Sarah Willis Tiesing, MSN, RN, FNP-C

The Hospitalist's Approach to Operative Medical Evaluation

Disclosure

I have no relevant relationships with ineligible companies to disclose within the past 24 months. (Note: Ineligible companies are defined as those whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.)

Objectives

At the conclusion of this session, participants should be able to provide appropriate risk evaluation for preoperative medical evaluations.

At the conclusion of this session, participants should be able to provide appropriate risk reduction and management of the pre and perioperative patient.

At the conclusion of this session, participants should be able to identify appropriate medication management of the perioperative patient.

Role of the Hospitalist

- Evaluate risk
- Co-managers of care
- Liaison between the surgical care team and PCP

Choosing Wisely

- Society of General Internal Medicine
  - “Don’t perform routine pre-operative testing before low-risk surgical procedures.”
    - Goal: identify, stratify and reduce risk for major postop complications.
    - Careful history and PE

Hospitalist influence on surgical outcomes

- Mixed results in studies of cost effectiveness and length of stay
- No study indicating decrease in periop mortality from medical consultation
- Do provide evidence-based recommendations that improve surgical outcomes, inferring improved care of the surgical patient

Preop Evaluation

- Assess overall risk
  - Cardiac and pulmonary
- Is patient optimized?
- Prevention of known complications
  - VTE
  - Endocarditis
  - Surgical wound infection (consider deferring to surgeon)
- Management of perioperative medications


Medical clearance
Preop risk assessment
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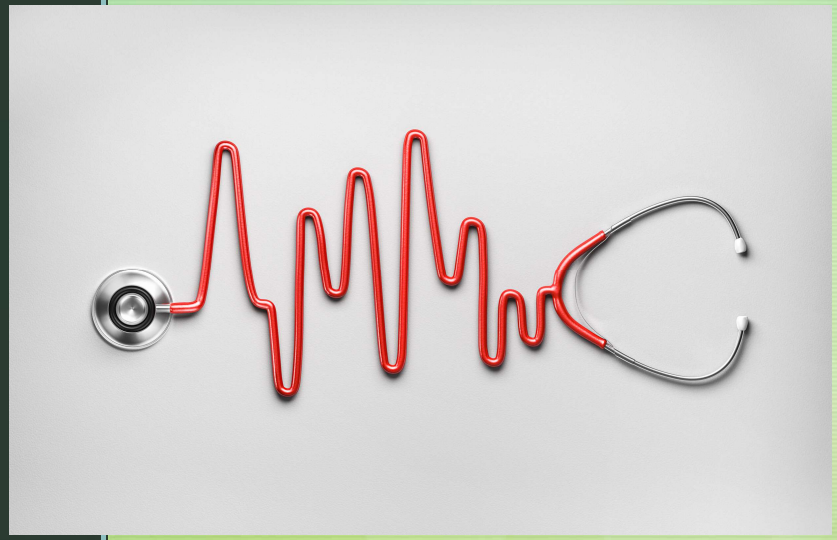
Cardiac Risk Assessment

Potential major cardiac complications

- Cardiac death
- Nonfatal MI
- Nonfatal cardiac arrest
- Postop cardiogenic pulmonary edema
- Complete heart block



Incidence of adverse CV outcome

- Directly related to baseline risk
- 2016 study: US hospital admissions from 2004-2013: 3% incidence major adverse CV and cerebrovascular events
  - Most common after vascular, thoracic and transplant surgery
- Underlying CV disease puts patients at increased risk
  - High incidence of significant CAD
  - Physiologic factors during surgery:
    - Volume shifts, blood loss, stress of surgery causing HTN, tachycardia w/increased myocardial O2 demands, increase postop platelet reactivity

ACC/AHA Guideline Summary
Cardiac Risk Stratification
Non-cardiac surgeries

High Risk (>5%)	Intermediate Risk (1-5%)	Low Risk (<1%)
• Aortic and other major vascular surgery • Peripheral artery surgery	• Carotid endarterectomy • Head and neck surgery • Intraperitoneal and intrathoracic surgery • Orthopedic surgery • Prostate surgery	• Ambulatory surgery • Endoscopic, superficial, breast surgeries

Cardiac Risk Assessment - History

Significant Symptoms

- Angina
- Dyspnea
- Syncope
- Palpitations

Significant History

- CAD
- CHF
- Valvular heart disease
- HTN
- DM
- CKD
- CVA/TIA
- PAD

Cardiac Risk Assessment - Exam

- Vitals – HR/BP
- Heart/lung auscultation
- Abdominal palpation
- Extremities – eval for edema, vascular integrity
- EKG

