The Obese Patient: Key Issues in Peri-Anaesthetic Nursing Management

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ICPAN

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Today’s presentation

- Obesity: global epidemic
- Key points in nursing the obese patient in peri-anaesthesia
  - A. Clinical risk
  - B. Manual handling risk
  - C. Management issues
- Raising the profile on obesity
Obesity is a global epidemic

More than 2.1 billion people around the world – or nearly 30% of the global population are overweight or obese......

......with the figure set to rise to almost half of the world’s adult population by 2030

Why obesity?

‘The appeal of carrot sticks or a chicken-and-lettuce salad wilts rapidly when confronted with a sizzling slice of pizza entombed in mozzarella and pepperoni’

[Nina Martyris : Guardian 2010]
## What do we mean by obese?

<table>
<thead>
<tr>
<th>BMI range [kg/m²]</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Under 18.5</td>
<td>Underweight</td>
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<tr>
<td>18.5 to less than 25</td>
<td>Normal</td>
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<tr>
<td>25 to less than 30</td>
<td>Overweight</td>
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<tr>
<td>30 to less than 40</td>
<td>Obese</td>
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<tr>
<td>40 and over</td>
<td>Morbidly obese</td>
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<tr>
<td>50 and over</td>
<td>Super morbidly obese</td>
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*Classification of adults according to BMI value [NHS Information Centre 2010]*
• ‘Being overweight is becoming normal as the majority of our population is overweight or obese’ Dame Sally Davies : Chief Medical Officer : March 2014

• BARNA audit respondent : ‘35-40 BMI now seems to be a bit overweight – obese patient becoming the norm – healthy range now being too thin or very thin’ [2014]

• According to M&S data, the average British female has now nearly reached a size 16, from size 12 twenty years ago.
Size of problem - UK

- Britain is Europe’s 2nd most obese nation

- 61.9% of men and women in UK are obese or overweight. Around 800,000 are morbidly obese [BMI above 40]

- Diabetes is out of control: 3.3 million in UK now: by 2025 – 5 million 7000 amputations a year

- Britain spending £47 billion a year dealing with the healthcare and social costs ....

- Obesity is greater burden on the UK’s economy than armed violence, war and terrorism

- **Obesity will bankrupt the NHS if not halted**
UK: 30 fold increase in bariatric surgery provision..........

Obesity NOW ENDEMIC !!!
30 fold increase in WLS

• Provision of weight loss surgery [WLS] a **key short term solution for the morbidly obese**

• 261 in 2000/1

• 8,087 in 2011/12
• 5407 Gastric by-pass
• 1316 Gastric bands
Bariatrics is the new black, haven't you heard? Obesity is everywhere – every College or worthy medico-political institution worth its salt has published a report on it.
UK: plethora of reports/guidelines/recommendations.......

All valuable documents but:
- Focus on Bariatric [Weight Loss Surgery]
- Focus on anaesthetic/surgical care
- Lack detail on specifics of care
- No information on problem areas/poor or unsafe practice

- No focus on nursing care of the obese patient
- No focus on obese patients undergoing non-bariatric surgery
Key issues for peri-anaesthesia nurses: A. CLINICAL RISK

• ‘It is very important for the perianesthesia nurse to be well-informed about the physiologic consequences of obesity’ [Noble 2008]

• How does obesity impact on ‘normal’ post anaesthesia progression
Obesity + co-morbidities increase risks of anaesthesia and can complicate post-anaesthetic recovery
Airway

Precarious airways that easily obstruct
Access to pharynx difficult: fat face, short necks...

