Acute Coronary Syndromes: Unstable Angina and Myocardial Infarctions Part 5

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Treatment of ACS

1. Management before ACS
2. Initial Management in ED
3. **Acute Therapies during hospitalization:**
    1. Non-pharmacologic Management
    2. **Pharmacologic Management**
        A. Anti-ischemic
        B. Acute Reperfusion
        C. Anti-thrombotic
        D. Adjunct therapies
4. Chronic Therapies after discharge

Adjunct Therapy: Statins

- Follow the guidelines!
- Use high potency statin!
- FLP within 2-3 months

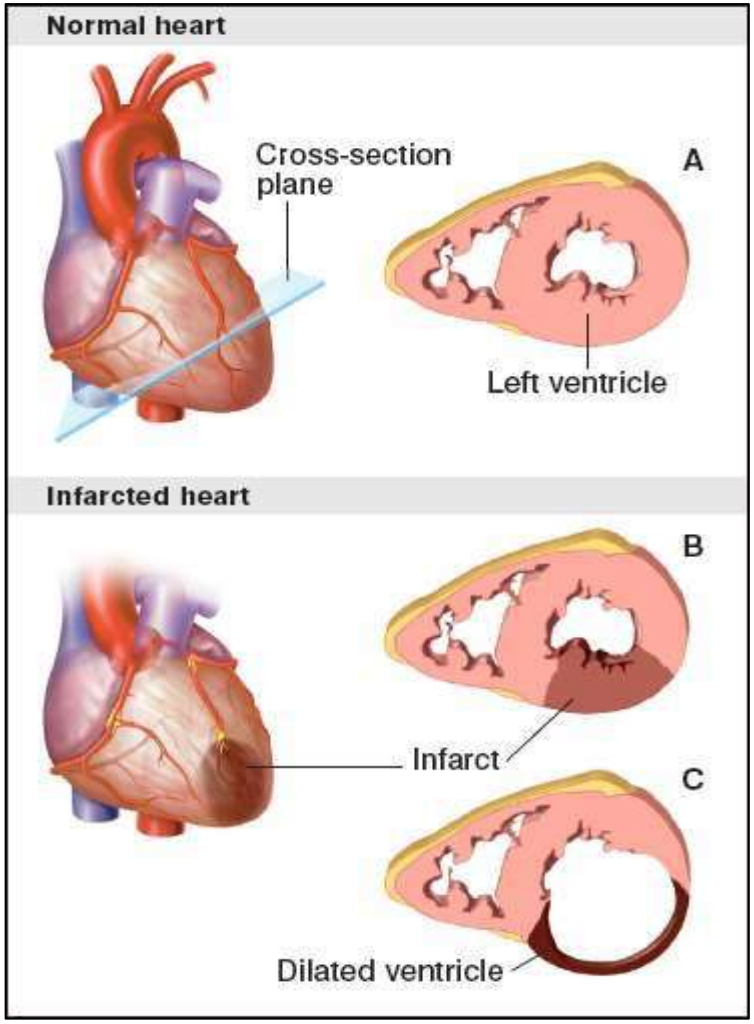
Adjunct Therapy: Statins

- Atorvastatin 80 mg daily started at time of admission for STEMI and continued post discharge
  - Reduction in major cardiovascular events at 30 days and 2 years
    - Early and sustained LDL lowering
    - Early and sustained CRP lowering
    - Early plaque stabilization and regression over time
    - Reduce incidence of PVCs and nonsustained VT
- Early administration of high-dose high-potency statin before PCI is reasonable for all ACS patients to reduce risk of peri-procedural MI (Class IIa recommendation)

2011 PCI Guidelines; 2013 STEMI guidelines; 2014 NSTE ACS guidelines

Compensatory Mechanisms when the Heart begins to Fail after MI

Process	Mechanism Primarily Responsible
↑ HR	Beta-adrenergic
↑ Contractility	Beta- adrenergic
↑ Preload	RAAS, beta-adrenergic
Hypertrophy	RAAS, alpha- and beta-adrenergic, endothelin, cytokines (TNF-alpha, interleukin-1)



Adjunct Therapy: ACE Inhibitors

- Outcome: 7% decrease in overall mortality within 30 days, benefit in patients with AWMI or HF
- Dose: see table
- MOA: further control BP after initiation of BB and nitrates to decrease workload; inhibit RAAS to minimize compensatory mechanisms (remodeling)
- Indications: **patients with EF < 40%, HTN, DM, or stable CKD** (consider in all patients with CHD)
- Begin during hospitalization and use only if hemodynamically stable (SBP > 100 mmHg)
- ARB may replace ACEI for intolerant patients

