pregnancy. Of these patients, when compared to their previous pregnancies 18% reported better symptom control, 43% reported that their asthma remained unchanged and 39% reported worsening control.

Objective data on severity followed this pattern also. The mean number of steroid courses prescribed per patient was 0.2 in those who reported better control, 0.58 in those who reported no change to control, and 1 in those reporting worsening symptoms. Similarly, the number of average number of admissions per patient increased in accordance with subjective severity.

Conclusions Our analysis confirms that asthma control in pregnancy does not follow the simple one-third rule as previously speculated. When using subjective and objective measurements, a greater proportion of patients experienced either worsening asthma control or no changes to control during pregnancy, with only a small percentage reporting that their asthma improved.

REFERENCE

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P47 A PILOT STUDY FOR AN ASTHMA IN PREGNANCY SERVICE WITHIN A UK TERTIARY CENTRE

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Background Suboptimal asthma control has implications for maternal and neonatal health, preterm labour and instrumental birth. An *Asthma in Pregnancy Clinic* was initiated to support our tertiary obstetric centre, to assess maternal asthma demographics and record foetal outcomes with a view to further development of an Asthma in Pregnancy Service.

Method A retrospective analysis was performed for patients referred to clinic between July 2018 and February 2021. Data were collated for population demographics, asthma severity, treatment optimisation and foetal outcome. Birth weight and delivery method were used as crude measures of foetal outcome.

Results 99 consecutive referrals to the clinic were reviewed (mean age 30 ± 5.9 years, Caucasian ethnicity 64%; 11% smoking prevalence). At baseline, 52% had moderate asthma as graded by the asthma severity/treatment guidelines¹; 72% were taking inhaled corticosteroids; 24% had raised serum eosinophils ($>0.34 \times 10^9/L$); only 5% had FeNO >50 parts per billion (ppb) at presentation.

10% required no change to their existing asthma treatment regimen once adherence was optimised. 62% had inhaled therapies escalated and 17% required oral prednisolone during their pregnancy.

55% had significant reflux symptoms. In a subgroup analysis, there was statistically significant improvement in asthma control as per GINA following reflux treatment optimisation; $2.38(1.5)$ to $2.21(1.4)$, $p < 0.001$.

83% of patients had full term births with a mean foetal weight 3205(589) grams. Foetal birth weight and delivery method were not significantly related to oral or inhaled corticosteroid use.

Conclusion This pilot demonstrates that an Asthma in Pregnancy Clinic in a tertiary centre is both feasible and

Abstract P47 Table 1 Demographics of study cohort

Demographics (n=99)	Result (mean $\pm$ SD)
Age (years)	30.3($\pm$ 5.9)
Ethnicity	64% Caucasian, 35% BAME
Stage of pregnancy at referral	1st trimester 26%; 2nd trimester 64%; 3rd trimester 9%
FEV ₁ (L)	2.48($\pm$ 0.47)
Serum eosinophil count ($\times 10^9/L$)	0.31($\pm$ 0.12) n=24 (24%) n=8 (8%)
Eosinophil count >0.34	
Eosinophil count ≥ 0.6	
FeNO (ppb) (median/IQR)	21(11–30) n=5 (5%)
FeNO > 50 ppb	
Foetal birth weight (BW) (g)	3205($\pm$ 589)
Local average birthweight (BW) (g)	3247
Delivery method	18% instrumental, 38% CS
Local annual CS rate	35.1%

Abbreviations used:

BAME Black Asian and Minority Ethnic; FEV₁ forced expiratory Volume in one second; FeNO fractional exhaled nitric oxide; CS caesarean section

efficacious with a significant proportion requiring asthma treatment optimisation. However, simple measures (education, enhancing therapy compliance) remains essential. Optimisation of anti-reflux treatment significantly improved GINA scores, highlighting the importance of adequate reflux management in pregnant asthmatics.

The Asthma in Pregnancy Clinic is the first step in developing a dedicated multi-disciplinary service to support pregnant asthmatics. This pilot has highlighted the importance of standardised paperwork and rigorous data collection to provide up-to-date and locally relevant improvements in clinical outcomes.

