Reviewer's report

Title: Obesity: Physiologic Changes and Implications for Perioperative Management

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Reviewer: Jonathan Ball

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The authors present a review article on the pathophysiology of obesity and discusses the impact on peri-operative care.

Severe obesity is a systemic, pro-inflammatory disease that may adversely affect all organ systems. As such, this review has naturally become a long list of potential chronic pathologies that require pre-operative screening for severity, and adjustment of anaesthetic and post-operative care to minimise complications. The review would benefit from offering a more proscriptive and practical guideline to practitioners.

Major Compulsory Revisions

The review would benefit from a much greater use of subheadings and possibly summary tables to help the reader navigate the topics and lists. The structure could be:

- Systemic pathophysiology
- Organ system pathophysiology
- Specialist pre-operative screening and interventions by organ system - evidence based where this exists and pragmatic expert opinion from the authors where it is lacking
- Specialist anaesthetic considerations / techniques - what should you do differently AND what should you do the same?
- Obesity related post-operative complications and interventions (that are distinct / different from the non-obese patient population)

For example, potentially modifiable cardiovascular pathologies to screen for are: inducible myocardial ischaemia, cardiomyopathy, cardiac failure (right vs. left vs. biventricular; systolic and / or diastolic) cardiac dysrhythmias and hypertension.

Beyond taking a clinical history and performing a detailed physical examination the following investigations are likely to be of value . . . due either to more accurate risk stratification influencing clinical decision making or because there is evidence to support pre-emptive medical intervention to reduce the risk of peri-operative complications. These interventions are . . .

Similar approach to respiratory system, renal, liver, endocrine / metabolic, haemostasis, immune function, musculo-skeletal, skin and soft tissues (e.g.
peripheral oedema be it cardiogenic, venous or lymphatic and the effect on wound healing)

What is the role of specialist / adapted "enhanced recovery pathways" with "prehabillitation".

Is there a role for a holistic and co-ordinated approach to the morbidly obese? If a patient needs bariatric surgery, 2 knee replacements, a pharyngoplasty, an abdominal apronectomy and cardiac bypass grafts what order should these be done in? How important are lifestyle modifications and psychological interventions as components of a holistic medical and surgical management plan? Who does or should co-ordinate and navigate the care of this patient population?

What (if anything) can be done if emergency surgery is required?

How common is malnutrition in the morbidly obese? Should this be investigated / treated?

What about the "obesity paradox" whereby mild obesity appears to be associated with lower complications / better outcomes?

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests