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ORIGINAL CONTRIBUTIONS

# Assessment of the Effect of Bariatric Surgery on Obstructive Sleep Apnea at Two Postoperative Intervals

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**Abstract**
*Background* Studies have reported significant improvement of obstructive sleep apnea (OSA) in obese patients after bariatric surgery (BS). Weight loss following BS is rapid in the first few months, but it can take at least 1 year to reach the final result. The aim of this study is to measure the effect of BS on various clinical, respiratory, and sleep parameters of OSA at two postoperative intervals.
*Methods* Prospectively, all patients being evaluated for BS underwent a polysomnography (PSG). Patients diagnosed with OSA preoperatively were invited to undergo a PSG at least 6 months postoperatively and if OSA persisted, again at least 12 months postoperatively.
*Results* One hundred ten patients underwent a first postoperative PSG 7.7 months after surgery. The mean apnea–hypopnea index (AHI) significantly decreased from 39.5 to 15.6/h. In 58.2 %, the AHI was reduced to below 10 and in 25.5 % to below 5. Fifty patients underwent a first PSG 7.1 months and a second PSG 16.9 months after surgery. The mean AHI decreased from 49.1 to 22.7 to 17.4/h following BS.
*Conclusions* BS initiates dramatic improvement and even remission of clinical and sleep parameters during the first 7 months, which continues at a slower rate over the next 10 months. We recommend a follow-up PSG after surgery to check for residual disease and if necessary retritration of continuous positive airway pressure, which may lead to higher treatment compliance.

**Keywords** Bariatric surgery · Sleep apnea · Obstructive · Obesity · Body mass index · Polysomnography

**Abbreviations**

| | |
|---|---|
| AI | Apnea index |
| AHI | Apnea–hypopnea index |
| BMI | Body mass index |
| BS | Bariatric surgery |
| CPAP | Continuous positive airway pressure |
| DI | Desaturation index |
| ENT | Ear nose and throat |
| ESS | Epworth sleepiness scale |
| IFSO | International Federation for the Surgery of Obesity |
| LAGB | Laparoscopic gastric banding |
| LRYGB | Laparoscopic gastric bypass |
| OHS | Obesity hypoventilation syndrome |
| OSA | Obstructive sleep apnea |
| PSG | Polysomnography |
| $SaO_2$ | Oxygen saturation |
| SG | Sleeve gastrectomy |
| WHO | World Health Organization |

## Introduction

Obesity is a significant risk factor for obstructive sleep apnea (OSA), the most prevalent sleep-disordered breathing

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