

Timely Treatment:

Nursing Assessment & Care for AMI patients and their families

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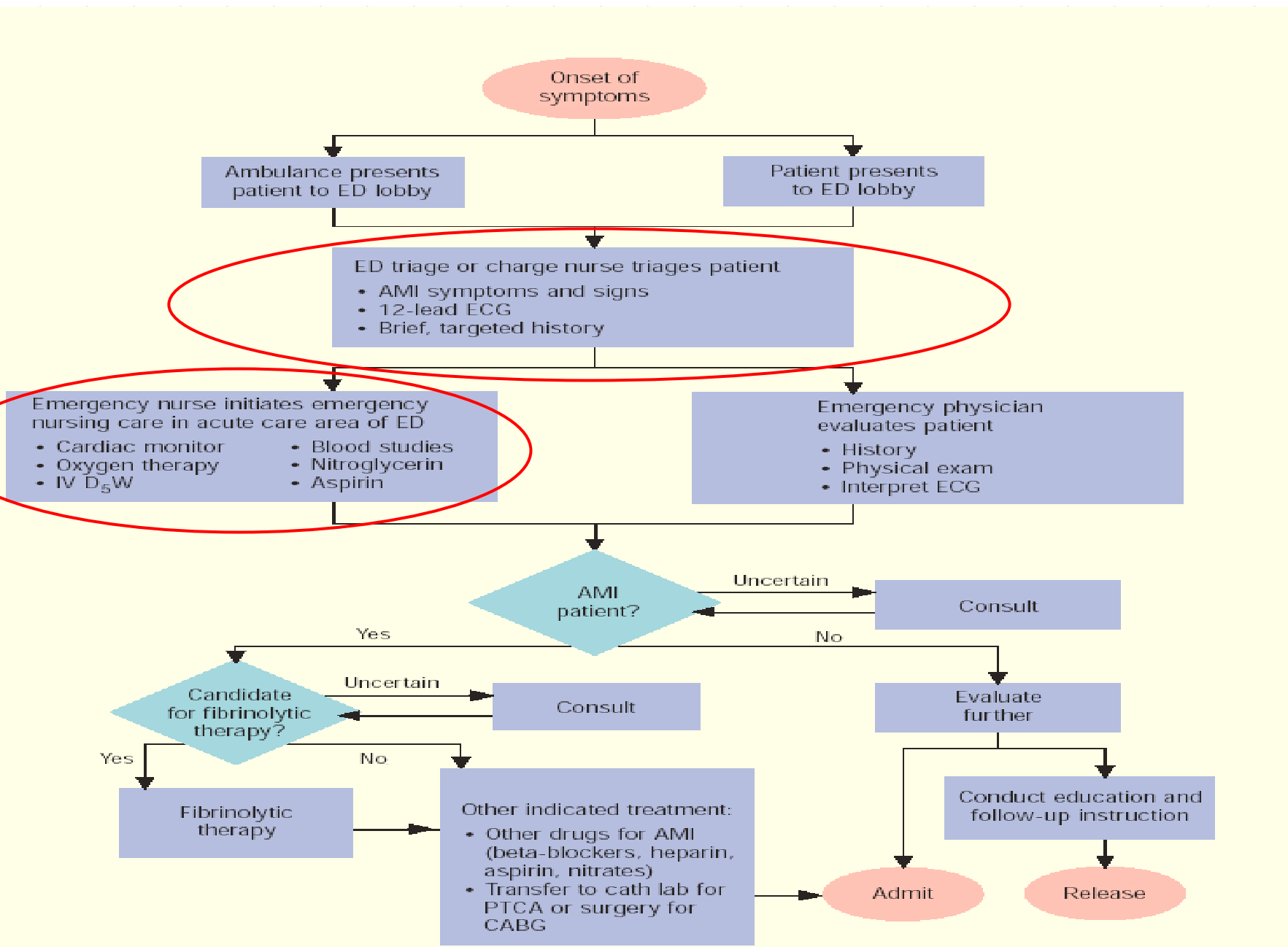
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Address assessment and nursing care for AMI patients and their families

