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/μL 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 = 111	n = 421	n = 507	n = 980
n (%)	79 (71.2)	284 (67.5)	390 (76.9)	818 (83.5)
Week 24 of OLE,	n = 110	n = 421	n = 513	n = 1005
n (%)	91 (82.7)	340 (80.8)	431 (84.0)	869 (86.5)
Week 48 of OLE,	n = 105	n = 400	n = 488	n = 957
n (%)	83 (79.0)	329 (82.3)	418 (85.7)	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 = 97	n = 372	n = 494	n = 939
n (%)	49 (50.5)	221 (59.4)	340 (68.8)	716 (76.3)
Week 24 of OLE,	n = 108	n = 413	n = 495	n = 948
n (%)	73 (67.6)	304 (73.6)	384 (77.6)	732 (77.2)
Week 48 of OLE,	n = 103	n = 397	n = 473	n = 908
n (%)	67 (65.0)	303 (76.3)	366 (77.4)	712 (78.4)

[a]Study duration of P2b study: 24 weeks. [b]Study duration of phase 3 QUEST study: 52 weeks. [c]Responders 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.

P49 BONE PROTECTION FOR PATIENTS WITH ASTHMA – A SERVICE EVALUATION

BL Johnson, H Durrington. *University of Manchester, Manchester, UK*

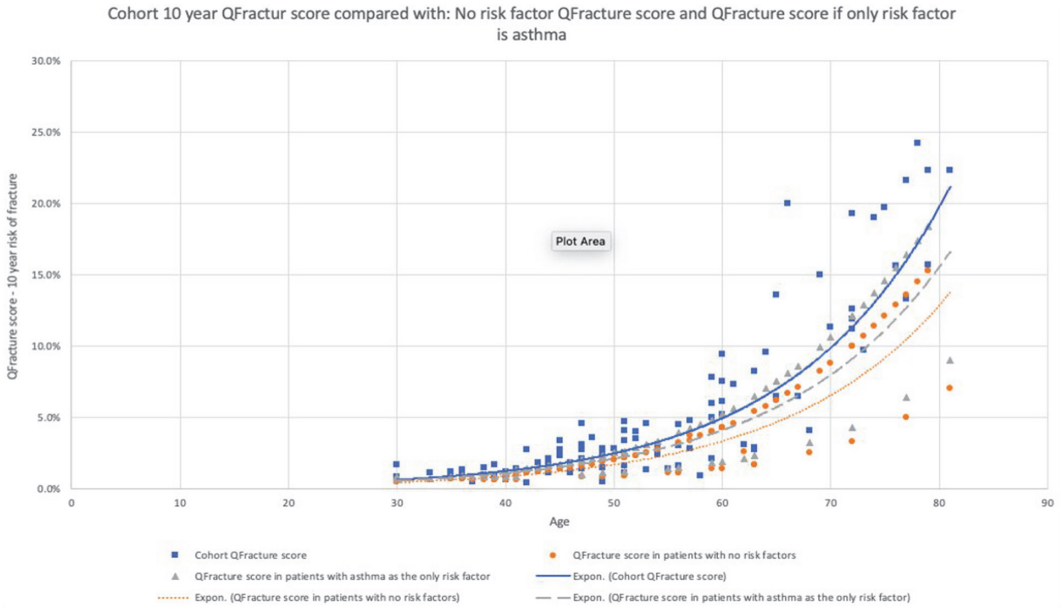
10.1136/thorax-2021-BTSabstracts.159

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



Abstract P49 Figure 1 Graph showing average QFracture scores for patients within the cohort, plotted against: QFracture scores with no risk factors and asthma as only risk factor

significant proportion of patients are treated with high-dose ICS; further research is required to evaluate the effect of ICS use on bone health. If this is found to be significant, it should be incorporated in future risk calculators. Until then, a high-suspicion clinical approach for osteoporosis development in patients with severe asthma should be adopted in primary and tertiary care.

