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Title: Lung aging in morbid obesity and the relationship with pulmonary volumes

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Body: Introduction: Few researches focus on the behavior of lung age in relation to morbid obesity. Objective: The objective of this study was to investigate the influence of morbid obesity in the lung age in women and correlate to anthropometrics and ventilatory variables. Methods: Cross-sectional study with morbidly obese (BMI \geq 40kg/m²) and control group consisting of normal weight women with BMI 18.5 to 24.9/m². The subjects performed a pulmonary function test to determine lung age and the results were correlated to lung volumes. Results: 72 women with morbid obesity (BMI: 45.8 \pm 5.4 kg / m²) and a control group of 37 lean women (BMI: 22.7 \pm 1.9 kg/m²) were evaluated. The morbidly obese had significantly higher lung age (50.1 \pm 6.8 years) than lean women (38.8 \pm 11.4 years). There was no difference between chronological age of morbidly obese women (34.9 \pm 7.6 years) and lean women (34.6 \pm 6.8 years) respectively. There was a negative correlation among forced vital capacity (FVC), forced expiratory volume in one second (FEV₁), FEV₁/FVC ratio, expiratory reserve volume (ERV) and lung age respectively (r = -0.7565, -0.8769, - 0.2723, -0.2417). Conclusion: Lung age is increased in morbidly obese and it is associated to decreased lung volumes. The calculation of lung age can be recommended for the morbidly obese to highlight pulmonary complications of obesity.