- ◆ Assessment of pain or pain equivalents
- ◆ Obtaining immediate 12-lead ECG
- ◆ Initiate therapy
 - NTG
 - ASA
 - Thrombolytic
 - IIb, IIIa inhibitors
- ◆ Education



Patient Presentation

- ◆ AMI symptoms and signs
- ◆ 12-lead ECG
- ◆ Brief targeted history
- ◆ Initiate emergency nursing care measures
 - Cardiac monitor
 - Oxygen therapy
 - IV D5W
 - Blood studies
 - NTG
 - ASA

AMI symptoms & signs

- ◆ Ongoing chest discomfort
 - ≥ 20 minutes and < 12 hrs
- ◆ Oriented, can cooperate
- ◆ Age > 35 y (> 40 if female)
- ◆ History of stroke or TIA
- ◆ Known bleeding disorder
- ◆ Active internal bleeding in past 2 weeks
- ◆ Surgery or trauma in past 2 weeks
- ◆ Terminal illness
- ◆ Jaundice, hepatitis, kidney failure
- ◆ Use of anticoagulants
- ◆ Systolic/diastolic blood pressure
 - Right arm
 - Left arm

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AMI symptoms & signs

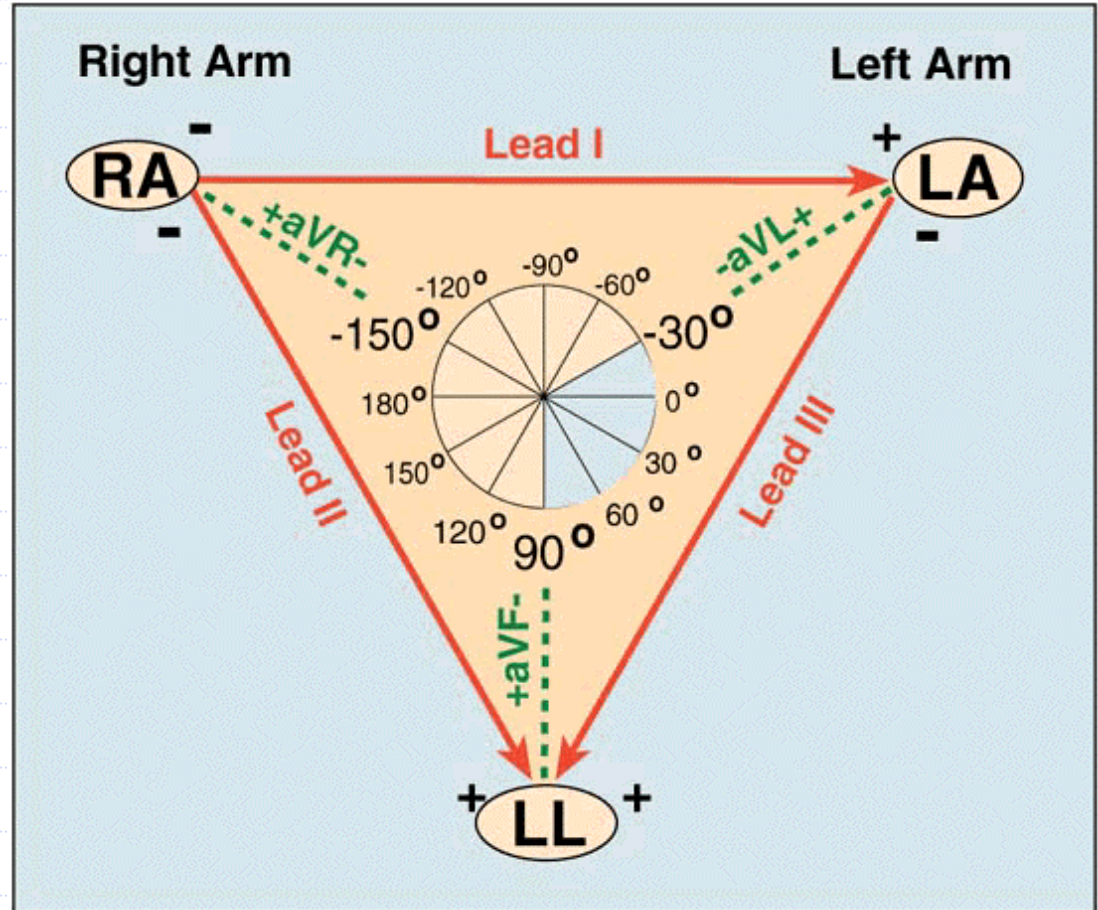
- ◆ ECG done
- ◆ *High-risk profile*
- ◆ Heart rate \geq 100 bpm
- ◆ BP \leq 100 mm Hg
- ◆ Pulmonary edema (rales greater than one half-way up)
- ◆ Shock