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P50 USE OF ACCELEROMETERS TO COMPARE PHYSICAL ACTIVITY LEVELS IN PARTICIPANTS WITH ASTHMA GROUPED BY BODY MASS INDEX AND ASTHMA SEVERITY

[1]HC Ricketts, [1]R Chaudhuri, [2]F Steffensen, [3]JS Baker, [4]DS Buchan, [2]DC Cowan. *[1]University of Glasgow, Glasgow, UK; [2]Glasgow Royal Infirmary, Glasgow, UK; [3]Hong Kong Baptist University, Kowloon Tong, Hong Kong; [4]University of the West of Scotland, Hamilton, UK*

10.1136/thorax-2021-BTSabstracts.160

Background Patients with asthma may find it impacts their ability to be physically active. Physical activity (PA) has been demonstrated to be lower in asthmatics compared to healthy controls. Obesity is commonly linked with difficult-to-control asthma and can worsen outcomes. At least 150 minutes of moderate physical activity (PA) per week is recommended for all adults by the World Health Organisation. We aimed to compare PA levels in patients with difficult-to-control asthma and body mass index (BMI) $\geq$25 kg/m^2 (DOW group) and two control groups with mild-moderate asthma, one with BMI <25 kg/m^2 (MHW group) and one with BMI $\geq$25 kg/m^2 (MOW group).

Methods This cross-sectional study used 7-day recordings from wrist-worn accelerometers to compare PA between groups. We recorded inactive time, light (LPA) and moderate-vigorous physical activity (MVPA). We also measured novel metrics: intensity gradient (IG) reflecting PA intensity, and average acceleration (AA) reflecting PA volume. Parameters were compared across groups using ANOVA testing for normally distributed data and Kruskall-Wallis for skewed data. Correlation analysis explored associations between PA parameters and asthma measures. As AA was most closely correlated with asthma measures, we compared the highest and lowest AA quartiles using unpaired t and Mann-Whitney U tests, depending on normality.

Results 75 participants were recruited, 25 per group. Inactive time was significantly higher ($p<0.001$), and LPA ($p=0.007$), MVPA ($p<0.001$), IG ($p<0.001$) and AA ($p<0.001$) all significantly lower in DOW group compared to MHW and MOW groups, even after adjusting for age and BMI. For AA, notable correlations included beclometasone diproprionate-equivalent dose of inhaled corticosteroid ($r=-0.591$, $p<0.001$), asthma-related quality of life score ($r=0.531$, $p<0.001$) and six-minute walk distance ($r=0.719$, $p<0.001$). Highest and lowest AA quartiles revealed significant differences in 14 of 21 asthma outcomes including the above, and pre-bronchodilator forced expiratory volume in 1 second, 6-point asthma control questionnaire and BMI.

Conclusions Participants with difficult-to-control asthma who were overweight/obese performed less physical activity, and activity of reduced intensity and volume compared to

Abstract P50 Table 1

	MHW (mild-moderate healthy weight)	MOW (mild-moderate overweight)	DOW (Difficult-to-control overweight asthma)	P value (MHW vs. MOW vs. DOW)
Inactive time	1079 (1037- 1122)	1128 (1094 to 1161)	1202 (1170 -1234)	**<0.001**
LPA	259 (228- 289)	237 (212 to 263)	196 (171 - 222)	**0.007**
MVPA	103 (80 - 127)	79 (58 to 99)	42 (33 - 52)	**<0.001**
Intensity gradient	-2.63 (-2.97 - -2.33	-2.62 (-2.74 - -2.55)	-2.85 (-2.96 - -2.73)	**<0.001**
Average acceleration	27.8 (21.7 - 31.0)	24.4 (20.4 - 27.5)	17.1 (13.7 - 20.5)	**<0.001**

Abbreviations used in table: LPA-low physical activity, MVPA moderate-vigorous physical activity.

Units: inactive time, LPA and MVPA- minutes per day, average acceleration- mg.

Data expressed as mean with 95% confidence intervals for inactive time, LPA and MVPA; and median and interquartile range for intensity gradient and average acceleration.