REFERENCE

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P48 LONG-TERM EFFICACY OF DUPILUMAB IN PATIENTS WITH MODERATE-TO-SEVERE ASTHMA IN THE LIBERTY ASTHMA TRAVERSE OPEN-LABEL EXTENSION STUDY: IMPROVEMENTS IN ASTHMA CONTROL AND HEALTH-RELATED QUALITY OF LIFE

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Introduction and Objectives For asthma patients, achieving asthma control and improving health-related quality of life (HRQoL) are important long-term management goals. Dupilumab is a monoclonal antibody targeting interleukin-4 and interleukin-13, key and central drivers of type 2 inflammation

in multiple diseases. Here, we report effects of long-term dupilumab treatment on asthma control and HRQoL outcomes from the TRAVERSE open-label extension (OLE) study (NCT02134028) in patients with moderate-to-severe asthma who had previously completed a dupilumab asthma study (phase 2b (P2b) or phase 3 QUEST).

Methods During TRAVERSE, patients received add on dupilumab 300 mg every 2 weeks. Asthma control (5-item Asthma Control Questionnaire, ACQ-5; range 0–6, lower scores indicate better control) and HRQoL (Asthma Quality of Life Questionnaire - standardized, AQLQ(S); range 1–7, higher scores indicate improved asthma-specific quality of life) were assessed at TRAVERSE Week 0, 24, and 48. The overall intention-to-treat population and the type 2 asthma population, defined as patients with blood eosinophils ≥ 150 cells/ μ L or FeNO ≥ 25 ppb at parent study baseline (PSBL), were evaluated.

Abstract P48 Table 1 Asthma control and AQLQ scores during the TRAVERSE OLE study in the overall population

Outcome	Patients from P2b ^a		Patients from QUEST ^b	
	Placebo/ Dupilumab	Dupilumab/ Dupilumab	Placebo/ Dupilumab	Dupilumab/ Dupilumab
Asthma control (ACQ-5 scores)	n = 111	n = 421	n = 517	n = 1,013
PSBL, mean (SD)	2.63 (0.77)	2.74 (0.80)	2.73 (0.74)	2.76 (0.79)
Change from PSBL at Week 0 of OLE, mean (SD)	-1.01 (1.01)	-1.05 (1.08)	-1.22 (1.04)	-1.54 (1.08)
Change from PSBL at Week 24 of OLE, mean (SD)	-1.37 (0.91)	-1.48 (1.10)	-1.61 (1.08)	-1.68 (1.05)
Change from PSBL at Week 48 of OLE, mean (SD)	-1.33 (1.07)	-1.57 (1.11)	-1.64 (1.08)	-1.69 (1.08)
Responder^c analysis				
Week 0 of OLE, n (%)	n = 111 79 (71.2)	n = 421 284 (67.5)	n = 507 390 (76.9)	n = 980 818 (83.5)
Week 24 of OLE, n (%)	n = 110 91 (82.7)	n = 421 340 (80.8)	n = 513 431 (84.0)	n = 1005 869 (86.5)
Week 48 of OLE, n (%)	n = 105 83 (79.0)	n = 400 329 (82.3)	n = 488 418 (85.7)	n = 957 830 (86.7)
HRQoL (AQLQ(S) scores)	n = 109	n = 418	n = 502	n = 960
PSBL, mean (SD)	4.27 (1.12)	3.98 (1.10)	4.25 (1.01)	4.29 (1.08)
Change from PSBL at Week 0 of OLE, mean (SD)	0.68 (0.91)	0.80 (1.08)	1.07 (1.11)	1.33 (1.16)
Change from PSBL at Week 24 of OLE, mean (SD)	1.07 (0.99)	1.28 (1.24)	1.38 (1.15)	1.38 (1.16)
Change from PSBL at Week 48 of OLE, mean (SD)	1.07 (1.13)	1.40 (1.19)	1.39 (1.17)	1.40 (1.18)
Responder^c analysis				
Week 0 of OLE, n (%)	n = 97 49 (50.5)	n = 372 221 (59.4)	n = 494 340 (68.8)	n = 939 716 (76.3)
Week 24 of OLE, n (%)	n = 108 73 (67.6)	n = 413 304 (73.6)	n = 495 384 (77.6)	n = 948 732 (77.2)
Week 48 of OLE, n (%)	n = 103 67 (65.0)	n = 397 303 (76.3)	n = 473 366 (77.4)	n = 908 712 (78.4)

