Preoperative Cardiovascular Management

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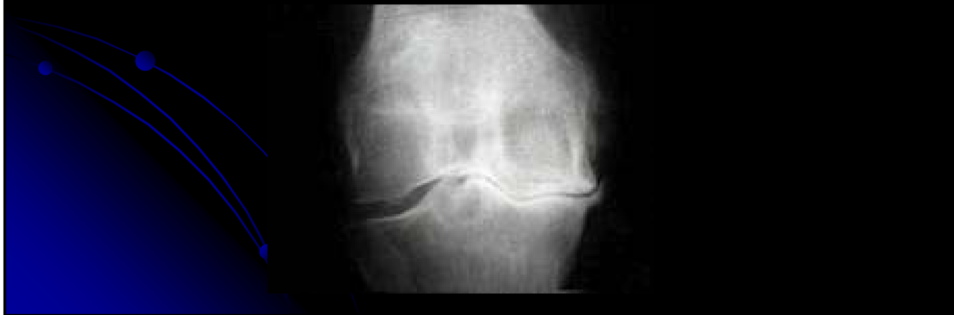
I have no disclosures or conflicts of interest…

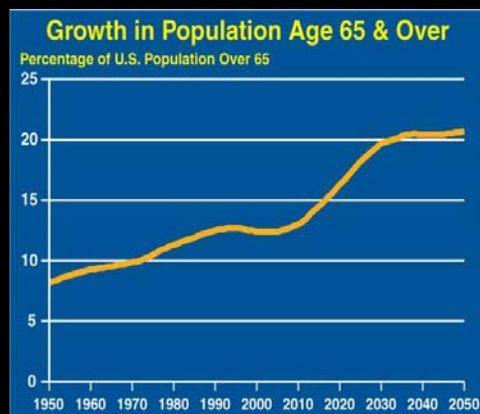
Typical patient encounter…

- Mr. J is a 65 y.o. avid hiker with history of hyperlipidemia and hypertension. He presents for pre-operative evaluation prior to undergoing a total knee replacement for osteoarthritis that has been unresponsive to conservative therapy.



Challenge

- Aging population.
- ↑ number of co-morbid conditions
- ↑ number of procedures.
- ↑ risk of procedures.
- ↑ health care costs.
- ↓Health care dollars.



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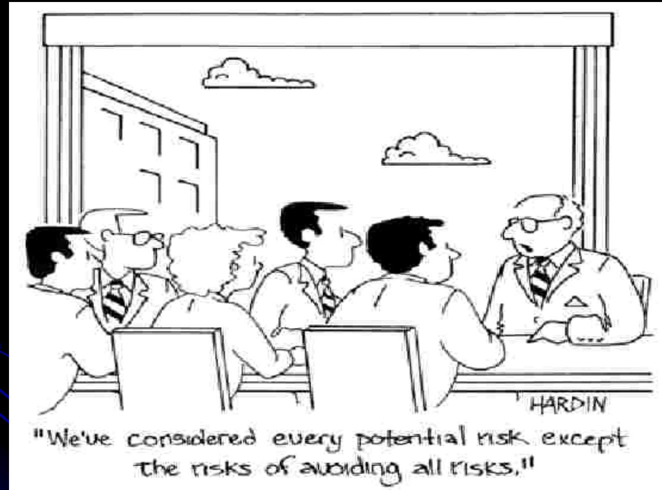
Challenge



- Who is at *most* risk and how do we identify them?

Challenge

- How can we best manage risk in our patients?

Preoperative Guidelines

"The purpose of preoperative evaluation is not to give medical clearance but rather to perform an evaluation of the patient's current medical status; make recommendations concerning the evaluation, management, and risk of cardiac problems over the entire perioperative period…"

Fleisher *et al.*
2009 ACCF/AHA Perioperative Guidelines

http://content.onlinejacc.org/cgi/content/full/j.jacc.2009.07.010)

ACC/AHA Guidelines

ACCF/AHA 2009 Guidelines on Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery

