

Performing a Medical Consultation: What to do in the Middle of the Night?

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Med Con

- It's an Art
- It takes Practice
- It's impossible to teach it all in 30 minutes

Let's Be Practical

- What are you likely to be called about while carrying the Med Con Pager???

Med Con

- It's 3 AM early Saturday Morning and you are the SACR
- The Medicine Team has capped and are all sleeping
- Your pager beeps: 8-8869
- You call the T.R.U.
- You are asked to consult on a particular patient

Med Con

- 68 y/o WM with DM and “multiple other medical problems” who fell and broke his hip
- He is hemodynamically stable and will likely go to the OR in the near future
- They are requesting “Medical Clearance for the OR”

Why are they consulting you?

- They want Peri-Operative Risk Estimates on the Chance for Peri-Operative MI and Cardiac Death

Why is that important?

- Coronary Heart Disease:
 - Most Frequent Cause of Peri-Operative Cardiac Morbidity and Mortality after Non-Cardiac Surgery

Purpose of the Medical Consult

- Evaluate the patient's medical status
- Provide clinical risk profile
- Recommend management of cardiac risk through peri-operative period
- Treat modifiable risk factors
- **REMEMBER: YOU ARE THE EXPERT**

3 Most Important Pieces of Info

- Clinical Assessment
- Functional Status
- Determine Selected Surgery Risk

Clinical Assessment

- Goal
 - Identify Patients' Cardiac Risk:
 - Low (<3%)
 - Intermediate (3-15%)
 - High (>15%)

Clinical Assessment

- Complete History
 - H/o CAD, prior MI, angina, CHF, arrhythmia
 - Define Disease Severity, Stability, and Prior Tx
 - Identify Co-Morbidities (DM, PVD, CRI)
- Physical Exam
 - Gen Appearance, Carotid Bruits, JVD, Rales, S3, Murmur
- Basic Labwork
 - Chem 7, CBC, Coags, UA
- EKG
- CXR

Clinical Predictors

Clinical Predictors of Increased Perioperative Cardiovascular Risk

(Myocardial Infarction, Heart Failure, Death)

Major

Unstable coronary syndromes

- Acute or recent myocardial infarction* with evidence of important ischemic risk by clinical symptoms or noninvasive study
- Unstable or severe† angina (Canadian Cardiovascular Society Class III or IV)‡

Decompensated heart failure

Significant arrhythmias such as

- High-grade atrioventricular block
- Symptomatic ventricular arrhythmias in the presence of underlying heart disease
- Supraventricular arrhythmias with uncontrolled ventricular rate

Severe valvular disease

Intermediate

Mild angina pectoris (Canadian Cardiovascular Society Class I or II)

Prior myocardial infarction by history or pathological Q-waves

Compensated or prior heart failure

Diabetes mellitus (particularly insulin-dependent)

Renal insufficiency

Minor

Advanced age

Abnormal electrocardiogram (left ventricular hypertrophy, left bundle branch block, ST-T abnormalities)

Rhythm other than sinus (eg, atrial fibrillation)

Low functional capacity (eg, inability to climb one flight of stairs with a bag of groceries)

History of stroke

Uncontrolled systemic hypertension

Functional Status

- METS: Metabolic Equivalent Levels
- Oxygen Consumption (VO_2) of 70 kg, 40 y/o man at rest = 3.5 ml/kg/min = 1 MET
- Assess Aerobic Demands: Multiples of this baseline MET value
- Peri-Operative Cardiac Risk Increases in patients who CANNOT meet 4 METS during their ADL's

Functional Status

Estimated Energy Requirements for Various Activities

1 MET

Can you take care
of yourself?

Eat, dress, or use
the toilet?

Walk indoors around
the house?

Walk a block or two on
level ground at 2-3 mph
or 3.2-4.8 km/h?

4 METs

Do light work around
the house like dusting
or washing dishes?

4 METs

Climb a flight of stairs or walk
up a hill?

Walk on level ground at 4 mph
or 6.4 km/h?

Run a short distance?

Do heavy work around the house
like scrubbing floors or lifting or
moving heavy furniture?

Participate in moderate
recreational activities like
golf, bowling, dancing, doubles
tennis, or throwing a baseball
or football?

