Holistic Management of Asthma Requires Incorporating Weight Management Strategies in Routine Asthma Care and Follow Up. A Pilot Study Reporting on the Correlation of Poor Asthma Control with Increased BMI.

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Abstract

Prevalence rates of obesity are rising globally[1,2]. The link between worsening asthma and obesity is well recognised. Asthma phenotypes based on clinical characteristics exist in order for clinicians to optimise asthma control. However, asthma guidelines do not include body mass index (BMI) management as a part of the routine standard care. Increasing weight is associated with mechanical factors and inflammatory mediators that worsen asthma control[3]. The absence of weight management as part of routine care is obvious in most national and international guidelines (NICE, SIGN, European, American, Canadian, BTS and GINA). Holistic asthma care should include BMI assessment as part of routine annual reviews with referrals to weight management services and recognising the positive effect weight reduction may have on asthma control. This analysis was undertaken as part of a wider quality improvement initiative to explore the merits of including weight management within routine asthma care.

Objectives

The core objective of this study is to recognize the relationship between asthma and BMI as a complex combined syndrome.

- To explore the relationship between high BMI(>25kg/m^2) and worsening asthma symptoms to enable the development a holistic management plan which will include:
- Analysis of BMI records of asthma patients
- The offer of weight management referral services for patients with high BMI

Methodology

Electronic patient records (System One) of asthma patients of ages >16 (n=660) across 4 primary care sites were analysed. Routine asthma review templates were scrutinised to assess the recording of BMI as part of annual reviews and if any patients had been offered routine referral to weight management services. Asthma templates recorded asthma control test (ACT) scores, number of exacerbations of asthma within the last 12 months and treatment escalation. The correlation of these criteria was analysed with BMI.

We defined BMI in the following classifications:

BMI Classification	Range in kg/m^2
Underweight	< 18.5
Normal	18.5 – 24.9
Overweight	25 - 29.9
Obese	≥ 30

In addition, we defined the following parameters:

Asthma control	ACT score
Asthma under control	25
Asthma reasonably controlled	20 – 24
Asthma not controlled	< 20
Asthma control	**Number of exacerbations**
Asthma under control	0
Asthma not controlled	≥ 1

Asthma management plans as 3 different stages.

SABA – short acting beta agonist, ICS – inhaled corticosteroids, LABA – long acting beta agonist, LAMA – long acting muscarinic antagonist

Asthma pharmacological management	Type of medications
Stage 1	SABA and/or ICS
Stage 2	LABA and ICS
Stage 3	LABA + ICS + LAMA with/without SABA

Results

Out of 660 patients, 28 were excluded. 10 patients were excluded because they did not have a calculated BMI within the last 3 years. 18 were excluded because they declined annual asthma care.

Figure 1. Total representation of sexes with asthma

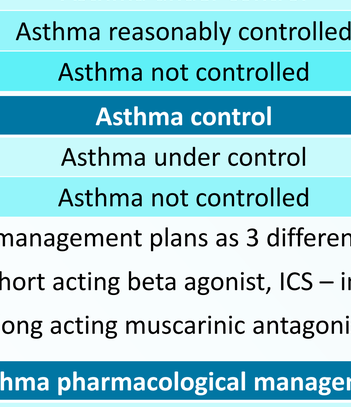
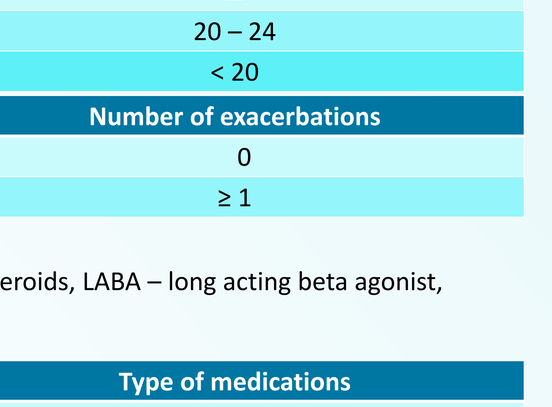


Figure 2. Total representation of BMI



Analysis

453 asthma patients were above a 25 kg/m^2 BMI (71.68%). Obese patients were observed to have worse ACT scores (8.42% more likely), more exacerbations in the last 12 months (4.51% more likely) and were found to be on higher stages of asthma care (2.88% more likely) compared to patients in the Normal BMI category.

Figure 3. Graph representing percentage of patients with ACT score below 20 categoriesed by BMI

