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Title: Assessing the impact of body mass index on FEV1% and quality of life in asthma patients

Mr. Sarus 21867 Jain sarusjain@hotmail.com and Dr. Amin 21868 Golmohamed sarusjain@hotmail.com .
Faculty of Medicine, Aintree University Teaching NHS Hospital, Liverpool, United Kingdom .

Body: Background: Direct correlation of Body Mass Index (BMI) and its effect on FEV1% has not previously been investigated in asthma patients. Patients with a lower FEV1% tend to experience more severe asthma exacerbations due to greater narrowing of airflow passages and this can reduce the quality of life of the patient, however high BMI may be a contributing factor to this. Aim: To assess whether having a higher BMI impacts on FEV1% and to assess the quality of life of the patient using the Asthma Control Questionnaire (ACQ). Methods: A retrospective audit was conducted from a random sample of 547 patients from a specialist asthma clinic in a UK district general hospital. Relevant data was extracted from routine asthma review case notes. Results: The sample comprised 63.8% (348) females vs. 36.2% (199) males with a mean age of 52.8 years. The average BMI was 31.3 kg/m². Obese Class III patients had a significant 10.9% (p < 0.001) decrease in FEV1% compared to 'normal' BMI patients. The average ACQ score was 3.14 (ACQ score < 1-1.5 is well controlled).

BMI vs. FEV1% in asthma patients

BMI Category	BMI Range	FEV1%	ACQ score
Underweight	<18.5	n/a	n/a
Normal	18.5-24.99	76.1	1.62
Overweight	25-29.99	74.4	2.23
Obese (Class I,II)	30-39.99	66.8	2.98
Obese (Class III)	≥40	65.2	3.45

Conclusions: The results clearly identified that the greater the BMI, the lower the FEV1% and the higher the ACQ score, thus prompting that obesity can have a massive impact on patient asthma exacerbation severity. Therefore, these results suggest that asthma patients should receive lifestyle advice by the clinician during routine asthma review in order to reduce BMI which will ultimately lead to a more improved quality of life for the patient.