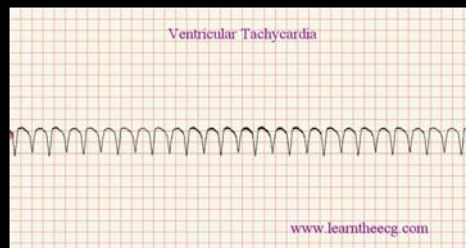
- Systematic approach based on H&P
- Easy to use algorithm with basic questions:
  - Active cardiac conditions
  - Surgical risk
  - Functional Capacity

www.acc.org and www.americanheart.org

Active Cardiac conditions require further evaluation

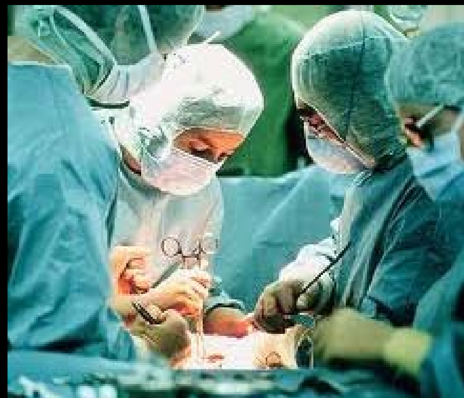
- Unstable coronary syndromes
- Decompensated Heart failure
- Severe Valular disease
- Significant arrhythmia

Severe Aortic stenosis



Procedural Risk ?

- High cardiac risk >5%
  - aortic or major vascular surgery
- Moderate risk 1-5%
  - ortho, carotid, head/neck, urologic, intra-abdominal surgery
- Low risk <1%
  - endoscopic procedures, cataracts,most ambulatory surgery, biopsies.



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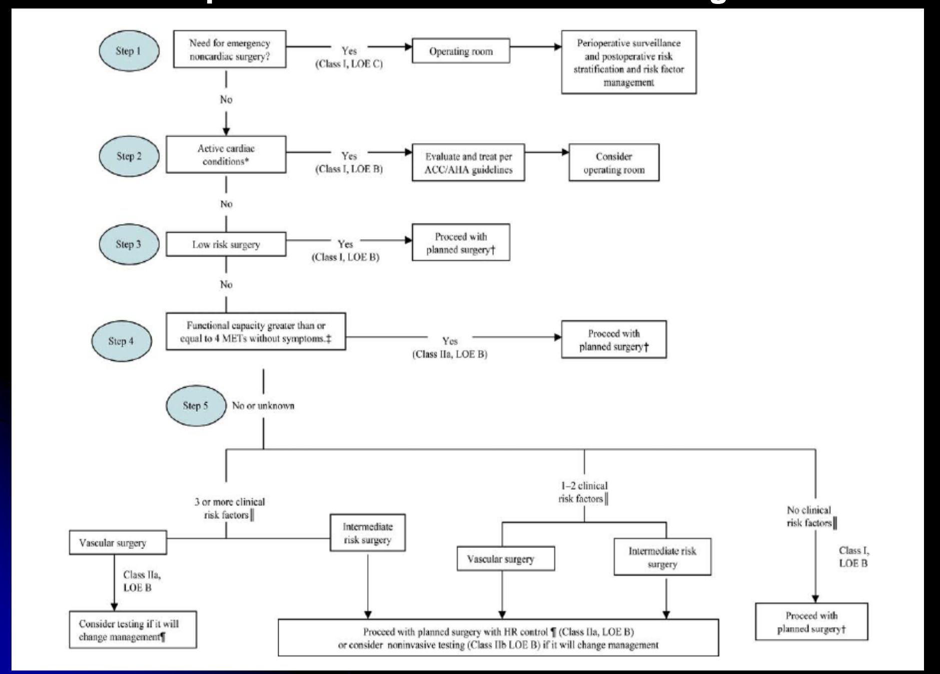
Functional capacity

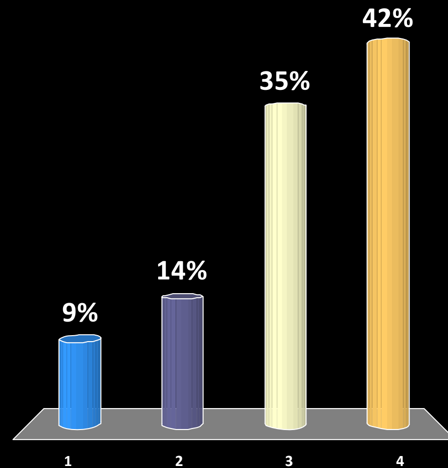
- Energy requirements
  - Greater than or equal to a 4 MET threshold for decreased risk level…
    - Light housework
    - Walk up a flight of stairs
    - Walk on level ground at a moderate pace

