Surgery in the obese patient – a modern plague

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Definition of Obesity

- An excess of body fat.
- \( \text{BMI} = \frac{\text{Weight (kg)}}{\text{height (m)}^2} \)

<table>
<thead>
<tr>
<th>Category</th>
<th>BMI Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>18.5 – 24.9</td>
</tr>
<tr>
<td>OVERWEIGHT</td>
<td>25 – 29.9</td>
</tr>
<tr>
<td>OBESE</td>
<td>30 – 34.9</td>
</tr>
<tr>
<td>SEVERE OBESE</td>
<td>35 – 39.9</td>
</tr>
<tr>
<td>MORBIDLY OBESE</td>
<td>( \geq 40 )</td>
</tr>
</tbody>
</table>
The Challenge of Obesity....

- WHO estimates that globally being overweight or obese contributes to:
  - 44% of diabetes
  - 23% of IHD
  - 7% - 41% of some cancers
- Results in the deaths of 3.4 million adults each year.

Adult Obesity Incidence in Australia

Source: National Health Survey
Obesity is a disease

- No disease more common
  - 28% of Australians (AHS, 2013)
- No disease causes more ill-health
  - >30 diseases related to obesity
- No disease more lethal
  - >400,000 deaths/year in USA
Obesity is our worst pathogen

Obesity is associated with more diseases than any other pathogen

- Diabetes
- Hypertension
- Lipid disorders
- Heart disease
- Asthma
- Sleep apnea
- Gallstones
- NASH (non-alcoholic steatohepatitis)
- Urinary incontinence
- Gastroesophageal reflux
- Osteoarthritis and gout
- Infertility & menstrual problems
- Obstetric complications
- Low back pain
- DVT & thromboembolism
- Depression
- Immobility
- Cancer (breast, colorectal, prostate, endometrial, etc.)
- Venous/stasis ulcers
- Skin infections
- Intertrigo
- Accident prone
In-hospital Obesity

- 1 in every 8 hospital admissions in 45-79 year age group related to obesity
- Direct cost of $4 billion extra per admission
- 1 in every 6 healthcare dollars spent on obesity related illness
- BMI 40-50 double hospitalisation rates and longer stay

45 and Up Study – Sax Institute 2015
NHS bans obese and smokers from routine operations: Patients told they must slim down or quit cigarettes as part of cost-cutting drive

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Challenges of obese patients in hospital

• Physical facilities
• Patient size
  – Equipment
  – Impact on symptoms and size
  – Ability to deliver care
• Stigmatisation and discrimination
MR JK

- 55 year old man
- Weight 190 kg, height 175 cm BMI 62.0
- Newly diagnosed adenocarcinoma of the oesophagogastric junction

Make outpatient appointment
Outpatient appointment

- Chairs
- Trolleys
- Cubical size
- Ability to weigh patient
- Equipment to take blood pressure
- Arrange staging
  - Imaging
  - Laparoscopy
Imaging

- Plain X-ray can fail to penetrate through the fat layers
- Ultrasound most unreliable modality. Need to use lower frequency
- CT Scan limited aperture (70 cm) and weighting (180 -200 kg)
- MRI limited by aperture (50 cm) and weight
- PET Scan limited by weight 180kg
- Fluoroscopy limited by table 180kg
- Waits 2 weeks to get all scans. Need to use veterinary imaging

Uppot et al, 2006
Hammond, 2013
Miller, 2005
Laparoscopy

**Anaesthetic**
- IV access
- Monitoring
- Drug dosing

**Surgery**
- Instruments
- Sea of fat
- Torque

**Patient care**
- Table
- Transfers
- Positioning

**Staff care**
- Ergonomics
Management plan

- Stage 3 tumour
- MDT recommendaton
  - Neoadjuvant chemoradiation
  - Ivor Lewis oesophagectomy

BUT

- Too heavy for radiation
- Chemotherapy difficult to dose, IV access
- Technical challenges of an Ivor Lewis
  - Single lung anaesthesia, length of instruments, size of surgeon, post operative pain control
Hospital admission

- Bed size
- Mattress
- Ability to ventilate
- Medications
- Managing patient who is so large and now has chest tubes, catheter, central line and requires early mobilisation
- Recognising complications
  - Signs masked
  - Unable to image
Discrimination and Stigmatisation

- 68% of obese men and women report being discriminated against or stigmatised by healthcare professionals
- Weight bias seen in all healthcare professionals and starts with students
- Increases length of stay
- Difficulty treating obesity can lead to a sense of despondency for patient and doctor alike

Puhl, 2006
O’Brien, 2010
Hammond, 2013
Cost to the health service

- Expanded weight capacity equipment typically costs 25%-100% more than standard items.
- Building renovations may cost hundreds of thousands of dollars.
- Injuries to healthcare workers while treating obese patients are another source of financial impact. A back injury claim can cost up to $500,000 in wage replacement and treatment.
- Role of “lift teams”
Do we have a duty of care?

• Obesity is a disease
• If a patient who is admitted with one problem – what is our responsibility to address their other problems?
• Should we ignore their obesity?
Conclusion

• Obesity is our most prevalent disease
• Obesity is over-represented in low SE groups
• Obese patients more likely to be admitted to hospitals than normal weight peers.
• Challenges at every stage of the patient journey
  – Equipment
  – Imaging
  – Patient presentation
  – Staff