

# ANAESTHESIA FOR THE OBESE PATIENT: BMI > 35KG/M<sup>2</sup>

## Preoperative Evaluation

Sleep Apnoea- STOP-BANG	Yes	No
Snoring	<input type="checkbox"/>	<input type="checkbox"/>
Do you snore loudly? (Heard through a closed door)	<input type="checkbox"/>	<input type="checkbox"/>
Tired	<input type="checkbox"/>	<input type="checkbox"/>
Do you often feel tired or sleepy during the daytime?	<input type="checkbox"/>	<input type="checkbox"/>
Observed	<input type="checkbox"/>	<input type="checkbox"/>
Has anyone observed you stop breathing in your sleep?	<input type="checkbox"/>	<input type="checkbox"/>
Blood Pressure	<input type="checkbox"/>	<input type="checkbox"/>
Do you have, or are you treated for high blood pressure?	<input type="checkbox"/>	<input type="checkbox"/>
Body Mass Index > 35 kg/m <sup>2</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Age > 50?	<input type="checkbox"/>	<input type="checkbox"/>
Neck Circumference > 40 cm?	<input type="checkbox"/>	<input type="checkbox"/>
Gender male?	<input type="checkbox"/>	<input type="checkbox"/>

Poor functional capacity  
Abnormal ECG  
Uncontrolled BP/IHD  
SpO<sub>2</sub> < 94% on air  
Poorly controlled asthma/COPD  
Previous DVT/PE  
STOP-BANG ≥ 5

YES

NO

Consider:  
Bloods gases/Sleep Studies  
Preoperative CPAP  
Echocardiogram  
Cardiorespiratory referral

Need experienced anaesthetic team  
If major surgery consider HDU

Maybe suitable as Day case surgery  
SEE BELOW

### Central obesity

Difficult airway /Ventilation problems more likely.

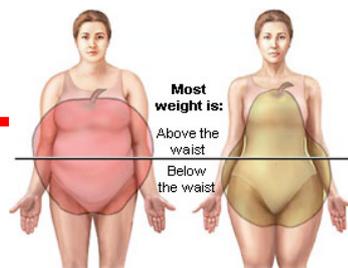
Greater risk of CVS disease.

↑Risk of Metabolic syndrome:

Dyslipidaemia, Insulin resistance

Prothrombotic, Proinflammatory

Suggest Pre-op diet to increase space for laparoscopic surgery.



Apple Body Shape vs. Pear Shape Body

### Peripheral obesity

Fat outside abdominal cavity.  
Less co-morbidity.

## Operative Management

### Premedication-consider

Antacid prophylaxis

Pre-op analgesia

DVT prophylaxis

Careful glucose control

### Recommended Equipment

If >135kg suitable trolley/operating table

Gel padding, Large BP cuff, or forearm

cuff, ramping device, difficult airway

equipment, ventilator capable of PEEP and

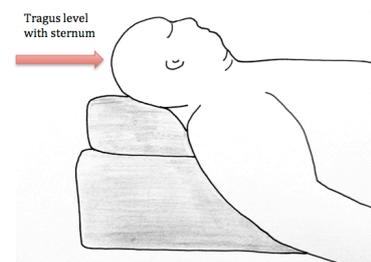
pressure modalities, Hover mattress or

equivalent. Consider depth of anaesthesia

Monitoring

### Ramping

Ear level with sternum. Reduces risk of difficult laryngoscopy, improves ventilation.



### General Anaesthetic Technique

Self-position on operating table.

Preoxygenate in ramped position,

Minimize induction to ventilation interval to avoid desaturation.

Avoid spontaneous ventilation.

Tracheal Intubation recommended.

Use short-acting agents e.g. desflurane or

propofol TCI. Short-acting opioids,

multimodal analgesia. PONV prophylaxis.

Monitor neuromuscular block, ensure full

reversal.

Extubate and recover in head up position.

### Drug dosing- what weight to use?

For most drugs use either **Ideal (IBW)** or **lean body weight (LBW)**. The notable exceptions where a **total body weight dose (TBW)** is appropriate are Suxamethonium to a maximum 200mg and Neostigmine (max 5mg).

• **IBW calculation (kg): Men: height in cm minus 100 Women: height in cm minus 105**

Or Assume BMI of 22 is ideal, then **ideal weight (kg) = 22 X Height (m)<sup>2</sup>**

• **LBW formulae are inaccurate for the obese; however LBW rarely exceeds 70kg for a woman and 90kg for a man; these weights can therefore be used to dose most anaesthetic drugs, including muscle relaxants for patients >150kg.**

*Induction agents should be titrated to cardiac output. In fit obese, this correlates well with LBW. As with all patients, care should be exercised if reduced cardiac function is suspected.*

For propofol infusions, a recognised approach is to use Servin's formula. This is calculated by the addition of 40% of the excess weight above ideal to the ideal weight:  $[IBW + 0.4(TBW - IBW)]$

Lipophilic drugs will have a larger Vd and half-life than hydrophilic drugs. *If in doubt, titrate and monitor effect!*

## Post Operative Management

• **All patients:** Consider regional technique. Use multimodal analgesia, including local anaesthetic. Extreme caution with long-acting opioids and sedatives. Avoid supine position. Mobilise early, avoid immobilising with epidural, urinary catheters & other tubing. Ensure thromboprophylaxis administered. Admit to HDU/ICU if significant co-morbidity or if major surgery undertaken.

• **Day Case Patients:** Avoid post-op opioids. Only discharge if baseline SpO<sub>2</sub> maintained on air without stimulation, no apnoea and routine discharge criteria attained. Consider LMWH for 10-14 days.

• **Suspected or proven Obstructive Sleep Apnoea or Obesity Hypoventilation Syndrome:** Avoid sedatives and post-op opioids. Reinstate CPAP/NIV plus O<sub>2</sub>. Do early on list as additional time in recovery is recommended, only discharge to a ward if free of apnoeas without stimulation. Post-op location depends on opioid requirement, comorbidities, type of surgery and local set up. Consider arterial access for serial ABG monitoring.