- ◆ Pain began
- ◆ Arrival time
- ◆ Begin transport
- ◆ Hospital arrival

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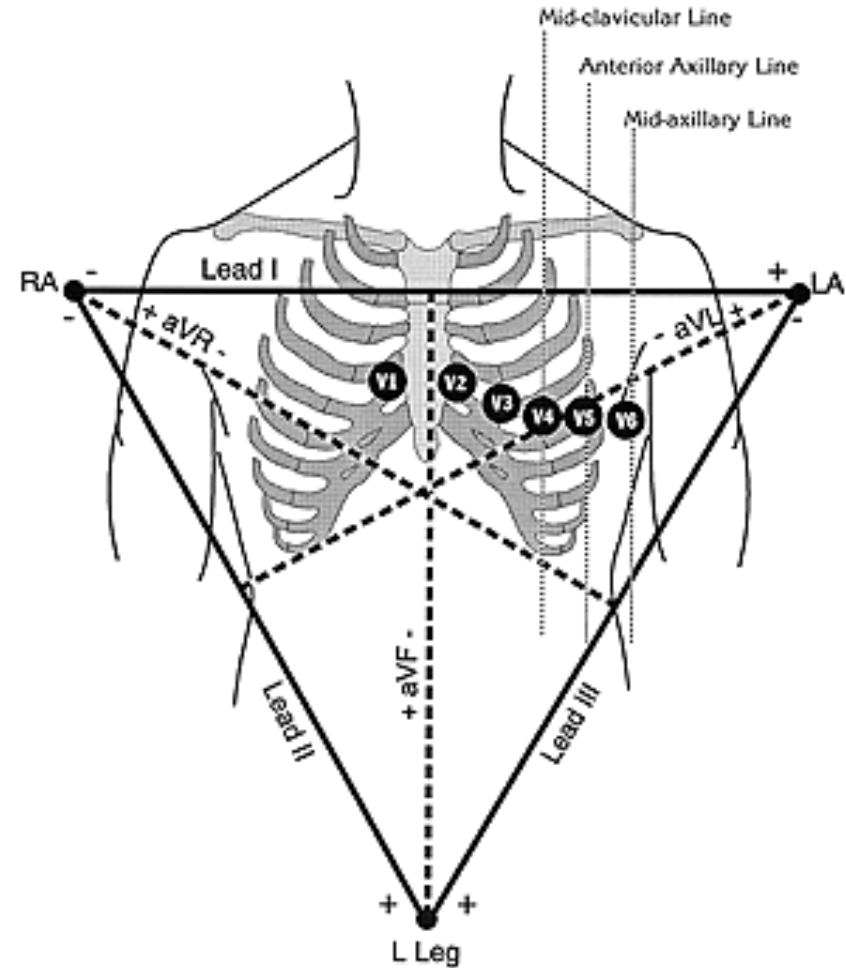
12-lead ECG

- ◆ All readers / interpreters of the 12-lead assume proper lead placement.