Assessing Cardiac Risk
Revised Cardiac Risk Index (RCRI)

- Published in 1999
- Used worldwide
- Updated 2019 based on external validation studies
- Does not predict all-cause mortality

RCRI (Revised Cardiac Risk Index)

Elevated Risk Surgery	No = 0	Yes = 1
Hx Ischemic Heart Disease	No = 0	Yes = 1
Hx CHF	No = 0	Yes = 1
Hx CVA	No = 0	Yes = 1
Pre-op treatment with insulin	No = 0	Yes = 1
Pre-op creatinine > 2mg/dL	No = 0	Yes = 1

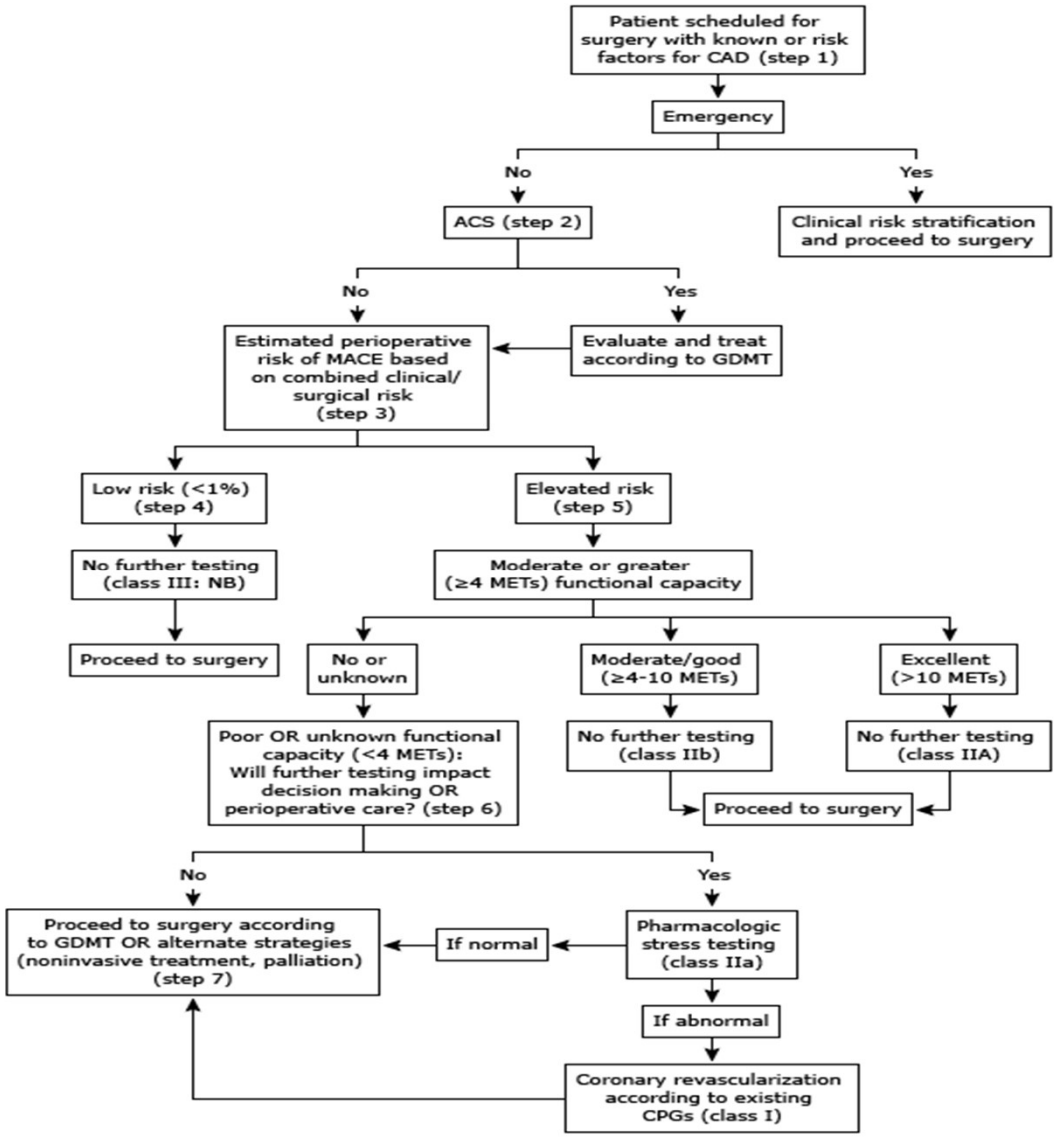
RCRI Risk of major cardiac event

Points	Class	Risk
0	I	0.4%
1	II	0.9%
2	III	6.6%
3 or more	IV	11%

Points	Class	Risk
0	I	3.9%
1	II	6%
2	III	10.1%
3 or more	IV	15%

METS (metabolic equivalents)