^aStudy duration of P2b study: 24 weeks. ^bStudy duration of phase 3 QUEST study: 52 weeks. ^cResponders are defined as patients with ≥ 0.5 improvement from PSBL in ACQ-5 or AQLQ global score. Patients with <0.5 improvement from PSBL in ACQ-5 or AQLQ(S) global score at the time point are considered as non-responders. For the patients from dupilumab arms of P2b, there was a gap (≥ 16 weeks) between the last dose in P2b and the first dose in OLE, because the patients needed to complete the 16-week follow-up of P2b to enroll in OLE. DPL, dupilumab; PBO, placebo; SD, standard deviation.

Results 2,062 patients from QUEST (n=1,530; 517 PBO/DPL and 1,013 DPL/DPL patients) and P2b (n=532; 111 PBO/DPL and 421 DPL/DPL patients) rolled over into TRAVERSE. Mean (SD) ACQ-5 scores improved from PSBL at OLE Week 0, Week 24, and Week 48 in dupilumab/dupilumab and placebo/dupilumab groups from both QUEST and P2b studies. ACQ-5 scores exceeded the clinically meaningful response threshold (≥ 0.5 reduction) in 79–87% of patients (table 1). Mean (SD) AQLQ(S) scores improved from PSBL at OLE Week 0, Week 24, and Week 48; 65–78% of all patients showed clinically meaningful improvements (≥ 0.5 increase) (Table). In general, the largest mean improvements and percentage of patients with a clinically meaningful response was seen in the patient group who had received dupilumab in the parent study. Improvements were comparable in patients with a type 2 phenotype. The dupilumab safety profile during TRAVERSE was similar to that observed in the parent study populations.

Conclusions In line with patient-reported outcomes observed in P2b and QUEST, dupilumab-treated patients with moderate-to-severe asthma demonstrated clinically meaningful and sustained improvements in asthma control and HRQoL during the TRAVERSE OLE study.

Please refer to page A191 for declarations of interest related to this abstract.

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BONE PROTECTION FOR PATIENTS WITH ASTHMA – A SERVICE EVALUATION

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Background Asthma and osteoporosis guidelines recommend that patients on high-dose oral steroids (OS) should be considered for bone protection. Patients on low-dose OS, or inhaled corticosteroid (ICS) of any dose, should have their fracture and osteoporosis risk evaluated. The Scottish Intercollegiate Guidelines Network recommend the online risk-calculator QFracture. However, ICS use is not taken into account by any risk-calculator, despite recent evidence that ICS use has systemic effects on bone health.¹ Patients with a clinically significant 10-year risk of fracture qualify for a Dual-energy X-ray absorptiometry scan (DEXA). No threshold for DEXA referral is identified by the guidelines, though it is suggested to be around 10%. No fracture or osteoporosis screening is undertaken at the tertiary asthma clinic where this project was conducted.

Methods A cross-sectional study was conducted using data from 129 patients between January to March 2021 at a tertiary asthma clinic. The QFracture calculator was used to identify fracture and osteoporosis risk factors. A 10-year risk score was calculated.

Results Over 58% of the cohort had at least two risk factors. 10% of the sample were prescribed frequent OS. 13.2% had a 10-year risk score of 10% or greater. Qfracture risk increases with age, however this association was more marked in the cohort population, even when asthma as a risk factor was taken into account (figure 1). Notably, 50% of the sample were prescribed high-dose ICS. 6 patients had a diagnosis of osteoporosis, of whom only half were prescribed bisphosphonates.

Discussion The fracture risk of patients of this tertiary asthma clinic is underestimated and undertreated. A