12-lead ECG placement

- ◆ RA
- ◆ LA
- ◆ RF
- ◆ LF
- ◆ V1: 4th ICS R SB
- ◆ V2: 4th ICS L SB
- ◆ V3: halfway between V2 and V4
- ◆ V4: 5th ICS L MCL
- ◆ V5: 5th ICS L AAL
- ◆ V6: 5th ICS L MAL

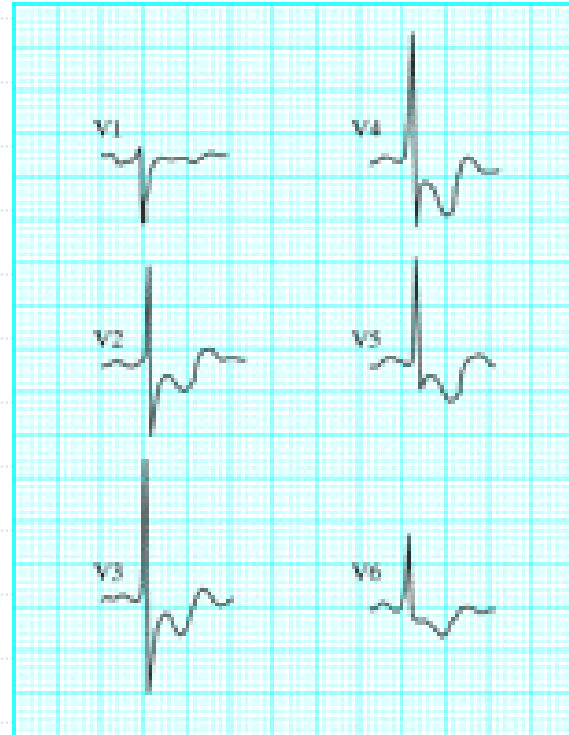
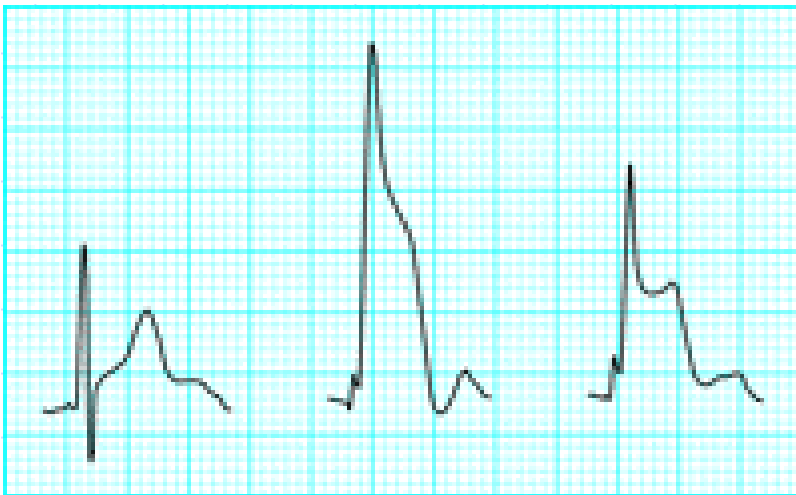


