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Title: Refractory asthma in elderly patients in the UK

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**Body:** BACKGROUND Severe refractory asthma affects all age-groups including the elderly. We examined the effect of age on clinical and inflammatory outcomes in patients recruited to the British Thoracic Society [BTS] Severe Asthma Registry. METHODS All subjects with refractory asthma [ATS criteria] ≥18 years old from the BTS Severe Asthma Registry were included in the analysis. RESULTS 754 subjects with refractory asthma were studied. Age was normally distributed (mean of 49.4 yrs [SD 13.6], range 18-82 yrs). Age correlated with a lower number of unscheduled emergency visits [-0.137; p=0.000], hospital admissions [r = -0.147; p=0.000], ITU admissions [r = -0.095; p=0.010], but asthma control was not affected [ACQ or ACT scores]. FEV<sub>1</sub> % predicted was lower with increasing age. Comparison of clinical and inflammatory outcomes in patients aged <65 years with those aged ≥65 years is shown in the table.

	Age < 65 years, n=655	Age ≥ 65 years, n=99	p value
Smoking status %: current, former, never	10.3% , 25.3%, 64.2%	3.1%, 47.9%, 48.9%	<0.001
Asthma control questionnaire score	3.4 (2.3, 4.1)	3.1 (2.5, 4.1)	0.446
Total asthma quality of life score	3.4 (2.5, 4.3)	3.5 (2.7, 4.5)	0.284

Unscheduled emergency visits in past yr	4 (2, 6.5)	3 (2, 6)	0.047
Rescue steroid courses past yr	5 (2, 7)	3 (2, 5.7)	0.001
Post BD FEV1 % predicted	78 (58, 94)	69 (54, 82)	0.023
Sputum neutrophil count %	50 (22, 75)	41 (22, 76)	0.628
Sputum eosinophil count %	2.9 (0.6, 10.1)	1.8 (0.4, 10.6)	0.617

Median [IQR]

CONCLUSION Elderly patients with refractory asthma have poor symptom control and asthma quality of life, at levels similar to younger patients with refractory asthma. However, the number of severe exacerbations and unscheduled emergency visits is slightly less in the elderly group.