Circulation 1998;97:2202-12; 2013 STEMI guidelines; 2014 NSTE ACS guidelines

ACEI/ARB Dosing in ACS

ACE Inhibitor	Initial Dose	Target Dose
Captopril	6.25-12.5 mg TID	50 mg TID
Enalapril	2.5-5mg BID	10mg BID
Lisinopril	2.5-5mg daily	10-20mg daily for ACS 20-40mg daily for HF
Ramipril	1.25-2.5mg daily or BID	5mg BID or 10mg daily
Trandolapril	1mg daily	4mg daily

ARB	Initial Dose	Target Dose
Candesartan	4-8mg daily	32mg daily
Losartan	12.5-25mg daily	150mg daily
Valsartan	40mg BID	160mg BID

Adjunct Therapy: Mineralocorticoid Receptor Antagonists

- MOA: Prevents ventricular remodeling by inhibiting aldosterone
- Indication: **post-MI patients already on ACEI and BB who have EF ≤ 40% and have symptomatic HF or DM**
- Dose:
  - Eplerenone 25 mg daily x 4 weeks, then 50 mg daily
  - Spironolactone 12.5mg daily, then 25-50mg daily
  - **Initiate if K< 5 mEq/L, CrCl> 30 ml/min or Scr < 2.5 in men, Scr < 2 in women**
- SE: hypotension, hyperkalemia

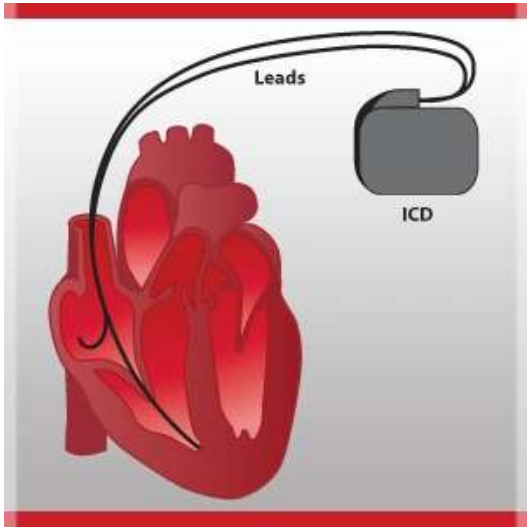
ACC/AHA 2013 STEMI, 2014 NSTE ACS guidelines

Adjunct Therapy: Stool Softeners

- Indication: prevents constipation associated with morphine use, prevents straining (vagal stimulation) during hospitalization (not continued on discharge)
- Dose: Docusate sodium 100mg po BID or docusate calcium 240mg po daily
- SE: loose stool

Adjunct Therapy: Antiarrhythmics

- 5% incidence of VT or VF during STEMI
  - 50% mortality rate for VF
- Prophylactic antiarrhythmics not shown to be beneficial
- Correct electrolyte imbalances (K+, Mg++) to prevent arrhythmias (VT/VF)
- VF/VT should be treated by ACLS guidelines
  - Refer to upcoming arrhythmia lectures
  - Early electrical defibrillation imperative
  - IV amiodarone preferred (added to BB)
  - Long term treatment of inducible VT/VF: ICD



Treatment of ACS

1. Management of ACS S/Sx
2. Initial Management in ED
3. Acute Therapies during hospitalization
4. **Chronic Therapies after discharge**

Goals of Long-Term Therapies

- Control modifiable risk factors
- Prevent development of HF
- Prevent recurrent MI or stroke
- Prevent death, including sudden cardiac arrest

CHD Secondary Prevention Treatments

American Heart Association. Learn and Live.

A: Anti-platelets, anti-anginals, RAAS blockers (ACE Inhibitors, aldosterone antagonists), analgesics

B: Beta blockers, blood pressure

C: Cholesterol, cigarettes

D: Diet (weight management), Diabetes, Depression

E: Exercise, Education

F: inFLUenza vaccination, ? Fish oil

ACC/AHA 2002 CSA Guidelines; 2007 CSA Focused Update; 2011 Secondary Prevention Update; 2012 SIHD Guidelines; 2013 Secondary Prevention in Older Adults

NSAIDS and CHD

- Decrease kidney function by inhibiting prostaglandin
- Increase BP through Na+ and H2O retention
- Increase risk of bleeding through platelet inhibition
- Increase GI bleed risk by inhibiting prostaglandin
- Inhibit healing of damaged myocardium post-MI