>10 METs

Participate in strenuous sports
like swimming, singles tennis,
football, basketball, or skiing?

Selected Surgery Risk

- Vascular Surgeries: High Risk
 - These PVD patients likely also have CAD
- Operations with Increased Hemodynamic Stress: High Risk

Selected Surgery Risk

Cardiac Event Risk* Stratification for Noncardiac Surgical Procedures

High

(Reported cardiac risk often >5%)

- Emergent major operations, particularly in the elderly
- Aortic and other major vascular surgery
- Peripheral vascular surgery
- Anticipated prolonged surgical procedures associated with large fluid shifts and/or blood loss

Intermediate

(Reported cardiac risk generally <5%)

- Intraperitoneal and intrathoracic surgery
 - Carotid endarterectomy surgery
 - Head and neck surgery
 - Orthopedic surgery
 - Prostate surgery
-

Low†

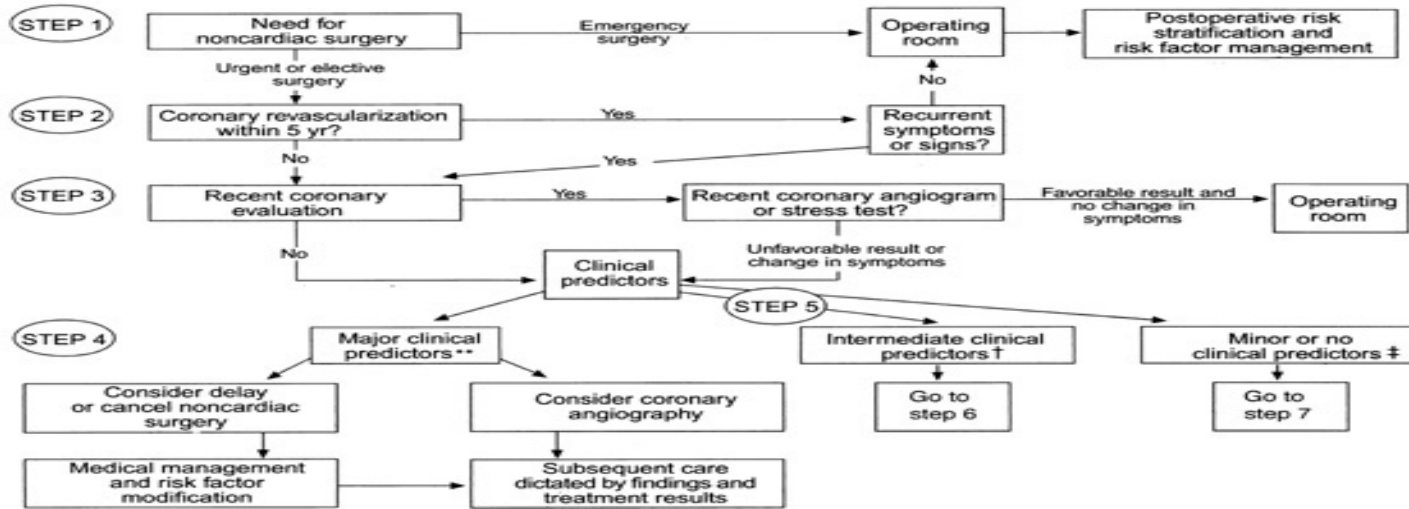
(Reported cardiac risk generally <1%):

- Endoscopic procedures
- Superficial procedures
- Cataract surgery
- Breast surgery

Just to Recap...

