of >0.5). While this may be expected in new patients, its presence in both groups is interesting. It should be borne in mind that this could be a home administration effect, but may also reflect a shielding and lockdown effect. The preservation of peak flow seen in both newly initiated and established patients following transition and at 8-12 months is very encouraging. So, too, is that in spite of having few face-to-face consultations in this period, it was still possible to safely wean patients' mOCS dose remotely. 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 several limitations to this work and administration of benralizumab outside clinic. Unfortunately, though <3% of the total, some patients could not be easily contacted. It also meant that outcome measures were limited to those achievable remotely. However, innovations like access to home spirometry and primary care FeNO are planned, so the on-going utility of home administration can be monitored after all COVID-19 restrictions have been lifted.

Correspondence to: grainne.dAncona@gstt.nhs.uk