Case Study #5: Perioperative (Pre-Operative) Risk Assessment

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Option #1:

A 75-year-old woman presents with a hip fracture. Her medical history is remarkable for coronary artery disease. Two months previously she had a non-ST-segment elevation myocardial infarction and had a drug-eluting stent (DES) placed. She is currently asymptomatic for cardiac complications. She has a history of type 2 diabetes, hypertension, and hyperlipidemia. T 97.5 P 86 R 24 BP 98/68 Pain 10/10 PO2 96% on room air.

Current medications:
Aspirin, 81 mg/d
Clopidogrel, 75 mg/d
Atorvastatin, 20 mg/d
Metformin, 1000 mg twice daily
Enalapril, 40 mg/d
Hydrochlorothiazide, 25 mg/d
Omega-3 Fatty Acid Supplement 1290mg/d

Labs:

WBC	BLOOD	6.9
RBC	BLOOD	4.48
Hemoglobin	BLOOD	13.7
Hematocrit	BLOOD	40.3
MCV	BLOOD	89.9
MCH	BLOOD	30.5
MCHC	BLOOD	33.9
RDW CV	BLOOD	13.8
Platelets	BLOOD	293
MPV	BLOOD	9.9
Neutrophils	BLOOD	64.5
Lymphocytes	BLOOD	28.3
Monocytes	BLOOD	6.3
Eosinophils	BLOOD	0.7
Basophils	BLOOD	0.2
ABS Neutrophils	BLOOD	4.4
ABS Lymphocytes	BLOOD	1.9
ABS Monocytes	BLOOD	0.4
ABS Eosinophils	BLOOD	0.1
ABS Basophils	BLOOD	0.0
Differential Review	BLOOD	MANUAL DIFF NOT PERFORMED
Glucose	SERUM	89

BUN	SERUM	23
Creatinine	SERUM	1.3

12-lead ECG: Sinus Bradycardia Rate=58 Rare PVC

Chest Radiograph: Normal Chest x-ray with evidence of osteoporotic changes and mild calcifications of the descending aorta.

Surgical Consult Decision

Before I sign-off on this patient as being healthy for surgery, there are a few questions I would like to ask first. One important piece of information that will help determine if this will be an acute surgical emergency rather than urgent surgery is the type of fracture she has. Whether it is displaced or non-displaced and whether or not she is in traction can make a difference of whether she needs just a quick assessment to include cardiovascular vital signs, pertinent labs (CBC, CMB), ECG and volume status before being proceeding immediately to surgery, or if she can tolerate a more thorough work-up prior to being moved to the operating room (Fleischer et al., 2007; Johns Hopkins Medicine, 2014).

The patient's health status is also of great value to the surgeon in determining how well she will tolerate an internal fixation or a more involved case of a complete hip replacement. A complete history is critical for any surgical case, and so other items that would be helpful are if she smokes or drinks, and if she has had any dental procedures or problems in the past 12 months as periprosthetic joint infection due to dental pathology has occurred, though rare (Lampley, Huang, Arnold, & Parvizi, 2014; Tokarski, Patel, Parvizi, & Deirmengian, 2014). Even if this is not an emergency case, I'd like to at least know her GFR so I can evaluate her renal function properly. Her preoperative serum creatinine >2.0 places her into a lower cardiac risk category according to Lee's Simple Cardiac Risk Index, and the CrCL is another indicator of renal function that will help predict postop complications, though it is not always practical to obtain a

24hr urine, especially in an emergency case (Fleischer et al., 2007). The elevated BUN should also be considered more closely to determine if it is caused by either poor renal function or dehydration. Additionally, the rest of the values from her BMP would be helpful to evaluate her electrolytes considering she is on HCTZ. Though these things would not keep her from having surgery, they would be helpful in determining what some of her immediate needs would be afterwards.

According to Fleischer et al. (2007) and the abbreviated ACC/AHA algorithm on the Preoperative Evaluation for Noncardiac Surgery, this patient is cleared for surgery based on her stent revascularization and placement within the past 5 years and her stable vital signs. However, the ACC/AHA guidelines are on a middle ground when it comes to the DES. There is controversy on whether or not the dual-antiplatelet therapy can be stopped prior to 12 months without greatly increasing the cardiac risk for MI for those with a DES (Fleischer et al., 2007). Therefore, I would make contact with her cardiologist to make him or her aware of the situation and obtain a recommendation, especially if the surgeon may be concerned about peri- and postprocedural bleeding. If anything, this would at least be a courtesy call so the cardiologist can follow the patient during her hospital stay.

Barring any other significant information that may present with a more complete history, I would clear this patient for surgery. Her Hgb/Hct is in the mid-range of normal and both her diabetes mellitus and hypertension appear well controlled. Her platelets are also mid-range, so the risk of bleeding is mitigated even though she is on anti-platelet therapy. She may possibly need a transfusion of platelets or a few units of blood during the surgery, but that will be up to the surgeon. Therefore, a type and cross-match would need to be performed. Finally, anesthesia

will address her bradycardia during the procedure, but that and the rare PVC are really non-issues and will not stop her from having surgery.

References

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