- Estimate METS based on ADL's
  - > or = 4 METS:
    - Ability to climb up a flight of stairs
    - Walk up a hill
    - Walk at ground level at 4 miles per hour
    - Heavy housework
  - Functional capacity screening:
    - Can you walk approximately 10 min at a 3 mph pace without experiencing limiting symptoms?
    - Can you climb two standard flights of stairs without stopping because of limiting symptoms?


Patient scheduled for surgery with known or risk factors for CAD (step 1)
Emergency
No
Yes
ACS (step 2)
Clinical risk stratification and proceed to surgery
No
Yes
Estimated perioperative risk of MACE based on combined clinical/ surgical risk (step 3)
Evaluate and treat according to GDMT
Low risk (<1%) (step 4)
Elevated risk (step 5)
No further testing (class III: NB)
Moderate or greater (≥4 METs) functional capacity
Proceed to surgery
No or unknown
Moderate/good (≥4-10 METs)
Excellent (>10 METs)
Poor OR unknown functional capacity (<4 METs): Will further testing impact decision making OR perioperative care? (step 6)
No further testing (class IIb)
No further testing (class IIA)
Proceed to surgery
No
Yes
Proceed to surgery according to GDMT OR alternate strategies (noninvasive treatment, palliation) (step 7)
If normal
Pharmacologic stress testing (class IIa)
If abnormal
Coronary revascularization according to existing CPGs (class I)

Higher-Risk patient – What's next?

- NT-proBNP
- 2014 American College of Cardiology/American Heart Association guidline
  - >4 METS does not need additional workup
  - <4 METS consider additional testing if it will influence periop care
    - Cardiology consult
    - 2DE
    - Stress testing

Assessing Pulmonary Risk

Careful History

- COPD
- Unexplained dyspnea
- Exercise intolerance
- OSA
  - STOP-Bang questionnaire
- Pulmonary hypertension

Exam

- CXR
- Pulse oximetry
- Breath sounds

Postoperative

1

Avoid nephrotoxins

- Hold home ARB/ACEI, diuretics, Metformin

2

Anticipate hypotension secondary to fluid losses

- Hold home diuretics

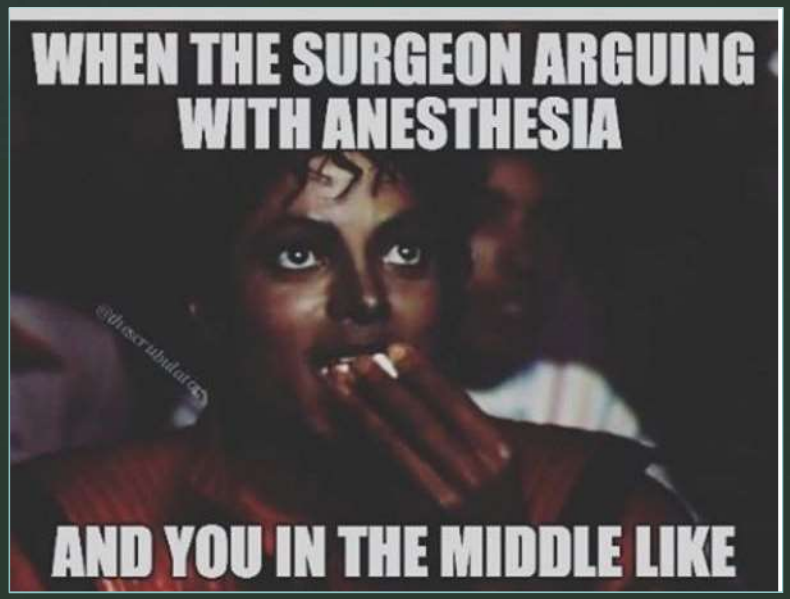
3

Tight blood glucose control

Comanagement

- Writing orders
- Majority of research indicates this is beneficial for the patient and the hospital system
  - Expedited consultation and therefore expedited surgery time
  - Decreased length of stay
  - Decreased hospital costs
  - Fewer complications

Honor Thy Turf



- Avoid making anesthesia or operative recommendations
- Direct communication is best
- Provide contingency plans

Recognize and Optimize

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Questions?

Feel free to contact me at

Sarah_Tiesing@teamhealth.com