Acute Coronary Syndromes: PBL

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Dr. Schneider cares for the underserved in Santa Rosa, CA, serving Latino, Southeast Asian, and Eritrean populations. His professional interests include the doctor-patient relationship, clinical skills, and teaching the breadth and depth of family medicine for over 20 years. Cardiovascular system conditions are one of his specialty topics, and he points to "the growing body of evidence suggesting that lifestyle is as effective as, or more effective than, pharmacologic interventions in primary prevention." He also focuses on conditions of the endocrine system (especially thyroid), skin and dermatology, primary prevention focusing on lifestyle, and procedures. Dr Schneider is board certified not only in Family Medicine, but also in Integrative Holistic Medicine. He produces Dr. Dave's To Your Health segments for Wine Country Radio and BlogTalkRadio.com.

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Learning Objectives

1. Practice applying new knowledge and competencies gained from Acute Coronary Syndrome sessions, and receive feedback from expert faculty.
2. Interact collaboratively with peers to solve complex and challenging case-study scenarios.
3. Develop problem-solving skills that promote effective reasoning to manage acute coronary syndromes and angina within the context of professional practice.

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Audience Engagement System

Step 1 | Step 2 | Step 3

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Chief Complaint

- A 47 y.o. Caucasian woman (LS) is in your office for her diabetes follow up. You notice that she is uncomfortable, speaking in abbreviated sentences. You ask her if she is having breathing problems, and she responds, "Yes."

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History of Present Illness

- 47 y.o. WF diabetic presents w/dyspnea intermittently for 3 weeks, restarted & constant since she awoke this morning @ 0800 (it is now 10:00).
- Further questioning reveals:
  - Today she feels different.
  - Difficulty breathing.
  - No chest pain, but very uncomfortable sensation in her chest.
  - R shoulder feels uncomfortable—sore.

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History of Present Illness—2

- Continued questioning re today:
  - No pain, but endorses sort of pressure in chest when you ask.
  - No orthopnea.
  - Hard to breathe at rest, worse w/exertion.
  - No palpitations, no syncope.
  - Feels "clammy."
  - Maybe some nausea, no vomiting.
  - SOB last 3 weeks less severe/protracted vs now. This is more uncomfortable now.

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Past Medical History

- DM2 X 14 years, not optimally controlled.
  - HbA1C range 7.0 – 9.3; usu ~ 8.
- HTN X 8 yrs, generally well controlled.
- Dyslipidemia.
- Probable osteoarthritis of knees.

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Medications, Allergies

- Meds:
  - Metformin 1000 mg bid.
  - Lisinopril 20 mg daily.
  - Pravastatin 20 mg hs.
  - Ibuprofen 600 mg prn – mostly tid.
  - Prior MD had her on rosiglitazone, which you stopped several years ago when you started seeing her.
  - MVI, vitamin D.

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Medications, Allergies—2

- Mostly adherent w/meds.
  - How do **you** assess for med adherence?
- Allergies: NKDA

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Family History

- Both parents w/HTN.
- Mother w/DM2.
- Mother smoked, & had MI at age 62.
- Maternal uncle (mom's bro) diet of heart condition in his 50's.
- A cousin had cancer and died at age 46.

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Social History

- Smoked <1/2 ppd for 10 years starting in high school, quit at age 26.
- Social drinker.
  - What does this mean to your pt?
  - Used to drink a bit more when younger.
- Experimented with drugs in late teens – 20's: hallucinogens (LSD, mushrooms), tried cocaine.
- No parenteral drug use.

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Review of Systems

- No F/C/NS/wt loss.
- CV/pulm per HPI.
- Otherwise negative.

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Physical Examination

- BP 158/84, T 98.6, P 56, R 16.
- Obese – BMI = 34.7.
- Anxious & uncomfortable, diaphoretic.
- PERRL, EOMI.
- Neck supple, no nodes, No obvious JVD.
- Heart: RRR, NI S1-S2, no murmur.
- Lungs clear.
- No cyanosis/clubbing/edema. Pulses WNL.

