Management of Chronic Stable Coronary Artery Disease

Allen L. Dollar, MD, FACC, FACP

The Patient

66 yo diabetic man with a 2 yr hx of moderate mid-sternal chest pressure when climbing 2 flights of stairs or walking quickly up inclines
Pattern and severity of the symptoms has been unchanged over the past two years
Cardiac exam- normal
Resting ECG- normal

What to do next?
A. Coronary arteriography
B. Pharmacologic nuclear stress test
C. Treadmill stress echocardiogram
D. Treadmill nuclear stress test
E. Plain ECG treadmill stress test

Stress testing in the evaluation of stable anginal chest pain

• Goals
  − Confirm the diagnosis
  − Risk stratification (prognosis ≠ diagnosis)
• Stress testing principles
  − A normal ECG is a prerequisite for a plain TMT
  − If the resting ECG is normal, a plain TMT is usually adequate
  − If the patient can walk, use the treadmill (exception = LBBB use pharmacologic nuclear stress)
  − Nuclear imaging may be more accurate (speaker’s opinion) but more false positives and tons of radiation
  − Stress echo adds accuracy to plain TMT with no radiation but requires local expertise. Good prognostic test.

Treadmill nuclear stress test:
10.5 minutes Bruce, moderate typical angina
1.5 mm horizontal ST depression- resolve by 2 min recovery
Nuclear images show anterior ischemia comprising 5% of myocardium

A. Coronary arteriography with possible intervention
B. CT coronary angiography
C. Start anti-anginal pharmacologic therapy

Definition of Chronic Stable Coronary Disease

• Usually defined as at least one ‘hemodynamically-significant’ coronary lesion
• Either asymptomatic ischemia on stress test or angina with exertion
• Stable with regards to amount of exercise needed to provoke as well as severity and duration of symptoms when they occur

Goals of therapy

• Prolongation of life
• Reduce chance of CV events
• Relief of symptoms
Who needs a cath?

- High risk stress test
  - CP and or profound ST depression with low-intensity of exercise
  - Large amount of myocardium at risk on imaging
- Angina that interferes with patient’s lifestyle despite maximal tolerable medical therapy

What if the patient was taken to the cath lab and found to have an 80% narrowing of the mid-LAD?

A. Stent the LAD: This will reduce his chances of death and MI in the future.
B. Stent the LAD: This will reduce his chances of MI, but not death, in the future.
C. The only reason to stent the LAD is for symptom management. You could try medical therapy first.

COURAGE

- 2287 patients with stable CAD randomized to medical tx or PCI
- Followed for median of 4.6 years
- Only exclusions were
  - left main narrowing
  - markedly early positive treadmill
  - rest angina
  - poor LV function (EF<30)

COURAGE

- Number of vessels significantly narrowed
  - ONE 30%
  - TWO 40%
  - THREE 30%
- 35% HAD PROXIMAL LAD NARROWING
BARI 2D

Survival of death from any cause and myocardial infarction

A

Hazard ratio, 1.05; 95% CI (0.87–1.27); P=0.62

No. at Risk
Medical therapy 1138 1017 959 834 638 408 192 30
PCI 1149 1013 952 833 637 417 200 35

Survival of Myocardial Infarction

D

Hazard ratio, 1.13; 95% CI (0.89–1.43); P=0.33

No. at Risk
Medical therapy 1138 1019 962 834 638 409 192 120
PCI 1149 1015 954 833 637 418 200 134

A Randomized Trial of Therapies for Type 2 Diabetes and Coronary Artery Disease

BARI 2D Study Group

B

Survival of ACS

C

Hazard ratio, 1.07; 95% CI (0.84–1.37); P=0.56

No. at Risk
Medical therapy 1138 1025 956 833 662 418 236 127
PCI 1149 1027 957 835 667 451 246 134

Survival in PCI ARM

SURVIVAL IN PCI ARM

Medical therapy 89.8 Revascularization

P=0.04
Anti-platelet/anti-coagulation?

A. Start ASA 81mg qd  
B. Start ASA 325 mg qd  
C. Start ASA 81mg + clopidogrel 75mg qd  
D. Start ASA 81mg + warfarin

Beta blockers?

A. Beta blockers should be added - they are indicated for all CAD patients.  
B. BB could be added for symptom relief but there is no survival data to suggest benefit in this patient  
C. BB are contraindicated as they can worsen glucose control in diabetics

BP 136/80

A. This BP is fine for this patient  
B. All pts with CAD should have their BP less than 130/80  
C. This pt should have his BP lowered to under 130/80 because of his DM
TCHOL  150  
LDL   65  
HDL   35  
TRIG  250  
Non-HDL 115  
on simvastatin 20mg qd

A. Increase simvastatin to 40mg then recheck labs  
B. Increase simvastatin to 40mg and add fenofibrate or niacin  
C. Switch patient to atorvastatin 40-80mg or rosuvastatin 20-40mg  
D. Add ezetimibe

If the angina persists despite a BB, what would be the next step to try to lessen it?

A. Start ranolazine  
B. Start isosorbide mononitrate  
C. Start a CCB  
D. Advise patient to not climb stairs

2013 ACC/AHA Guidelines on the Treatment of Blood Cholesterol to Reduce Atherosclerotic CV risk in Adults

• High-intensity statin therapy should be initiated or continued as first-line therapy in women and men <75 years of age who have clinical SCVD unless contraindicated  
• High-intensity statin therapy:  
  – Atorvastatin 40-80 mg  
  – Rosuvastatin 20-40mg

How to choose anti-anginal drugs

• Start with beta blocker  
  – they provide a survival advantage in many subsets and are at least as good or better at reducing sx  
• Add a calcium blocker and/or long-acting nitrates  
• Use short-acting nitrates, if tolerated, before planned exercise.  
• Consider ranolazine

DRUGS THAT Reduce MI and Death

• Aspirin  
  – reduces incidence of vascular events by 20-25% in pts with prior events or those at risk.  
• Beta blockers  
  – reduce death and MI after an MI by 20-30%  
• Statin drugs  
  – lower risk of death by 25-40% in patients with known CAD or at high risk for CAD  
• **EVERYONE SHOULD BE ON ALL THREE OF THESE IF TOLERATED

DRUGS THAT ONLY REDUCE SYMPTOMS

• CALCIUM BLOCKERS  
• NITRATES  
• RANOLAZINE
What to do with our patient when he complains of lifestyle limiting angina despite BB + CCB?

- Options include
  - Adding a nitrate
  - Adding ranolazine
  - Going to cath to see what can be revascularized

What is the latest exercise recommendation from the 2013 Lifestyle Management Guidelines?

A. Moderate aerobic physical activity 20 minutes/day, 7 days/week
B. Combination of aerobic and weightlifting 30 minutes/day, 5 days/week
C. Moderate-vigorous aerobic physical activity 40 minutes/day, 3-4 days/week
D. Light physical activity 60 minutes/day, 3-4 days/week

EXTREMELY IMPORTANT interventions in the treatment of chronic stable angina

- Smoking cessation
- Optimize
  - LIPIDS
  - BP
  - DM
  - Weight
- Daily exercise

Recap

- Stress testing is indicated in patients with suspected angina for diagnostic and risk-stratification purposes
- Not all patients with CAD need a cath
- PCI and CABG do nothing to prevent death and MI in stable patients with decent LV function and low-moderate risk stress test results
- For symptomatic tx of angina: BB, CCB, nitrates, and ranolazine. Consider revascularization
- Use high-intensity statin therapy regardless of LDL
- Don’t forget smoking cessation, weight control, exercise, BP control