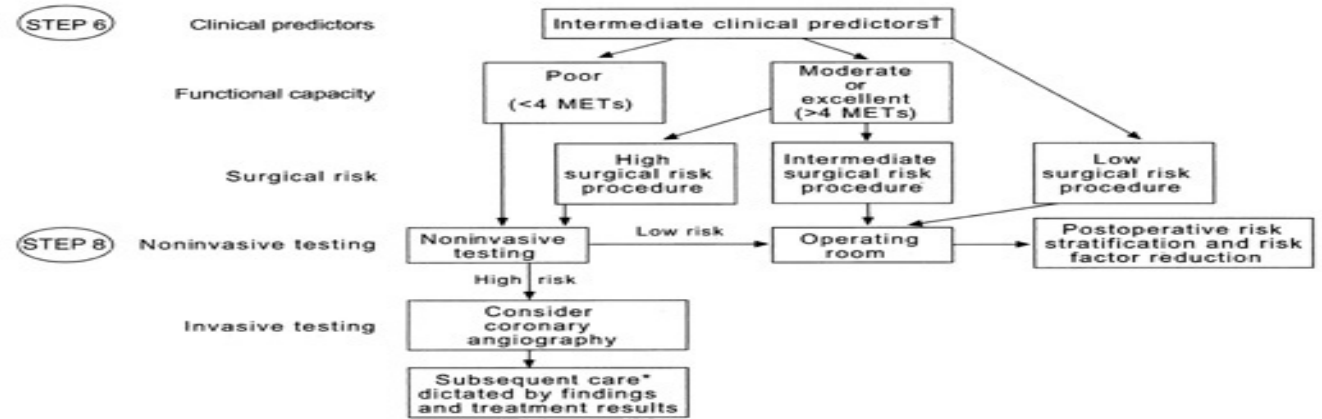
3 Major Take-Home Points

- Clinical Assessment
 - Functional Status
 - Determine Selected Surgery Risk
-
- Once you have this information, you can follow the Pre-Op Algorithm



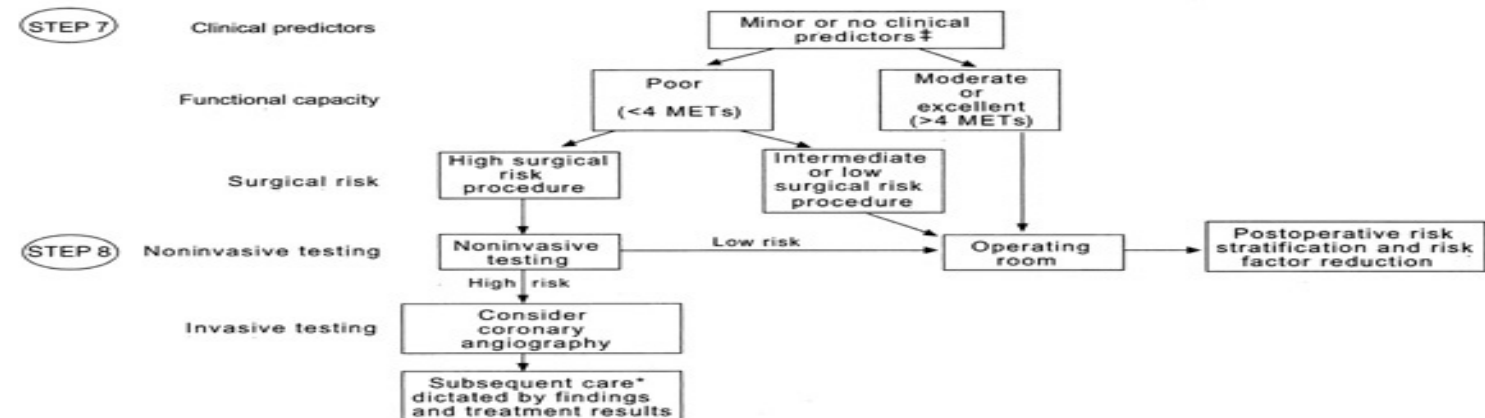
Major Clinical Predictors **

- Unstable coronary syndromes
- Decompensated CHF
- Significant arrhythmias
- Severe valvular disease



Intermediate Clinical Predictors †

- Mild angina pectoris
- Prior MI
- Compensated or prior CHF
- Diabetes mellitus
- Renal insufficiency



Minor Clinical Predictors ‡

- Advanced age
- Abnormal ECG
- Rhythm other than sinus
- Low functional capacity
- History of stroke
- Uncontrolled systemic hypertension

Back to Your Patient

- 68 y/o WM with DM and “multiple other medical problems” who fell and broke his hip
- You perform a complete Hx and PE and this is what you find...

