Optimising Anaesthesia for Obese Patients

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This abstract will briefly summarise the content of my talk to Auckland City Symposium. As the talk is 25 minutes, there may be some content not covered in the talk. Equally I have not put some of the interesting facts in the abstract, but references are provided.

1. Difference between the 'bariatric' patient and the obese patient.

Why are the bariatric patient population subjectively easier to manage than the unselected obese patient coming forward for surgery? The answer is possibly the VLCD (very low calorie diet) undertaken for 4-8 weeks prior to surgery. This results in a 6-15 kg weight loss, depending on compliance. This weight loss has some significant effects on the airway. In a study by Sutherland, 24 obese patents were put on a VLCD, and lost weight.[1] This resulted in increased space behind the tongue and an increase in airway calibre. Another group took 14 obese asthmatics and did a full spectrum of respiratory testing. [2] All indices were improved by weight loss to a statistically and probably clinically significant amount.

2. OSA and obesity

OSA is supposed to be "screened for and appropriately treated".[3] There is little guidance available for how to do this and little evidence for the effectiveness and necessity.

a. Prevalence
   OSA is common in obese patients. Several groups have looked at the prevalence, utilising an consecutive or screening approach.[4-9] This suggests 71-94% of obese patients screened before bariatric surgery has OSA which is at least mild. The higher the BMI, the more likely it is to be severe.
b. Prediction
   Can we predict who has OSA using clinical tools? Not really. Sareli's study of 342 consecutive patients with a BMI of 49 showed that many of this group were not very symptomatic. [9]This included those with severe OSA. They concluded there were no reliable predictors for presence or severity of OSA in the obese. The STOP-BANG screening tool is also not great; although very sensitive it is not specific.[10]
c. Polysomnography
   Why not PSG every one? Its expensive ($1350) and time-consuming. Compliance is very low if asymptomatic. [11] There is also little evidence of any benefit to asymptomatic people.[12]
d. Risk
   So are we sending a vast swathe of undiagnosed and undertreated patients to the wards to die of OSA related complications? Apparently not. Using the National inpatient sample of 1 million patients, there was decreased mortality. [13]This was repeated in the subset of bariatric patients.[14] Is this due to the obesity paradox? [15] Another study found the same thing.[16]
e. OHS
   This is a real problem. CO_2 sensitivity is reduced, rather than increased as in OSA. Is it possible that the worst morbidity of the OSA group is in this group? OR>10 for respiratory failure.[17]
f. CPAP
   Commonly recommended patients use their CPAP afterwards if they are on it at home. There is no evidence this is effective.[3, 18] The ASA taskforce "strongly agree that CPAP should used if feasible", but admit to no evidence. One study deliberately omitted it.[19]
g. Oxygen
   Again the ASA "The consultants agree and the ASA members strongly agree that supplemental oxygen should be administered continuously to all patients who are at increased perioperative risk from OSA until they are able to maintain their baseline oxygen saturation while breathing room air". Doesn't seem to make much of a difference though.

h. Management
   - So overall we don't have great tools for predicting OSA.
   - Use Epworth sleep scale as a sleepiness screen
   - If very high Epworth score then likely there is a benefit in sleep study. CPAP use is still common after bariatric surgery.[20]
   - Otherwise manage expectantly
   - Low threshold for Blood Gas a screen for OHS if
     - severe OSA and/or COPD
     - hypoxia on pulse oximeter in clinic
     - High bicarbonate
   - OSA is not a risk factor for PHT, OHS is. Send OHS to respiratory physicians and consider HDU care

3. Bariatric airway

Obese patients were overrepresented in NAP4 mortality and morbidity. Interestingly also junior staff over-represented. [21]

a. Ventilation
   More important than intubation if AFOI used appropriately. Many studies suggest ventilation not especially difficult if position correctly. Many studies have looked at the predictors of difficult BMV. [22-27] Predictors are a little variable, but the rate is low! Ranges from 1.4-7.8%. Impossible BMV 0.07%-0.15%. Most important factors than can be fixed are beard and also consider optifast.
b. Intubation
   Basically every study has its own set of significant variable in a multivariate analysis.[22, 28-31] Various airway predictive scores have been developed. Take home message from NAP4 was that AFOI was underused. Positioning is critical. Bariatric patients may be easier.[32-34]

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