Anesthetizing the obese child – The impact of pre-existing comorbidities and perioperative complications

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1. INTRODUCTION

- Childhood obesity is an increasingly worrisome topic and a significant public health issue. Obese children are at higher risk for several chronic conditions.
- Anesthesiologists are required to improve the anesthetic care of these patients, since they are more prone to perioperative complications.
- However, there is still a lack of strong evidence-based guidelines for the optimal anesthetic care of pediatric obese patients.

2. OBJECTIVES

- Evaluate the growing impact of childhood obesity in our society and its associated comorbidities.
- Determine the most adequate anesthetic management for overweight/obese children.
- Summarize the most common perioperative complications (before, during and after a surgery) obese children face when compared to normal-weight children.

3. MATERIAL AND METHODS

- A systematic literature review was performed using Medline (Pubmed), searching for English-language manuscripts, from 2000 to 2014, of children (birth to 18 years old) who underwent elective surgery.
- A total of 33 studies met the initial search criteria ("pediatric anesthesia, obesity") and 37 (using the search terms “childhood obesity” and “perioperative complications”). From this a total of 20 studies were extracted.

4. RESULTS

(I) Comorbidities

- Dyslipidemia, prehypertension/hypertension, prediabetes/diabetes, non-alcoholic fatty liver disease (NAFLD), polycystic ovary syndrome (PCOS), sleep disordered-breathing (SBP) including obstructive sleep apnea (OSA) and asthma are commonly associated with children who are overweight/obese.3

(II) Perioperative Complications

- The majority of the complications experienced by obese children are airway-related.
- Complications that generally affect this population: upper airway obstruction, difficult mask ventilation and oxygen desaturation.
- Obese children undergoing procedures involving the upper airway (e.g. tonsillectomy) with SDB/OSA have a higher incidence of laryngospasm and are more vulnerable to poor outcomes such as death or neurologic injury due to apnea in the postoperative stage.
- Obese children have a higher incidence of intraoperative hypotension and unfavorable outcome after pediatric cardiopulmonary resuscitation.

5. CONCLUSIONS

- It is imperative to heighten awareness among anesthesiologists regarding the specifics of the anesthetic management of pediatric obese patients and their associated perioperative complications.
- Further research is needed regarding the dose and pharmacokinetics of anesthetic drugs in pediatric subjects, since most of the current data come from adult-based studies.

6. REFERENCES