

Anesthetic Management in Body Countouring Surgery

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Introduction

The widespread of bariatric surgery and the increase in its popularity among obese individuals resulted in the emergence of a new patient population, the Massive Weight Loss (MWL) population. It is characterized by major anatomical and physiological changes associated with the substantial postoperative weight reduction [1]. These patients, who still maintain many of the co-morbidities of obesity [2], often seek body contouring surgery. Their anesthetic management is complicated and challenging. In fact, many factors are to be addressed at the time of anesthesia, and during the postoperative period. These include pulmonary, cardiovascular and metabolic variables, which are those that increase surgical and anesthetic risks the most. To the best of our knowledge, there are no guidelines outlining the anesthetic management of patients with major weight loss following bariatric surgery [3,4]. The aim of this short report is to highlight the most salient physiological changes associated with MWL, that are of important relevance to anesthesiologists. We will finish by briefly discussing the role of regional anesthesia in this patient category.

Middle Paragraphs

The most significant pulmonary morbidity in MWL patients is a high risk of pulmonary aspiration on induction of anesthesia. This risk is higher than obese patients [5]. That may be related to the complex physiological modifications induced by bariatric surgery. Several studies have suggested that esophageal-gastric peristalsis is altered after gastric banding [5-7]. Moreover, lower esophageal sphincter relaxation impairment is also reported [6,8]. Furthermore, following vertical banded gastroplasty, a decrease in basal lower esophageal sphincter pressure and an increase in acid reflux are also observed [9]. These changes may increase the risk of esophageal regurgitation and bronchial aspiration during general anesthesia, thus increasing the likelihood of aspiration pneumonia and possibly that of long-term pulmonary complications [10,11].

When this factor is compounded by a difficult intubation, often encountered in such patients, induction of anesthesia becomes a very dangerous task.

As for the cardiovascular factors, the most important cardiovascular risk in MWL patient is the occurrence of arrhythmias. This is due to a combination of cardiac hypertrophy, hypoxemia, hypokalemia (from diuretics), coronary artery disease, a hyperadrenergic state, and a possible use of fen-phen (an anorexic containing fenfluramine and phentermine notorious for its serious cardiac side effects [12]).

Metabolic changes in MWL patients complicate furthermore the picture. In fact, even when taking multivitamins, 54.5% of the post gastric bypass patients still suffer from iron deficiency, 27.3% from cobalamin deficiency, 50-68% from vitamin K deficiency [13], and as much as 63% have anemia [14,15]. These changes impact the immune and haemostatic systems of such patients, increasing their incidence of surgical site infection (12%), hematoma (6%) and seroma (14%) formation [16].

In view of these challenges, anesthesiologists get tempted for a

regional type of anesthesia. In fact, this offers distinct advantages over general anesthesia; it allows minimal airway manipulation, avoidance of anesthetic drugs with cardiopulmonary depression, a greater postoperative pain control with less opioids use, decreasing thus the incidence of pulmonary complications. However, establishing neuraxial blockade in the previously morbid obese patient is not easy. There may be difficulty in palpating bony landmarks or even identifying the midline because of skin laxity and residual excess adipose tissue. The presence of fat pockets may also result in false-positive loss of resistance during needle placement [17]. Worth mentioning as well that there has been some case reports describing the adverse effects of vitamin K deficiency on coagulation in previous gastric bypass surgery undergoing neuraxial block [18].

Finally, it is important to draw attention to the higher risk of peripheral nerve injury occurring with mechanical injury during the positioning of MWL patients at the time of surgery. A recent study found that significant weight loss is associated with a higher risk of peroneal nerve injury after bariatric surgery [19]. Decreased fat pads after weight loss may leave nerves more susceptible to compression [20,21].

Closing Paragraph

In sum, the anesthetic assessment of previously obese patients is complex. It has to be comprehensive involving many specialists. For the anesthesiologist attention should focus on cardiorespiratory status and on the airway. Obtaining the anesthesia record of the bariatric surgery in effort to anticipate any anesthetic complication is of utmost importance. Prospective patients must be fully informed of the multiple risks and complications inherent to body contouring surgery.

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