Gastric reflux: risk of aspiration

OSA: Obstructive Sleep Apnoea / blunts
respiratory drive / difficult airway / airway
obstruction and hypoventilation post operatively

Management of airway:
High risk of obstruction
Avoid LMA / intubation ETT
Extubate awake in PACU
sitting up with adequate tidal volumes
Avoid risk of aspiration

Pre-assess for OSA: High STOP-Bang Score
CPAP treatment pre-op

Close airway observation / CPAP
Breathing

Increased risk of breathing problems in obese patients

- Low functional residual capacity
- Kilos of fat on chest: restrictive breathing
- Decreased lung volumes
- Decreased chest wall compliance
- Airway closure
- V/Q abnormalities
- Reduced respiratory muscle strength
- Risk of OSA
- Asthma
- Respiratory depression
- Elevated PC02 levels

Post anaesthetic care management: High risk of hypoventilation: hypoxia

- Assess: breath sounds: SaO2 / ABG’s
- Oxygen [surgical site]
- Position / sitting up / recovery position
- Deep breathing: coughing: open airways
- Pain control: opioids with care
- Asthmatics: bronchodilator
- CPAP
- Early mobilisation
Diabetes: Primary risk factor for atherosclerosis

Dyslipidemia: primary risk factor for development of atherosclerosis/CAD

Hypertension: increases afterload
Increases oxygen requirements / workload of heart

Stroke: result of large vessel disease

Left ventricle muscle compromised in CAD
Distorted ECG
May risk cardiac event in peri-anaesthesia

PACU management
Risk of cardiac incident
Continuous cardiac monitoring
Appropriate sized BP cuffs
ECG / hyper/hypotension
Avoidance of tachycardia [pain]
Fluid management / oxygenation
Position: avoid flat
Compare status with pre-operative information
Pain / Fluids / VTE

- Epidural difficult with early mobilisation
- PCA relatively contra-indicated if suspicion of OSA
- Combination therapy best:
  - LA blocks/infiltration
  - Regular Paracetamol, NSAID’s
  - Opiates but IV/O
  - Not IM and in SMALL DOSES
  - Psychological support

- FLUIDS : similar to other patients based on ideal body weight
- Keep patients warm

- Venous thromboembolism prophylaxis : no consensus on what to use / how long / what dose
- TEDs don’t often fit
- Compression devices
- Low dose heparin
- Early mobilisation
Key issues for peri-anaesthesia nurses:

B. SAFE PATIENT HANDLING

• ‘Despite recent progress in protecting healthcare workers from musculoskeletal disorders [MSD’s] caused by manual patient handling, these injuries are still common throughout the world, causing pain and lost time. In some cases, MSD’s force nurses to change careers’ [Menzel N - 2014]

• How does obesity impact on safe patient handling?

• How to ensure that the nurse and the patient are protected from injury?
Moving, positioning the obese patient: danger to both patient and nurse

- **To patient**
  - Pressure sores
  - Nerve
  - Muscle
  - Skeletal injury
  - Rhabdomyolysis
  - Ventilation compromised

- **To nurse**
  - Musculo-skeletal injury
Solutions: avoid manual handling where possible

Patient anaesthetised on bariatric theatre table

Walks to theatre

Transport on their beds

Cut down on unnecessary transfers / trolley bed /tables

Those over 150 Kg need special reinforced beds trolleys and hydraulic lifting apparatus

Patient secured – not to fall off table

Equipment: Hover mats
Bariatric tables
Arm / side / shoulder pads
Table extensions

Teamwork
Pre-planning
Time
Staff
Equipment
Training
C. Management issues
The dynamic manager is pro-active!

Ensure obesity HIGH on priority list

Ensures equipment is up to date: safe: maintained

Ensures that staff are trained to use equipment

Ensures that quality/audit programme robust

Ensures staffing adequate

Ensures leadership is dynamic/innovative

Ensures that competency training programme instigated

Ensures that pathways developed for non-bariatric obese patients

Delegates to ensure that everyone on board with obesity management

Ensures that unit has funding to cope with obesity issues and that budgeting is part of the deal
‘Competency based nursing care essential to ensure the safety of patients and staff’ Mulligan [2005]

Preoperative Assessment: Risk assessment/appropriate pathway

Anaesthesia: Moving/handling Clinical decision making

Intraoperative: Moving/handling Risk assessment Positioning

Post operative: Moving/handling Positioning Clinical decision making

Discharge & transfer on: Assess ward/facility ICU/ward

‘Those who care for patients with severe obesity should complete a competency-based orientation that enable them to identify potential complications and prevent adverse outcomes.

