

The Necessity of Preoperative Pulmonary Function Screening in Patients Scheduled for Bariatric Surgery

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Opinion

Obesity is an increasing problem worldwide and since the 1980's the number of people with obesity has doubled [1]. The only treatment with longstanding effect is bariatric surgery [2]. With the increasing prevalence of obesity, the numbers of bariatric surgical procedures are also increasing [2]. Obesity is known to affect many organ systems under which the respiratory system. Various respiratory physiological parameters are affected, such as compliance, neuromuscular strength, work of breathing and lung volumes [3,4]. Because of these affected respiratory physiological parameters, obese patients are prone to develop pulmonary complications after bariatric surgery. Therefore the question rises whether we need to perform a preoperative pulmonary function screening in obese patients scheduled for bariatric surgery, to identify the patients prone for postoperative complications. Secondly, do we need to screen obese patients for the presence of Obstructive Sleep Apnoea Syndrome (OSAS)? [5,6] Because OSAS occurs frequently untreated and might lead to postoperative complications [7-10].

Unfortunately, current literature regarding the relationship between an impaired pulmonary function and the occurrence of postoperative complications is sparse. Van Huisstede et al. [11] investigated the relationship between pulmonary function and the risk of postoperative complications in a 485 patients. A total of 53 complications were found of which 8 were pulmonary. A significantly lower FEV₁ (mean 86.9% of predicted) and FVC (mean 95.6% of predicted) (both P<0.05) were found in patients with complications compared to patients without. (11) A FEV₁/FVC <70% and a Δ FEV₁ \geq 12% were found to be significant independent predictors for pulmonary complications [11]. In the study by Farina et al. [12] the value of spirometry as a preoperative screening tool was investigated. This was used to identify patients, at risk for postoperative pulmonary complications (PPC), scheduled for open biliarypancreatic diversion surgery. They found a complication rate of 7.5% in patients with suspected restrictive pulmonary impairment [12]. Hamoui et al. [13] found that a decreased VC (p=0.0007) was a significant predictor for postoperative pulmonary complications [13]. Contrary to these results, Catheline et al. [14] found that preoperative pulmonary abnormalities had no consequences for the management of the perioperative period in bariatric surgical patients.

Also in current literature, there is no consensus whether patients scheduled for bariatric surgery need to be screened for OSAS. The additive value of screening for sleep apnoea prior to laparoscopic bariatric surgery for predicting postoperative pulmonary complications is questionable according to the study by Nepomnayshy et al. [15]. The study by Peromaa-Haavisto et al. [16] showed that in a population of 197 obese patients scheduled for bariatric surgery, the prevalence of OSAS was 71%, with a significantly higher prevalence in males (90%) compared with females (60%). According to their study results, they recommend OSAS screening preoperatively especially in obese men [16].

Based on pathophysiological studies, there is enough evidence that obese patients have an altered pulmonary function and they have a potentially higher risk for developing postoperative pulmonary complications after bariatric surgery. According to current literature, it

is questionable whether preoperative pulmonary function and/or OSAS screening is necessary. In our opinion preoperative pulmonary function screening is justified based on available literature. This screening can consist of a combination of non-invasive methods (either the Epworth Sleeping Scale or the STOP-Bang or the Berlin Sleep Evaluation) with a pulmonary function test (in the form of a spirometry and/or respiratory muscle strength and/or polysomnography). However there is increasing need for large sample multicentre studies. These studies are essential to determine clinical utility, cost-effectiveness and to identify specific groups of obese patients that are at risk for developing postoperative pulmonary complications.

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