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Title: Association of asthma admissions and health related quality of life (HRQoL), asthma control and severity

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Body: Background Acute exacerbations lead to significant morbidity & healthcare costs in asthma, and also contribute to lung function decline¹. Those who exacerbate frequently (≥ 2) may benefit from targeted therapy. Aim To determine the effect of frequent asthma admissions on HRQoL, asthma control, severity and inflammation. Method Retrospective analysis of 108 patients from Royal Liverpool Hospital tertiary asthma clinic. BMI, spirometry, blood eosinophils, mini Asthma Quality of Life Questionnaire (AQLQ) and Asthma Control Test (ACT) noted. Results Mean (SD) age was 49.3 (17.9) years. 77% were female and 68% had never smoked. Mean (SD) BMI was 30 (7).

Table 1

Parameter	<2 Admissions	≥ 2 Admissions	
N	84	24	
Age (mean [SD])	51.1 [18.1]	42.9 [16.2]	
BMI	29.5 [7.4]	31.9 [6.7]	
BTS Step (mode)	3	5	<0.01
FEV1 % (mean [SD])	84.4 [22.7]	76.6 [22.0]	NS
AQLQ (mean [SD])	3.9 [1.4]	3.2 [1.3]	0.03
ACT (mean [SD])	13.9 [5.0]	10.7 [4.7]	0.008
Eosinophils (mean [SD])	0.3 [0.28]	0.3 [0.23]	NS

Those who had frequent asthma related admission were on a higher BTS Step treatment ($p < 0.01$), with 48% of those with ≥ 2 admissions in the last year on BTS Step 5 treatment. Increased admission rate was also associated with worse AQLQ and ACT scores, ($p = 0.03$, $p = 0.008$ respectively). 21 of 22 patients with ≥ 2 exacerbations had ACT scores in the poor control range (< 20). No significant association seen with

FEV1% or blood eosinophils. Conclusion Those with frequent admissions for asthma had significantly worse HRQoL (AQLQ) and asthma control (ACT). These patients required a higher BTS treatment step. No association seen between admission rate and FEV1% or inflammation (eosinophilia). Reference 1. Bai et al, EurRespJ 2007; 30:452-6.