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Title: Obstructive sleep apnea and pulmonary function in morbid obesity undergone bariatric surgery: Randomized clinical trial

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Body: Background: The increasing prevalence of obesity in both developed and developing countries is one of the most serious public health problems and has led to a global epidemic. Objective: To assess daytime sleepiness, and sleep architecture and lung function in morbid obese before and after bariatric surgery. Method: Patients were randomly divided into a bariatric surgery group and control group. The clinical evaluation was performed at the Sleep Laboratory of the Nove de Julho University (Sao Paulo, Brazil) and consisted of the clinical data, weight, height, body mass index (BMI), measurements of neck and abdomen circumferences, spirometry, manovacuometry, full standard polysomnography (PSG) and the administration of the Berlin Questionnaire and Epworth Sleepiness Scale. Results: Fifty-two patients participated in the present study and performed PSG. Of these, 16 underwent bariatric surgery. After surgery, their BMI decreased from 48.15±8.58 to 36.91±6.67 Kg/m². Moreover, significant differences were found between the preoperative and postoperative periods regarding neck and waist circumference (p<0.001 and p<0.001), maximum inspiratory pressure (p=0.002 and p=0.004) and maximum expiratory pressure (p=0.001 and p=0.002) for women and men, respectively, as well as sleep stage N3 (p<0.001), REM sleep (p=0.049) and the apnea-hypopnea index (p=0.008). Conclusion: Bariatric surgery effectively reduces neck and waist circumference, increases maximum respiratory pressures, enhances sleep architecture and reduces sleep disorders of breathing, specifically obstructive sleep apnea in patients with morbid obesity.