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**Title:** Effect of bariatric surgery on asthma: 12 months follow-up

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**Body:** Background: Asthma in obese subjects is poorly understood and the effect of weight loss on asthma control is not well described. Aim: To investigate the effects of bariatric surgery on asthma control, quality of life and lung function. Methods: We performed a prospective study in patients with confirmed diagnosis asthma (GINA guidelines) and non asthmatic patients undergoing bariatric surgery with 12M FU. Results: 28 asthma patients (BS+A) and 40 non-asthmatics (BS-A) underwent bariatric surgery, 14 obese asthma patients served as controls (NBS+A). Following bariatric surgery, BMI decreased to 31.5 kg/m<sup>2</sup> (p<0.001) in BS+A and to 28.9 kg/m<sup>2</sup> (p<0.001) in BS-A, and remained stable in NBS+A group (38.9 kg/m<sup>2</sup>, p=0.387). At 12 months FU, ACQ and AQLQ significantly improved in BS+A group (1.4 to 0.4, p<0.001 and 5.2 to 6.3, p=0.001, resp), whereas no change was detectable in NBS+A (1.6 to 1.1, p=0.059; and 4.9 to 5.6, p=0.141, resp). BS-A also showed a significant improvement in ACQ (0.5 to 0.1, p=0.002) and AQLQ (5.9 to 6.8, p=0.002). There was no significant change in FeNO in any group. FEV<sub>1</sub> improved significantly in BS+A (from 94 to 99%pred, p=0.004) and BS-A (from 102 to 110%pred, p<0.001). FEV<sub>1</sub>/FVC only improved in the BS-A group (mean 81 to 82%pred, p=0.015), TLC improved in both surgery groups (BS+A 94 to 100%pred, p=0.012; BS-A 96 to 102%pred, p<0.001). Lung function did not change in the NBS+A group. After surgery, PD20 improved significantly in BS+A (from 0.5 to 1.3, p<0.001). Conclusion: Bariatric surgery improves lung function, asthma control and quality of life in patients with asthma and morbid obesity after 12 months. Demonstrating that weight loss is an important component of asthma management in obese asthmatics.