CASE ONE

Short case number: 3_3_1
Category: Gastrointestinal and Hepatobiliary
Discipline: Surgery
Setting: Hospital
Topic: Peri-operative management of surgical patients

Case:

Rita Howard aged 72 presents for elective hip replacement. She has been unwell recently and feels poorly but is determined to proceed with surgery as soon as possible as she is in a lot of pain from her hip and increasingly restricted in her mobility and self care.

Questions

1. Discuss the important issues to address in her history for the pre-operative assessment?
2. Rita is obese on body mass index. She is on a beta blocker, and regular nitrates for angina. She also takes insulin for severe type 2 diabetes. How does this information affect your preoperative assessment and management? Discuss the steps you would take including any diagnostic and screening tests you would order.
3. What features on history, examination and investigation indicate low (acceptable) or high (unacceptable) cardiac risk status?
4. How would you undertake a preoperative diabetic evaluation?
5. Discuss the factors involved in writing medical orders in Rita's or any other patient's notes

Suggested reading:

1. Henry MM, Thompson JN, editors. Clinical Surgery. 3rd edition. Edinburgh: Saunders; 2012. Chapter 7
2. Garden OJ, Bradbury AW, Forsythe JLR, Parks RW, editors. Davidson's Principles and Practice of Surgery. 6th edition. Philadelphia: Churchill Livingstone Elsevier; 2012.

ANSWERS

1. Preoperative evaluation – and risk: benefit ratio

- an accurate and complete history is required – this requires a careful history & thorough physical examination
- estimating ability of patient to respond to the physiologic & metabolic stress of anaesthesia & surgery
- identify underlying medical conditions (heart disease; diabetes; pulmonary disease; renal dysfunction; hepatic dysfunction; adrenal dysfunction etc.)
- the pregnant patient; the geriatric patient
- preoperative medication management (anti-platelet agents; heparin; insulin etc.)
- preoperative screening tests
- optimising patient's pre-operative health
- accurately assessing peri-operative risk

2. Specific preoperative management in this case

drug type	comment	preoperative	postoperative
beta blocker	abrupt discontinuation can increase risk of MI	take as usual with sip of water a few hours before operation	use parenteral agent postoperatively until taking P.O
nitrates	transdermal patches may be poorly absorbed intra-operatively	take P.O with sip of water a few hours before operation	use IV agent, or transdermal patches postoperatively until P.O intake resumed
insulin	5% dextrose solutions should be given IV intra-operatively & postoperatively in patients receiving insulin; these may be run with other iv fluids	Commence an insulin-glucose infusion prior to induction of anaesthesia (or by 1000hrs at the latest).	Continue the insulin-glucose infusion for at least 24 hours post-operatively and until the patient is capable of resuming an adequate oral intake.

obesity (on body mass index)

BMI = weight (kg) / [height (m)]^2

BMI range	weight classification	risk of illness
<18.5	underweight	increased
18.5 to 24.9	ideal weight	normal
25.0 to 29.9	overweight	increased
30 to 39.9	obese	high/very high
40 or greater	severely obese	extremely high

3. Cardiac risk status

points	Class (NYHA)	potentially fatal cardiac complications %	cardiac death %
0-6	I	0.7	0.2
6-12	II	5.0	2.0
13-25	III	11	2.0
>26	IV	22	56

Note: potentially fatal complications include postoperative myocardial infarction, pulmonary oedema, and ventricular tachyarrhythmia's

***Tutor note - This scale is not frequently used in Australia. Discuss with student, what have they observed in their surgical terms so far*?**

<u>Need to consider</u>

- **Stable versus unstable cardiac disease**
- **Time since cardiac event especially since AMI.**
- **Treatment of AMI- medical vs. stent vs. CABG. Anticoagulation type and required duration.**
- **High risk AMI less than 2 months ago; low risk if 12 months ago.**
- **Optimise medical therapy**

Assessment of individual risk factors

factor	point score
third heart sound or raised JVP (distension)	11
MI in past 6/12	10
rhythm other than sinus	7
>5 PVC's/min	7
age >70	5
emergency procedure	4
haemodynamically significant aortic stenosis	3
aortic, intraabdominal, intrathoracic procedure	3
poor general health	3
total	**53**

In this particular patient:

features on history

- >70 age 5 pts
- poor health 3 pts

features on examination

- no information ? pts

note: examination findings clearly insufficient to accurately assess cardiac risk status.

Tutor Notes

- ***The weighting of the risk factors is reasonable but this scale is often not practically applied. It would be useful to discuss with students what they have seen so far in their surgical terms.***
- ***Expert opinion would be useful for this as well.***

4. Preoperative diabetic evaluation

history

- duration of the disease
- diet
- degree of glucose control – HbA_1C. How often do they check BSL's?
- insulin requirements
- last insulin administration
- peripheral symptoms (ulcers; numbness; extremity pain)
- major complication – renal, ocular, neurologic, cardiac

examination - particular attention to feet

- minor injuries
- evidence of poor hygiene
- inadequate vascular supply
- ulcers
- decreased sensory perception

5. writing medical orders in patient's notes

general considerations

- surgical team responsible for patient (name, position, time and date)
- diagnosis/condition / current assessment
- immediate plans
- vital signs/special checks/notification parameters
- diet/level of activity
- special nursing care instructions
- positioning
- wound care
- tubes/drains: management & care
- intake/output: frequency
- IV fluids
- medications: drug, dose, route, frequency
- routine
- special
- laboratory orders
- special procedures/radiographs
- miscellaneous

sample preoperative notes

diagnosis:	degenerative joint disease (hip)
proposed surgery:	Total Hip Replacement (avoid abbreviations) + side (left/right)
history & physical:	completed (dictated) >70 in age/generally unwell
laboratory values:	FBC (14.5/41.5%/7,500) **U+E (**140/4.2/26/101/10) Glu (10.5) CXR: NAD ECG: normal blood type: group & hold (in blood bank)
operative consent/permit	signed and on chart: risks, rationale, benefits, alternatives explained have been explained in detail; patient understands and agrees to proceed with the surgical plans
miscellaneous information	
signatures	patient, witness and doctor

template for operative notes

Procedure:	
Surgeon + assistant	
Anaesthetist	
Findings	
Estimated blood loss:	
Crystalloid replaced:	Blood products:
Complications:	
Tubes/drains:	
Disposition:	
	Signature:

template for discharge notes

admission diagnosis:	date:
discharge diagnosis:	date:
operative procedure:	
hospitalization course:	
disposition:	
home care instructions:	
diet:	
activity:	
restrictions:	
wound care:	
other:	
discharge medications:	
follow-up instructions:	
miscellaneous:	