Your Patient

- HPI:
 - No CP or SOB
 - Only complains of Hip Pain
- PMH/PSH:
 - DM, HTN, CRI
 - No h/o MI, CHF, or Arrhythmia
- Meds:
 - Glyburide, Lisinopril, HCTZ, Aspirin
- All: NKDA
- SH: Denies
- FH: Non-Contributory

Your Patient

- VS: 98.9, 94, 18, 156/84, 99% RA
- PE:
 - Drowsy but alert, NAD, Well appearing
 - 2+ Carotid pulses without bruits
 - No JVD
 - RRR without M/R/G
 - CTAB
 - Abd in brace for Hip Fxr
 - No LE edema, Neurovascularly intact

Your Patient

- Labs Remarkable for:
 - Cr 1.8, Glucose 158
 - Coags, CBC wnl
- EKG: NSR with LVH, No ST/T changes
- CXR: Negative

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Low†

(Reported cardiac risk generally <1%):

- Endoscopic procedures
- Superficial procedures
- Cataract surgery
- Breast surgery

Algorithm

- Step 1: Need for Urgent/Elective Non-Cardiac Surgery: Yes
- Step 2: Coronary Revascularization within 5 Yrs: No
- Step 3: Recent Coronary Evaluation: No
- Step 5: Clinical Predictors:
INTERMEDIATE (DM, CRI)

Algorithm

- Step 6: Functional Capacity: 4 METS
- Step 6: Surgical Risk: Orthopedic Operation = Intermediate Risk
- Recommendation: Proceed to OR

Devil's Advocate

- Step 6: Functional Capacity: <4 METS
- Step 8: Non-Invasive Testing:
 - Exercise EKG, Adenosine Thallium, Dobutamine Echo
 - Assess LV Function
 - EF < 35% shown to increased risk of non-cardiac surgery
 - Assess Cardiac Ischemia
- Your Patient:
 - Adenosine Thallium: Minimal Reversible Ischemia
- Recommendation: Proceed to OR

Other Pointers

- You should make recommendations of Specific Pre-Operative Cardiovascular Conditions
 - HTN
 - Valvular Disease
 - Arrhythmias
 - ICD's
 - CAD
 - VTE

HTN

- DBP should be < 110
- Control this Pre-Operatively
- Continue anti-HTN meds through Peri-Operative Period

Valvular Disease

- Symptomatic AS/MS
 - Associated with risk of Peri-Op Severe HF or Shock
 - Require Valvotomy or Valve Replacement Prior to Non-Cardiac Surgery
- Symptomatic AR/MR
 - Better tolerated Peri-Op
 - Treat the Valve AFTER Non-Cardiac Surgery

Arrhythmias

- R/O Cardiopulmonary Disease, Drug Toxicity, or Metabolic Abnormality
- Treat if Symptomatic or Hemodynamically Unstable

ICD's

- Turn OFF just Prior to OR
- Turn ON immediately After OR

VTE

- DVT Prophylaxis (of surgeon's choice)
 - Venodynes
 - SC Heparin
 - Lovenox

CAD

- Consider Revascularization depending on results of Non-Invasive Studies
- BETA-BLOCKERS:
 - Decrease Peri-Operative Ischemia
 - Decrease the Risk of MI and Death in High Risk patients
 - Start Days to Weeks before elective surgery
 - Goal HR: 50 - 60 bpm
 - Recommended for patients with CAD or CAD-RF's

Medical Management of Your Patient

- HTN/CAD
 - Continue Lisinopril, HCTZ, and Aspirin
 - Start Metoprolol; Titrate to HR b/n 50 – 60
- DM
 - Hold Glyburide
 - Cover with SSI
- DVT Prophylaxis

Take-Home Points

- Clinical Assessment
- Functional Status
- Determine Selected Surgery Risk
- You are the Medicine Expert
- Teamwork and Communication b/n Patient, Surgeons, and Medical Consultant

One Last Point

- ALL, ALL, ALL pre-ops MUST, MUST, MUST be discussed with an Attending

Sources

- American College of Cardiology Website
 - www.acc.org
 - Downloadable PDA Version
- American College of Physicians. Guidelines for Assessing and Managing the Perioperative Risk from Coronary Artery Disease Associated with Major Noncardiac Surgery. *Ann Intern Med.* 1997;127: 309-312.

QUESTIONS???