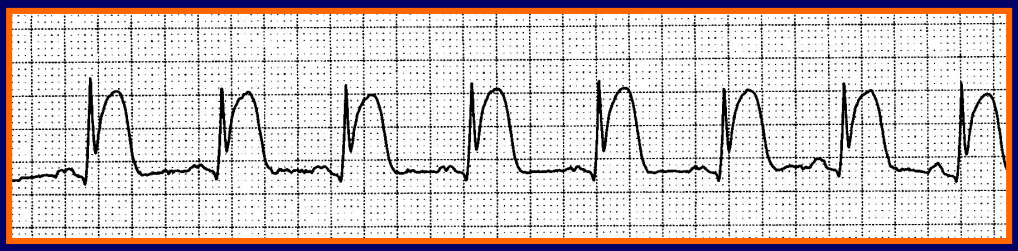
ACS in the Elderly:
When Traditional Teaching Falls Short



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Why is this important?

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Why is this important?

This is HIGH RISK emergency medicine!

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Why is this important?

50% of elderly patients discharged from ED with ACS die within 3 days!

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Outline

- Physiologic changes
- Presenting features
- Management

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Physiological Changes with Age

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Physiological Changes with Age

- Can't compensate for reduced CO by increasing HR (CO = HR x SV)
  - Rely on increasing ventricular filling and SV to increase CO
  - But…

Physiological Changes with Age

- Can't compensate for reduced CO by increasing HR (CO = HR x SV)
  - Rely on increasing ventricular filling and SV to increase CO
  - But the elderly often cannot increase ventricular filling because…

Physiological Changes with Age

- Hypovolemia is typical in elderly

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Physiological Changes with Age

- Hypovolemia is typical in elderly
  - Decreased thirst response
  - Decreased renal vasopressin response to hypovolemia
  - → total body fluid is usually low
  - Result →

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Physiological Changes with Age

- Hypovolemia is typical in elderly
  - Decreased thirst response
  - Decreased renal vasopressin response to hypovolemia
  - → total body fluid is usually low
  - Result → impaired ability to compensate for low CO

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Physiological Changes with Age

- Hypovolemia is typical in elderly
  - Decreased thirst response
  - Decreased renal vasopressin response to hypovolemia
  - → total body fluid is usually low
  - Result → shock develops earlier and more easily with stressors

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- **Pearl → give fluids early!**

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Physiological Changes with Age

- Renal system
  - Decreased renal cell mass
    - Decreased drug clearance
      - –Greater risk of drug toxicities
      - –Beware over-reliance on serum creatinine!

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Physiological Changes with Age

- Renal system
  - Decreased renal cell mass
    - Decreased drug clearance
      - –Greater risk of drug toxicities
      - –Beware over-reliance on serum creatinine!
      - –Use creatinine clearance
      - –Remember the formula?

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Physiological Changes with Age

- Renal s
  - Decrea
    - Dec
      - –G ities
      - –B serum creatinine!
      - –U
      - –R

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Physiological Changes with Age

- Creatinine clearance calculation → Google!
  - Enter age, weight, sex, and serum creatinine
  - If creat. clearance < 30 mL/min, dose must be adjusted!

Physiological Changes with Age

- Creatinine clearance calculation → Google!
  - Enter age, weight, sex, and serum creatinine
  - If creat. clearance < 30 mL/min, dose must be adjusted!
  - Example: 85 yo. woman, 50 kg, serum creatinine 1.2 mg/dL

Physiological Changes with Age

- Creatinine clearance calculation → Google!
  - Enter age, weight, sex, and serum creatinine
  - If creat. clearance < 30 mL/min, dose must be adjusted!
  - E… serum c…

Est. creatinine clearance
= 27 mL/min

Presenting Features

- Atypical presentations very common
  - Description of pain is often vague or poorly localized
  - Sharp, pleuritic, indigestion, etc.
  - "Pseudo-reflux" presentations

Presenting Features

- Painless MI
  - 18–33% overall
  - Even more common in elderly
    - 40% of patients > 65yo.
    - 60-70% of patients > 85yo.
  - Dyspnea — the most common anginal equivalent

Presenting Features

- Painless presentations in the elderly
  - 40-50% dyspnea
  - 25-30% diaphoresis
  - 20-25% nausea/vomiting
  - 15-20% syncope
  - 5–20% confusion/lethargy
  - 5–9% acute CVA
  - 3–8% acute weakness, malaise

Management

- Most therapies are similar as with younger patients

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Management

- Pharmacology: beta-blockers

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Management

- Pharmacology: beta-blockers
  - Age > 70 yo is risk factor for developing cardiogenic shock
    - BBs no longer recommended within first 24 hours for ACS unless intractable hypertension
    - (Even if tachycardic!)

Management

- Pharmacology: Anticoagulants
  - Enoxaparin
    - Most patients are over-dosed, likely due to failure to use creat clearance in dosing
      - –Data shows increased bleeding complications and mortality
    - Reduce dose based on creat clearance

Management

- Pharmacology: Anticoagulants
  - Unfractionated heparin
    - Most patients are over-dosed, likely due to failure to use proper weight in dosing
      - –Data shows increased bleeding complications and mortality from either improper bolus OR infusion

Management

- Pharmacology: Reperfusion
  - Thrombolytics
    - Greater risk of bleeding in the elderly… but greater overall benefit
      - –18% mortality benefit
    - Age alone is NOT a contraindication

Management

- Pharmacology: Reperfusion
  - Percutaneous coronary intervention
    - Preferable to lytics but underused in the elderly
    - Greater time delay to balloon inflation compared to younger patients
    - Underused in cardiogenic shock despite greater relative benefit

Summary

Summary

Biggest takeaway points with Dx

Summary

Biggest takeaway points with Dx

- Atypical presentations are the norm
  - Don't rely on chest pain
  - Dyspnea or malaise…get the ECG!
  - Beware diagnosing "reflux"

Summary

Biggest takeaway points with Tx

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Summary

Biggest takeaway points with Tx

- Do not fear giving IVF!
- Be aggressive with all Tx's except…

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Summary

Biggest takeaway points with Tx

- Do not fear giving IVF!
- Be aggressive with all Tx's except…
  - Beta blockers
  - Enoxaparin → calculate creatinine clearance
  - UFH → measure the weight

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Thanks!

Questions? amalmattu@comcast.net

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