Cardiac Monitoring

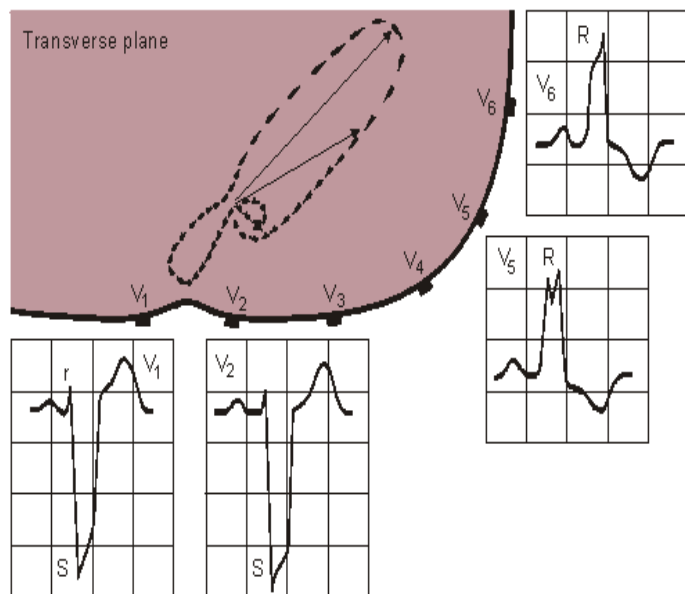


- ◆ ischemia prone
 - III
 - V₃
- ◆ PVC vs SVT
 - V₁
 - V₆
- ◆ **NOT** MCL₁
- ◆ **NOT** MCL₆
- ◆ ST monitoring > 1 mm elevation <0.5 mm depression in any leads