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Laboratory/Radiology

- You have no office lab, nor Xray.
  - Most recent lipid panel 9/2013:
    - Total chol = 190.
    - LDL = 110.
    - HDL = 40.
    - Non-HDL = 150.

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Decision Point

- Next steps?

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Lipid Management

- 2013 ACC/AHA Guidelines:
  - Pt's 10-yr risk = 5.5%.
  - She has DM2 ➔ mod intensity statin.
  - Pravastatin 20 mg = low intensity statin.

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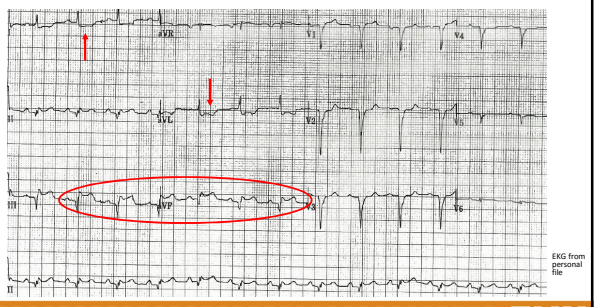

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Assessment

- DDx of chest pressure in 47 y.o. obese uncontrolled diabetic w/controlled HTN:
  - Angina – chronic stable.
  - ACS/MI.
  - Asthma.
  - PE.
  - Anxiety/panic attack.
  - GERD.
  - Biliary colic.

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Assessment

- DDx:
  - Does she have a potentially lethal condition?
    - Dissecting aneurysm.
    - Embolism (pulmonary).
    - Acute coronary syndrome.
    - Tension pneumothorax.
    - Hole in GI tract.
      - Esophageal perforation.
      - Perforated ulcer.

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Assessment—2

- Pt is having an acute inferior MI.

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Decision Point

- Next steps?
- Things to consider.

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Special Considerations—Inferior MI

- May be associated w/RV MI (1/3 of IWMI).
  - Check R sided leads – V4R – V6R (ACC rec).
    - Most sensitive: ST ↑ 1mm V1 + V4R.
    - Triad: hypotension + clr lungs + ↑JVP.
  - RVMI ➔ dep on preload to maintain cardiac output.
    - ↑ neck veins may NOT be d/t fluid overload—consider IV NS!
    - Avoid diuretics in proven RVMI.
    - Caution w/nitrates & opiates.
    - Dopamine if persistent hypotension.
    - Early reperfusion (PCI/thrombolysis) ↓ morbidity & mortality (rapid recovery of RV function).

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F/U of Ms. LS

- EKG shows completely normal V4R – V6R.
- You send her to the ED & meet her there.

- ED:
  - HR = 52, PR interval is normal (168 ms).
  - BP = 90/45.

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Decision Point

- What's going on?
- Next steps?

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Special Considerations 2—Inferior MI

- Inferior MI may be associated w/bradycardia.
  - RCA tends to supply:
    - Inferior LV.
    - RV.
    - **SA** & AV nodes (sinus brady, Wenckebach).
      - SB = up to 40% of IWMI in 1st 2 hrs, 20% 1st day.
  - Increased vagal tone (SB).
  - 2nd/3rd deg AVB: 10% of IWMI receiving thrombolysis; ½ of those are already present on admission (5% tot).

Coron Artery Dis. 2005 Aug;16(5):265-74

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Managment of Bradycardia in IWMI

- Atropine (0.5 – 1 mg/dose, max 3 mg).
  - Brady + normal PR (no AV block) ➔ possible cardioinhibitory reflexes (Bezold-Jarisch).
  - Early (≤24 hr) IWMI: usu responsive to atropine.
  - P-24 hr & RVMI: may be atropine-resistant.
  - Caution: case reports of Vfib w/atropine in active ischemia.
- NB: VT or VF may occur in up to 1/3 of RVMI.

Am J Cardiol. 2009 Dec;104(12):1678-83

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Decision Point

- Acute inferior wall MI.
- Next steps?

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Plan

- Dr Dave's 3 steps in ACS management:
  1. Emergency management.
  2. Look at the EKG (you've already done it).
  3. $(ABC)^2$ meds.