Pre-op Cardiac Evaluation and Care Algorithm

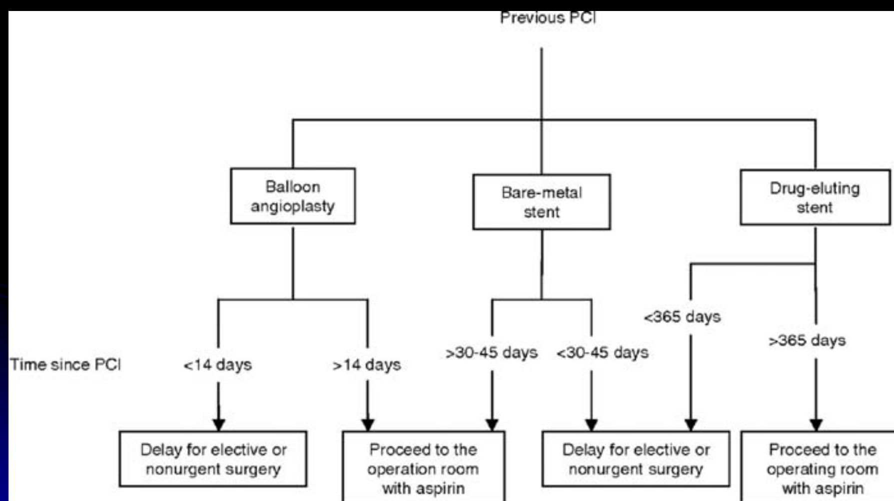


What is the *minimum* recommended duration of dual anti-platelet therapy for a patient who received a drug eluting stent prior to undergoing a surgical procedure?

1. One Month
2. 3 Months
3. 6 Months
4. 12 Months



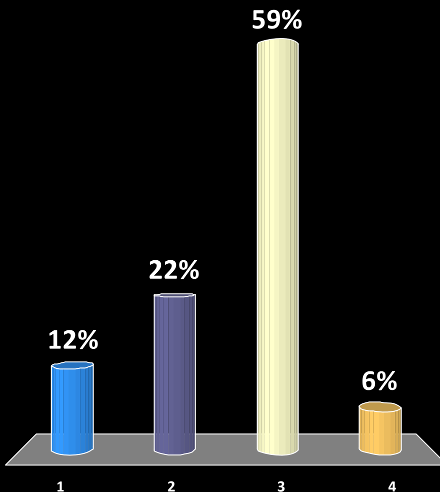
Proposed Approach to the Management of Patients with Previous PCI Who Require Noncardiac Surgery



http://content.onlinejacc.org/cgi/content/full/j.jacc.2009.07.010)

Mr. J is a 65 yo male with history of hypertension controlled with ACE-I and hyperlipidemia presents for pre-operative evaluation prior to undergoing a total knee replacement. Regarding beta-blocker therapy you recommend:

1. begin metoprolol day prior to surgery.
2. begin metoprolol a week before surgery and titrate to a HR of 60-70 bpm.
3. benefit of beta blockers is uncertain in this patient.
4. beta blockers are contraindicated pre-op.



Question #2

Recommendations for Perioperative Beta-Blocker Therapy

Surgery	No Clinical Risk Factors	CAD or High Risk (1 or more clinical risk factors)	Patients Currently Taking Beta Blockers
Vascular	Class IIb, Level of Evidence: B	Class IIa, Level of Evidence: B	Class 1, Level of Evidence: C
Intermediate risk	…	Class IIa, Level of Evidence: B	Class 1, Level of Evidence: C
Low risk	…	…	Class 1, Level of Evidence: C

Clinical risk factors = hx of CAD, CVA, CHF, CKD, DM

http://content.onlinejacc.org/cgi/content/full/j.jacc.2009.07.010)

Summary

- Stress testing/further evaluation if it will affect peri-operative management
  - >3 clinical risk factors and major vascular procedure, or
  - >1-2 risk factors and intermediate risk surgery and poor functional capacity.
  - Unstable angina, arrhythmia, severe valve disease

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Pre-Operative Risk Assessment May 20, 2008:1913–24

Summary

- Beta blockers indicated for higher risk patients and those currently taking the drug. (continue post-op)
- Continue dual anti-platelet tx
  - 12 months for Drug eluting stents
  - 1 month bare metal stents

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Pre-Operative Risk Assessment May 20, 2008:1913–24

Conclusion

"The overriding theme of this document is that intervention is rarely necessary to simply lower the risk of surgery unless such intervention is indicated irrespective of the preoperative context."

Fleisher *et al.*
2009 ACCF/AHA Perioperative Guidelines

Thank you

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