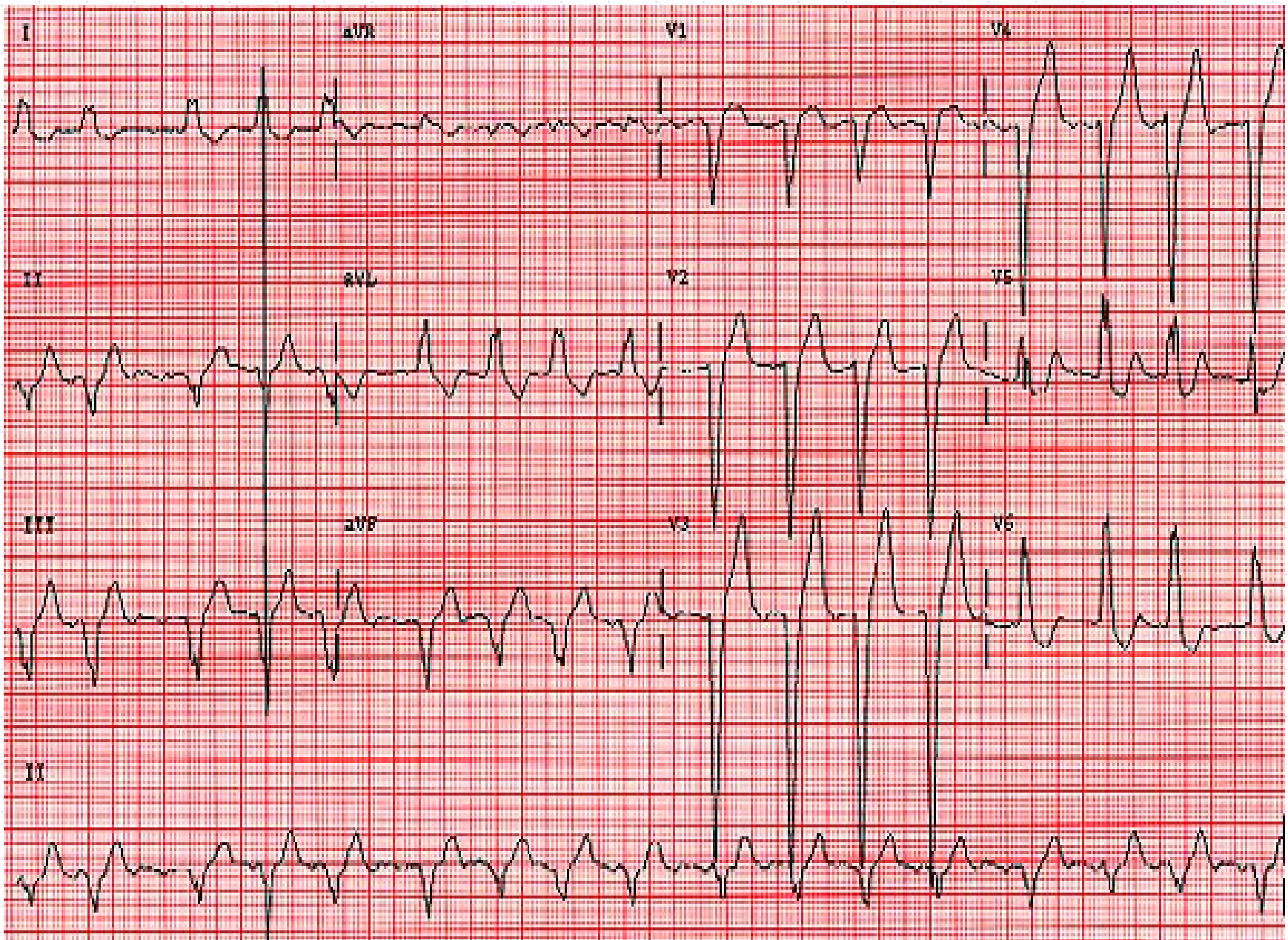
ST elevation or depression



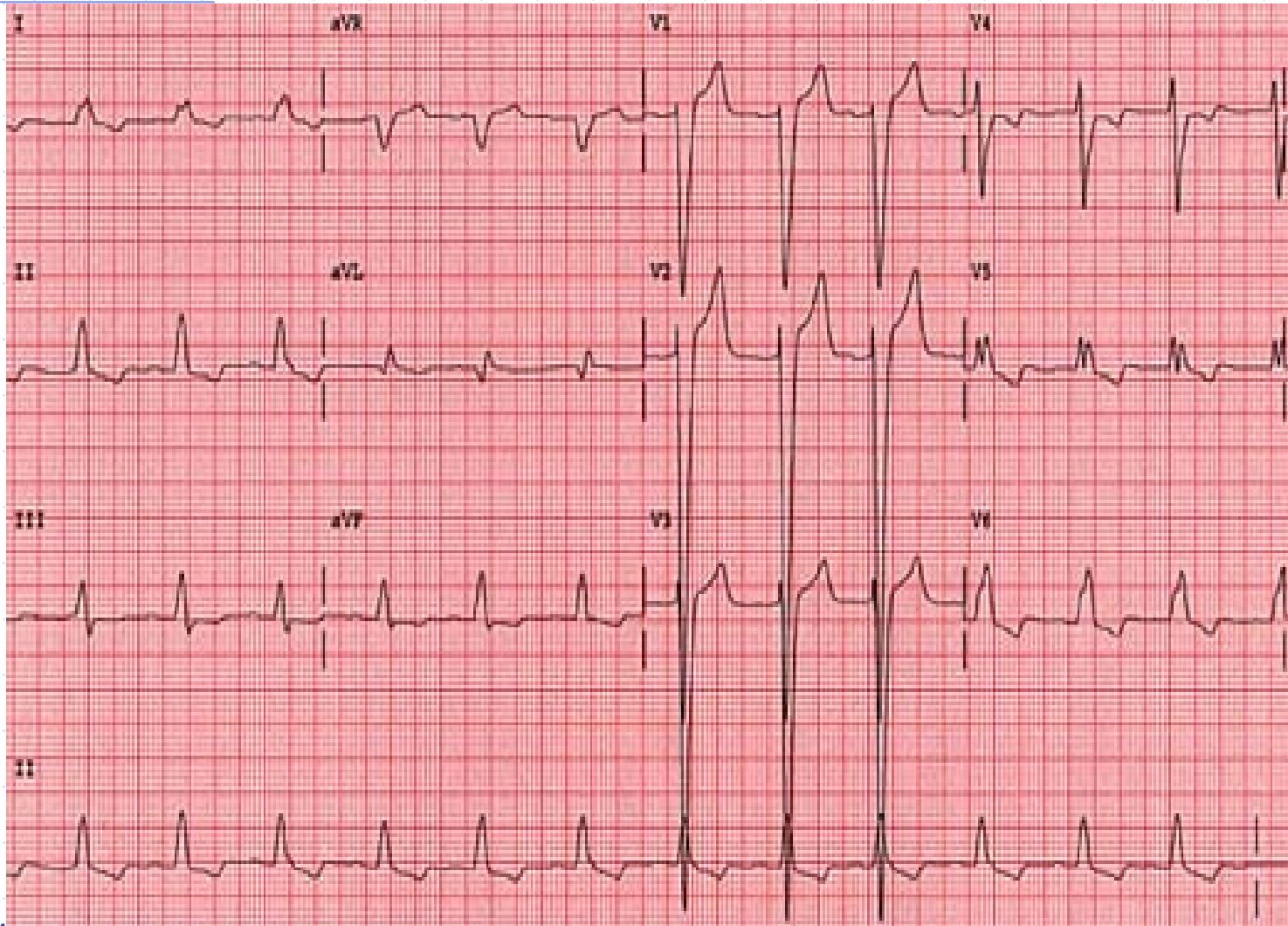
Presence of new LBBB



- ◆ Placement of electrodes on the correct anatomical position
- ◆ Knowing which lead must be read to diagnose LBBB



Another example



Blood Studies

- ◆ CK-MB subforms for Dx within 6 hrs of MI onset
- ◆ cTnI and cTnT > 0.1 ng/mL
- ◆ CK-MB subforms plus cardiac-specific troponin best combination
- ◆ Do not rely solely on troponins because they remain elevated for 7-14 days and compromise ability to diagnose recurrent infarction
- ◆ If lab cannot get results back = POC testing



Enzymatic Criteria for Dx of MI

- ◆ Serial increase, then decrease of plasma CK-MB, with a change $> 25\%$ between any two values
- ◆ CK-MB 10-13 U/L or $>5\%$ total CK activity
- ◆ Increase in MB-CK activity $>50\%$ between any two samples, separated by at least 4 hrs
- ◆ If only a single sample available, CK-MB elevation $>$ twofold
- ◆ Beyond 72 hrs, an elevation of troponin T or I or LDH-1 $>$ LDH-2

Alexander, RW, Pratt CM, Roberts R. Diagnosis and Management of Patients with AMI in:
Alexander RW, Schlant RC, Fuster V, eds. Hurst's The Heart 1998, New York, NY: McGraw-Hill

Medication Considerations

- ◆ All patients with ST-segment elevation on the ECG should receive
 - ASA
