Title: The effect of obesity on the bronchial hyperresponsiveness of asthmatic children

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Body: Introduction Obesity associated asthma has been proposed as a distinct phenotype but the links between asthma and obesity are unclear. Bronchial Hyperresponsiveness (BHR) is a cardinal feature of asthma. Objectives The objective of this study was to evaluate BHR in obese asthmatic children in comparison with asthmatic children of normal weight and obese non asthmatic children of prepubertal age. Methods We have studied 35 children of pre-pubertal age (6-11 yrs) divided in three groups. The first group consisted of 7 obese asthmatic children (BMI>95th percentile, according to the United States Centers for Disease Control and Prevention-CDC- growth charts for children 2 years and older), the second group consisted of 14 normal-weight asthmatic children and the third group consisted of 14 obese but not asthmatic children. As asthmatic, we categorized the children with a doctor-diagnosed asthma. To all children, airway function (spirometry) and BHR (inhaled dry powder mannitol) tests were performed, after being depleted from corticosteroid medication for a period of at least three weeks. Results We found a significant difference (p<0.001) between the BHR measurements of the children in the obese-asthmatic group and those of the normal-weight asthmatic group and the obese but not asthmatic group. The PD15 (Provoking Dose of mannitol, required to cause a 15% fall in FEV1) measurements were significantly lower in obese-asthmatic children. Conclusion Obesity seems to have a boosting effect on the Bronchial Hyperresponsiveness of asthmatic children. Addressing obesity could be a therapeutic measure.