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Plan—2

1. Emergency management:
   - Monitor.
   - MONA.
     - Morphine.
     - Oxygen.
     - Nitrates.
     - ASA.

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Plan—3

2. Look at the EKG.
   - STEMI ➔ reperfuse, if able.
   - No ST elevation = unstable angina or NSTEMI.
   - NSTEMI:
     - Unstable, persistent sx, severe arrhythmia ➔ reperfuse.
     - TIMI risk score.

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Plan—4

3. $(ABC)^2$ meds.
   - **A**SA –already done in MON**A**.
   - **A**nticoagulant.
   - **B**eta-**B**locker—w/in 24 hr.
   - **C**lot inhibitor—clopidogrel, prasugrel, ticagrelor.
   - **C**holesterol – high intensity statin.
- Pathophys of MI is plt aggregation + coagulation ➔ block 'em!

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Plan—Our Pt

- ASA 162-325 mg chewed immediately (NO EC).
  - CURRENT-OASIS 7 suggests 81 may work.
- Beta blocker:
  - Oral unless hypertensive @ presentation OR uncontrolled angina @ presentation ➔ IV.
  - Metoprolol tartrate 25-50 po q 6-12 hr.
    - May convert to LA drug @ or p-D/C—metoprolol succinate or atenolol.

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Decision Point

- Reperfusion:
  - Should Ms. S be reperfused?
  - If so, how? If not, why not?

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Plan—Our Pt—2

- Pt arrived w/in 12 hr of sx onset.
- If door-to-balloon time ≤90 min ➔ PCI.
  - If non-PCI-capable hospital:
    - Can you get pt transferred out of ED w/in 30 min?
    - Can you get pt to PCI w/in 120 min of 1st contact in non-PCI-capable hospital?
    - If yes to both ➔ transfer for PCI.
    - If time from 1st contact to PCI >120 min, thrombolysis IF not contraindicated (use protocol, tables, list, etc).

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Plan—Our Pt—3

- We are at a PCI-capable hospital ➔ call cardiologist.
- While awaiting cardiologist:
  - Heparin drip.
    - Principle: if pt to get procedure that might make him/her bleed, use reversible agent—heparin.
  - Atorvastatin 80 mg po.

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Decision Point

- Which antiplatelet agent?

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Plan—4a: Which Antiplatelet Agent?

- Clopidogrel 600 mg po loading dose.
  - STEMI pts may benefit even if not reperfused.
- Ticagrelor 180 mg po loading dose.
  - ↑ non-procedure-related bleeding.
  - ↑ hemorrhagic stroke.
  - ↑ SOB.
  - Bid drug (clopidogrel = once daily).
  - FDA initially did not approve—US pts (PLATO trial) did not benefit!
  - Concerns w/PLATO—biases (↓ outcomes @ company-sponsored sites).

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Plan—4b: Which Antiplatelet Agent?

- Prasugrel 60 mg po loading dose.
  - Contraindicated if any H/O TIA, stroke.
  - Contraindicated if wt <60 kg, or age ≥75 years.
  - Superior to clopidogrel 300 mg—**not** current dose.
  - TRILOGY-ACS (smaller trial, longer duration) contradicts TRITON-TIMI 38—no mortality benefit for prasugrel.
- Thrombolysis:
  - Clopidogrel 300 mg.
  - Prasugrel & ticagrelor not studied.

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Plan—4c: Which Antiplatelet Agent?

- Our cardiologists have switched to ticagrelor.
- I would like more good RCT's.
  - I'm (DS) not an early adopter of meds.
  - Limited trials—approval for both new drugs based on 1 trial each.
  - Conflicting & concerning evidence since initial trials.

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Outcome

- Pt had PCI w/good result, no complications.
- Normal EF.
- Home meds:
  - Metoprolol succinate 100 mg daily.
  - Atorvastatin 80 mg daily.
  - ASA 81 mg daily.
  - Clopidogrel 75 mg daily.

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Questions?

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Contact Info

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Associated Session

- Acute Coronary Syndromes: Unchain My Heart

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Interested in More CME on this topic?

aafp.org/fmx-cardio

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