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Research Article

The Interest of Doing a Respiratory Preparation Before Bariatric Surgery in An Obese Patient in Order to Avoid Respiratory Complications About 100 Patients and Review of The Literature.

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Abstract

Background: The obese patient is subject to numerous comorbidities, in particular respiratory ones. As a preoperative assessment of bariatric surgery, a respiratory function test (EFR) is performed. We describe here the interest of respiratory preparation before bariatric surgery.

Method: This was a prospective study over three (3) years from 2019 to 2022, including all patients who had benefited from an EFR and were treated for bariatric surgery. The patients were evaluated epidemiologically (age, sex, profession, socioeconomic level, smoking, body mass index (BMI), presence or not of atopy, co-morbidities), clinical (severity of obesity), functional (respiratory, therapeutic and evolutionary functional exploration.

Results: At the meeting we performed a hundred bariatric surgeries for obese patients. The reason for consultation was the presence of overweight in all of our patients. Surgical management consisted of a gastric sleeve in 80% of our patients and gastric bypass in 20%. The postoperative course was simple.

Conclusion: Bariatric surgery remains a better option to improve the quality of life of patients suffering from obesity. The co-morbidities linked to this obesity find their days shortened with surgery. This article aims to bring the interest of respiratory preparation before surgery in order to avoid respiratory complications.

Keywords: Obesity, Sleep apnea syndrome, Perioperative, and bariatric surgery.

1. Background

Obesity (defined by a body mass index (BMI) ≥ 30 kg/m2), particularly when abdominal (android fat distribution) or morbid, results in altered respiratory anatomy and physiology, and therefore management of the airways and ventilation which can be complex. Obesity appears to be associated with an increased risk of acute respiratory distress syndrome (ARDS) and lung infection [1,2].

2. Method

This was a prospective study spread over a period of 3 years from 2019 to 2022, which included any patient admitted for obesity, prepared on the plan and operated in the department. Case recordings were made using Epi info 7 software. Data analyzes were performed using Excel and statistical software.

3.Results

During the study period, 100 cases were operated on for bariatric surgery in the visceral surgery department of the Center Hospitaller de Guyon Félix Saint-Denis de la Réunion, all of these patients had benefited from preparation on the preoperative breathing plan over a period of forty-five days in order to avoid the occurrence of respiratory complications, we had carried out preoperative respiratory physiotherapy sessions including massages, as well as exercises aimed at increasing the ventilatory possibilities, namely a test respiratory function (EFR), aimed at improving static and dynamic respiratory volumes as well as pulmonary compliance because obesity is associated with a restrictive syndrome with a decrease in expiratory reserve (CRF close to residual volume VR) and reduction in lung capacity total (CPT). Without weight loss, the drop in the expiratory reserve volume (ERV) is accentuated and the morbidly obese evolves towards respiratory failure. The respiratory preparation was continued for forty-five more days postoperatively, we discharged the patients on day 1 postoperatively, the postoperative course was simple with no complications.

4. Discussion

The respiratory impact of obesity is clinical (dyspnea at rest and/or during effort) and functional (respiratory functional explorations at rest and during exercise). The prevalence of dyspnea is high in obese patients, present at rest in approximately 50% of patients at rest and approximately 75% during exercise in adults (dMMR score > 0). Respiratory function abnormalities in adults are characterized by a decrease mainly in functional residual capacity (FRC) and expiratory reserve volume (ERV) and less frequently in total lung capacity (TLC, < 5th percentile, thus defining a syndrome restrictive in ~15% of severely obese), the residual volume (RV) remaining normal. The airflows are little affected by obesity, but the prevalence of bronchial hyperreactivity (BHR) is clearly increased, perhaps due to the modification of the effect of deep inspirations in the obese (mechanical physiopathology of the HRB). It should therefore be noted that the patient with obesity presents a greater work of breathing and an alteration of gas exchange. The lung volume is reduced, following the cranial displacement of the diaphragm by the abdominal mass. The decrease in lung volume at rest after expiration, also called functional residual capacity (FRC), is 5% to 15% per 5 kg/m2 increase in BMI. This decrease is accentuated during anesthesia with the loss of muscle tone and the use of hypnotics. In order to reduce the risks associated with anesthesia and bariatric surgery, a preoperative risk assessment, careful respiratory preparation with exploration of functional residual capacity, adequate anesthetic management, and optimized post-operative pain control. procedure can help reduce the risk associated with surgery in the obese patient [1-4].

5. Conclusion

The perioperative risk of complications, particularly respiratory, is high in obese patients. Respiratory preparation prior to surgery could minimize this risk, just as postoperative complications can be limited in obese patients by continuing this respiratory preparation.

Declarations of Links of interest

The authors declare that they have no conflicts of interest.

Ethics Approval

This study complies with the ethical standards of the institutional or regional committee on human experimentation and with the Helsinki Declaration of 1975 (2013 revision). Ethical approval was obtained from the relevant hospital and university.

Boundaries

The limit of this is a prospective study which could have the following limits: - Unfavorable socio-economic situation explaining the financial factor, Emergency treatment context which may limit the carrying out of other exploration assessments in the field,

- Lack of means of transport,
- Transportation by non-medical ambulances or public transport vehicles, which will prolong the duration of treatment,
- Seek treatment before coming to see a doctor

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