Step-Wise Approach to Treating Pain

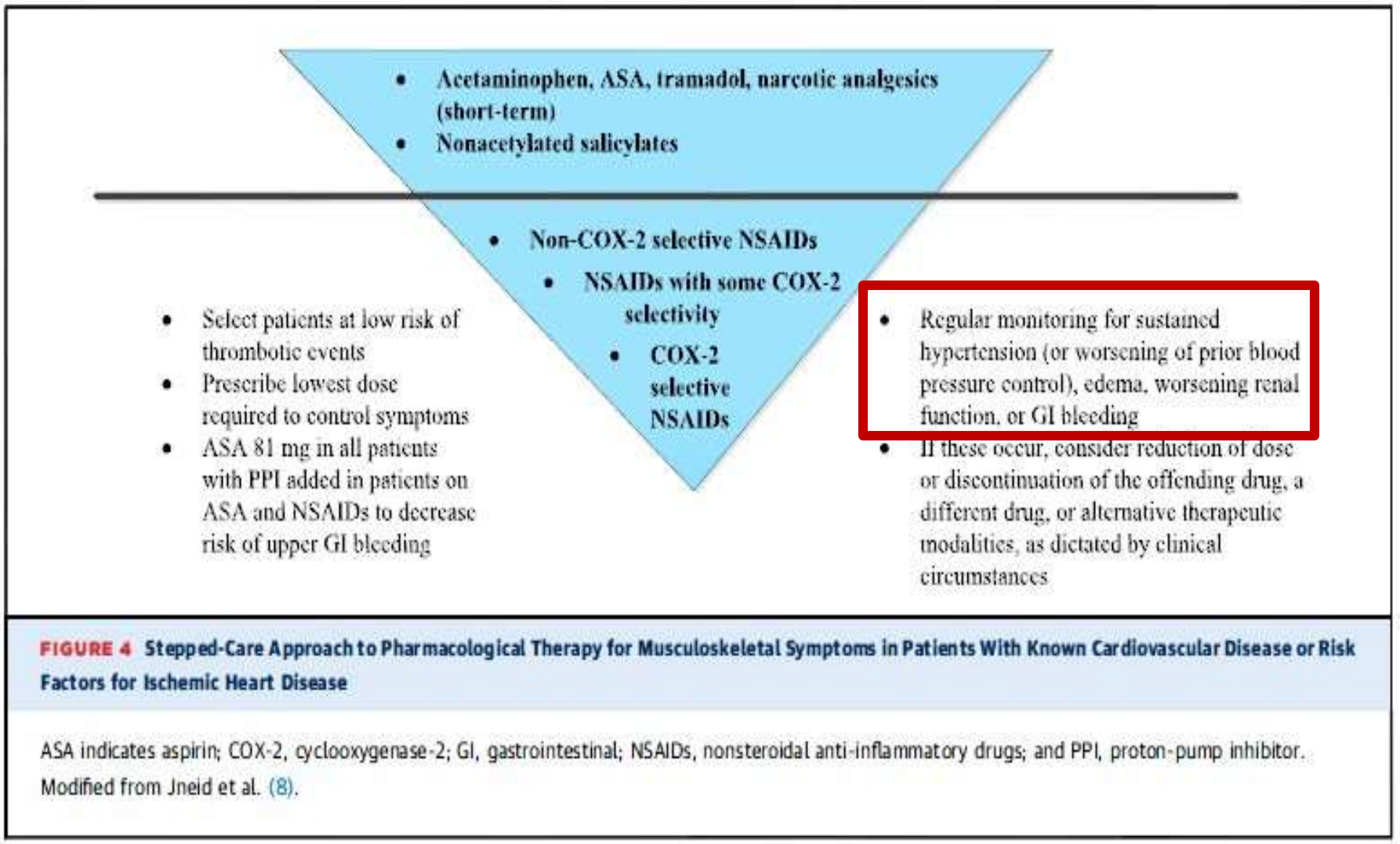


FIGURE 4 Stepped-Care Approach to Pharmacological Therapy for Musculoskeletal Symptoms in Patients With Known Cardiovascular Disease or Risk Factors for Ischemic Heart Disease

ASA indicates aspirin; COX-2, cyclooxygenase-2; GI, gastrointestinal; NSAIDs, nonsteroidal anti-inflammatory drugs; and PPI, proton-pump inhibitor. Modified from Jneid et al. (8).

Figure 4, 2014 NSTE ACS Guidelines

Thank-you!