 - Beta-adrenoreceptor blockers (in the absence of contra-indications)
 - Heparin
 - Fibrinolytic agents

Medication Administration

- ◆ All patients without ST elevation should be treated with an antithrombin and ASA
- ◆ Nitrates should be administered for recurrent episodes of angina
- ◆ Adequate beta-adrenoceptor blockade should then be established
- ◆ If not possible – calcium antagonist considered

Who is the high-risk patient?

- ◆ Recurrent ischemia
- ◆ Depressed LV function
- ◆ Widespread ECG changes
- ◆ Prior MI

Interventions

- ◆ Maintain IV @TKO rate
- ◆ Vital signs every 1/2 hr until stable, then per unit protocol
- ◆ Activity is bed rest with BRP progress as tolerated after 12 hours with continuous monitoring for ischemia and arrhythmia detection
- ◆ NPO until pain free, then clear liquids. Progress to a heart-healthy diet (complex carbohydrates = 50-55% of kilocalories, monounsaturated and unsaturated fats ($\leq 30\%$ of kilocalories), including foods high in potassium (eg, fruits, vegetables, whole grains, dairy products), magnesium (eg, green leafy vegetables, whole grains, beans, seafood), and fiber (eg, fresh fruits and vegetables, whole-grain breads, cereals).
- ◆ Medications: nasal O2 @ 2 L/min, enteric-coated ASA 160-325 mg/day, stool softener daily, beta blockers, analgesics, NTG, anxiolytics