Core curriculum to cover physiological and psychological effects of severe obesity, comorbidities’ Mulligan [2005]
THE OBESE PATIENT
Key issues in perioperative nursing management

Talks, top tips and discussions on nursing the obese patient through surgery including pre-, intra- and post-operative phases.

For programme updates and to book now visit www.rcn.org.uk/perop2014

Friday 3 October 2014
RCN HQ, 20 Cavendish Square, London W1G 0RN

Programme:
- Obesity: Its impact on the individual and society
- The obese patient during surgery
- Managing the obese patient safely in the post anaesthetic care unit
- Manual handling made easy in the obese
- First class care for the obese patient
- Safe management of the obese patient for day surgery and enhanced recovery.

This study day is open to all nurses and operating department practitioners working in anaesthetics, theatre and recovery (PACU).

60 delegates / Royal College of Nursing - London October 2014
Results from BARNA seminar [60]

Clinical problems:
• Airway and respiratory management
• Dexterity: jaw thrust / lack of Oxford pillow for positioning
• Problems with oxygenation: on intubation / when restless or in pain
• Pain management: respiratory depression
• Reluctance of anaesthetists to analgese in view of above
• Poor pain management – delay discharge to ward
• Inadequate reversal: more time need on intubation/extubation
• Anaesthetists need to stay until patient stable

Lifting and handling:
• Wrong beds: multiple moves between trolley, table and bed
• Lack of manpower and equipment
• Faults with equipment
• Lack of notice – communication
• Patient’s dignity compromised

Management problems:
• NHS unpredictable: private patient pre-assessed / pre planned
• Bed blocking
• Training and communication issues: skill mix: training issues
• Protection of staff in manual handling: more regular updates on equipment
• Lack of pathways and protocols across all areas
• Audit not undertaken
• Lack of leadership: need for link nurse
• Lack of education: competencies – no plan B
Is management listening?

• Often suspected sleep apnoea but unless diagnosed by sleep clinic continue to treat as day case. In PACU it becomes clear they have OSA etc. often recover poorly, have to find overnight bed on ward, wait hours for bed to be found.

• Trying to get hold of bariatric beds and operating tables. Insufficient space in the anaesthetic room for a bariatric bed. Stability and safety of patients on the operating table.

• Clinical need takes precedent over finances at the moment but this is changing and procurement want more control over what we buy.

• As for staff back safety I don’t think it is taken seriously enough by management and staff alike.

• Emphasis is not on safety but ensuring patient is not cancelled whatever their BMI. We are operating on patient’s with BMI’s in excess of 50+ with no specialist equipment. Our only criteria is if the trolley will take their weight (170kg)
Dilemma!

- Obesity is out of control: globally

- Obesity and its co-morbidities massively increase peri-anaesthetic risk to patient

- Obesity increases risk to nurse of MSD

- Safe handling of obese peri-anaesthesia patient necessitates expensive equipment and training

- Obesity and its co-morbidities will bankrupt health care systems if not halted

- Professional peri-anaesthesia organisations have not focussed on management of the obese patient

- **Challenge to peri-anaesthesia nurses is how to maintain safety of patient and nurse when resources strained**
ICPAN : our challenge

• ICPAN is now in a unique position to raise the profile of obesity in peri-anaesthesia nursing around the world

• To develop **cost effective** means of providing:
  • Competencies/training : standards/audit tools
  • In order to help peri-anaesthesia nurses manage obese patients over the next 20 – 30 years

• It will be tough – patients are getting larger --- health budgets are getting smaller!
International Collaboration of PeriAnaesthesia Nurses
ICPAN

Promoting Global Excellence in PeriAnaesthesia Nursing

• Global survey on impact of obesity in peri-anaesthesia nursing care

• Develop standard / audit recipe for practice

• Develop competency training pack for PACU nurses [clinical skills / lifting & handling]

• Develop web blog to share experiences

• Work on strategy to raise awareness / lobby for resources at international level
**Preoperative Evaluation**