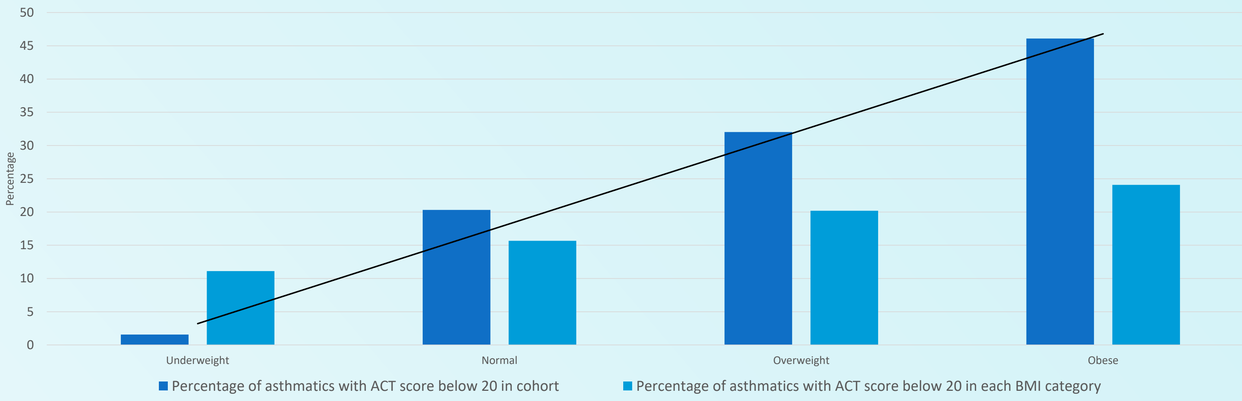


Figure 4. Graph representing percentage of patients with 1 or more exacerbations categorised by BMI

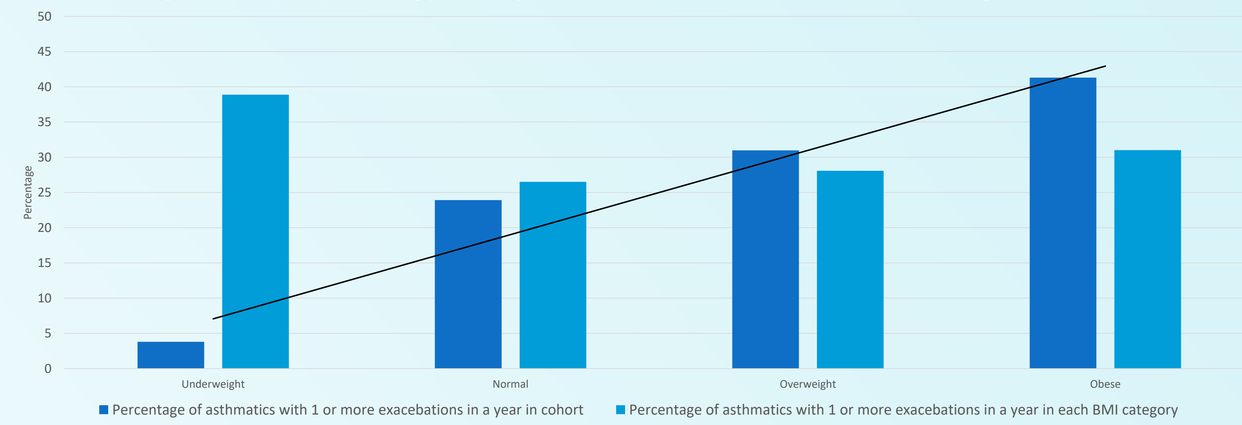
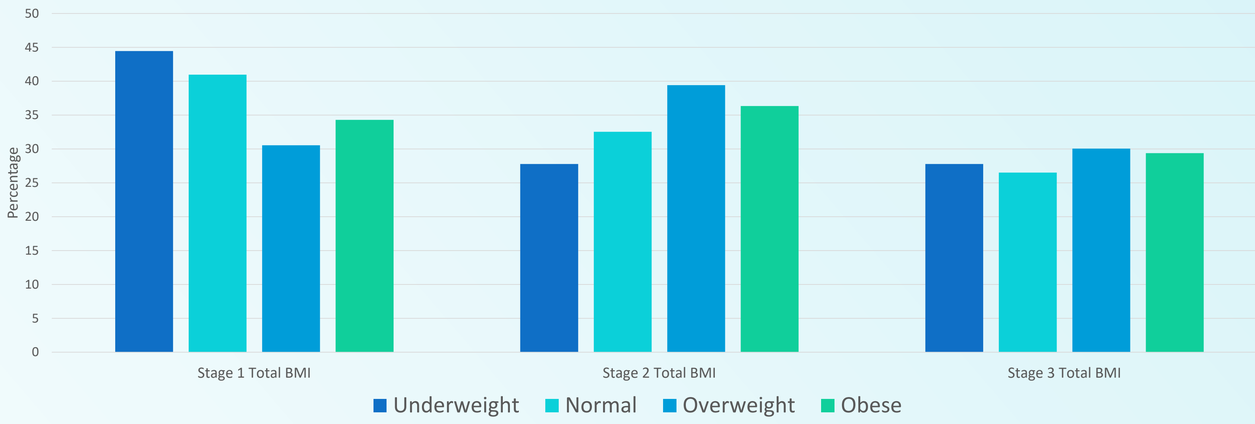


Figure 5. Patient's management stage compared to BMI



Key Findings:

- High BMI and being female is associated with a higher prevalence of exacerbations
- Patients with higher BMI have worse asthma outcomes and require treatment escalation for symptom control.

Conclusion

We searched national and international guidelines on asthma management and found an absence of obesity management as a part of routine asthma care. We believe holistic management of patients that includes weight management will lead to improved asthma control. We are currently undertaking a quality improvement initiative by offering patient education and weight management strategies to this high-risk group and incorporate this into routine care. We believe this study highlights the need to improve clinician awareness, patient education, offer holistic asthma management and guidelines should in cooperate weight management into routine care.

References

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