Initial Management in ED

- ◆ ECG in < 10 minutes
- ◆ O₂, IV, continuous ECG
- ◆ Sublingual NTG unless SBP <90 or HR <50 or >100
- ◆ Analgesia (MS or meperidine)
- ◆ ASA (160 – 325 mg chewed)
- ◆ Lipid panel, lytes, Mg, enzymes
- ◆ Fibrinolysis or PTCA if ST elevation > 1mV or LBBB (goal: door-needle <30 minutes or door-dilatation <90 minutes).

MI Management in 1st 24 hours

- ◆ Limited activity for 12 hrs, monitor \geq 24 hrs
- ◆ No prophylactic antiarrhythmics
- ◆ IV heparin if:
 - Large anterior MI
 - PTCA
 - LV thrombus
 - Alteplase/reteplase use (for \sim 48 hrs)

MI Management in 1st 24 hours (cont)

- ◆ SQ heparin for all other MI (7,500U b.i.d.)
- ◆ ASA indefinitely
- ◆ IV NTG for 24-48 hrs if no
 - Increase/decrease HR
 - Decrease BP
- ◆ IV beta-blocker if no contraindications
- ◆ ACE inhibitor in all MI if no hypotension

In-Hospital Management

- ◆ ASA indefinitely
- ◆ Beta-blocker indefinitely
- ◆ ACE inhibitor
(DC at ~6wks if no LV dysfunction)
- ◆ If spontaneous or provoked ischemia – elective cath
- ◆ Suspected pericarditis – ASA 650 mg q 4-6 hrs
- ◆ CHF – ACE inhibitor and diuretic as needed
- ◆ Shock – consider IABP + cath with PTCA or CABG
- ◆ RV MI – fluids (NS) + inotropics if hypotensive

Patient/Family Education

- ◆ Documented understanding of having an event
- ◆ Diagnosis (confirmed by:
 - ◆ Symptoms
 - ◆ Changes in my ECG
 - ◆ Stress test results
 - ◆ Heart catheterization
- ◆ Cholesterol
 - ◆ TC
 - ◆ LDL
 - ◆ HDL
 - ◆ Ejection Fraction _____%

Patient/Family Education

◆ Medication listings with explanation

- ◆ I understand there are certain medications which may help to prevent a future attack and may help to extend my life.
- ◆ ASA / NTG / Beta-blocker / Cholesterol lowering
- ◆ I understand that I have not received a prescription for one or more of these medications because _____

◆ Smoking

- ◆ I understand that smoking increases my chances of suffering a future heart attack and that smoking causes other illnesses which can shorten my life.
 - I smoke and have been counseled to stop
 - I do not smoke.

Patient/Family Education

◆ Diet

- I understand that a diet that is low in cholesterol and fat may help to reduce my chances of suffering a future heart attack and may help to extend my life.
 - ◆ I have received
 - ◆ I have not received
- Counseling about a low fat diet.

Patient/Family Education

◆ Exercise

- I have undergone an exercise test during my hospitalization or I am scheduled to undergo an exercise test to help determine whether I can safely participate in a cardiac rehabilitation program.
 - ◆ I have received
 - ◆ I have not received a referral to an outpatient cardiac rehabilitation program.

Patient/Family Education

◆ Education

- I have / have not received cardiac education during my hospitalization
- I know / do not know warning signs and symptoms of heart attack and action to take if they occur
- I have received / have not received instructions on my discharge medications

Patient // Nurse Signature

Date

Management of AMI



- ◆ Summary Table on page 38 of the ACC pocket guide for AMI
- ◆ Summary details pharmacological therapy and non-pharmacological therapy by time frame: 1st 24 hrs / after 1st 24 hrs / discharge

ACC/AHA Pocket Guideline for Management of Patients with UA and Non-ST-Segment Elevation MI. 2002.