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| **Smoking:** Do you smoke heavily (more than 20 cigarettes/day) or have a history of smoking? | **Tired:** Do you feel tired or fatigued during the day? | **Observed:** Did you observe you stop breathing during sleep? | **Blood Pressure:** Do you have or are being treated for high blood pressure? | **BMI:** | **Age:** to 18 | **Neck:** | **Gender:** Male
| **Yes:** | **Yes:** | **Yes:** | **Yes:** | **90 kg...** | **≥ Age 40** | **≥ Neck Circumference > 45 cm (18 inches)** | **Yes:** |

**Central Obesity (waist > half height)**
Difficult airway/ventilation problems more likely
Greater risk of CV disease, thrombosis
1. Risk of Metabolic syndrome:
   - Central Obesity plus Hypertension
   - Dyslipidaemia, Insulin resistance

**Intraoperative Management**

**Ramping**
Ear level with sternum. Reduces risk of difficult laryngoscopy.
Improves ventilation.

**Suggested Equipment**

- Suitable bed/mrolley & operating table
- Gel padding, wide strapping, table extensions/arm boards
- Forarm cuff or large BP cuff
- Ramping device, step for anaesthetist, difficult airway equipment, ventilator capable of PEEP and pressure modes.
- Hover mattress or equivalent.
- Long spinal, regional and vascular needles.
- Ultrasound machine.
- Depth of anaesthesia and neuromuscular monitoring.
- Enough staff to move patient.

**Drug dosing - what weight to use?**

- Induction agents: titrate to cardiac output: this equates to lean body weight in a fit patient.
- Competitive muscle relaxants: use lean body weight.
- Suxamethonium: use adjusted body weight to a maximum of 200mg
- Neostigmine: Increase dose
- Opioids: Use lean body weight. Care with obstructive apnoea
- TCI propofol: IBW plus 40% excess weight
- If in doubt, titrate and monitor effect!

**Lean Body Weight** this exceeds ideal body weight in the obese and plateau at 100kg for a man, 70kg for a woman.

- Ideal Body Weight & Broca formula
  - Male: height in cm - 100
  - Female: height in cm - 105

**Suggested dosing regimes for anaesthetic drugs**

<table>
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<tr>
<th>Lean Body Weight</th>
<th>Adjusted Body Weight</th>
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<tr>
<td>Propofol induction</td>
<td>Propofol Infusion</td>
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<tr>
<td>Thiopentone</td>
<td>Suxamethonium (Max 200mg)</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Alfentanil</td>
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<tr>
<td>Rocuronium</td>
<td>Lidocaine</td>
</tr>
<tr>
<td>Atracurium</td>
<td>Neostigmine (5mg)</td>
</tr>
<tr>
<td>Vecuronium</td>
<td>Sugammadex (see package insert)</td>
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<tr>
<td>Morphine</td>
<td>Antibiotics</td>
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<tr>
<td>Paracetamol</td>
<td>Low Molecular weight Heparin</td>
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<tr>
<td>Bupivacaine</td>
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**Postoperative Management**

**PAU discharge:** Usual discharge criteria should be met. In addition, SpO2 should be maintained at pre-op levels with minimal O2 therapy, without evidence of hypoventilation.

**OSA or Hypoventilation Syndrome:** Sit up. Avoid sedatives and post-op opioids. Reinstate CPAP if using it pre-op.

Additional time in recovery is recommended, only discharge to the ward if free of apnoeas without stimulation.

Patients untreated or intolerant of CPAP who require postoperative opioids are at risk of hypoventilation and require continuous oxygen saturation monitoring. Level 2 care is recommended. Effective CPAP reduces this risk to near normal.

**Ward Care:** Escalation to Level 1, 2 or 3 care may be required based on patient co-morbidity, the type of surgery undertaken and issues with hypoventilation discussed above. General ward care includes: multimodal analgesia, caution with long-acting opioids and sedatives, early mobilisation and extended thromboprophylaxis.

See www.SOBAuk.com for references
References


Thank you

• patsmedley@googlemail.com