12 Lead ECGs:

Ischemia, Injury & Infarction

Part 3

*McHenry Western Lake County*

*EMS*
Practice
Antero-Septal Wall MI
Practice
Extensive Anterior (Septal, Anterior and Lateral)
Practice
Inferior Wall MI
Reciprocal Changes
Reciprocal Changes

II, III, aVF  I, aVL, V leads
Reciprocal Changes: Practice
ST elevation in II, III, aVF
ST depression in I and aVL
Reciprocal Changes: Practice
ST elevation in I, aVL, V1-V5
ST depression in II, III and aVF
AMI Recognition

- Reciprocal changes
  - Not necessary to presume infarction
  - Strong confirming evidence when present
  - Not all AMIs result in reciprocal changes
Summary

- ST segment elevation is presumptive evidence for AMI

- Other conditions may also cause ST elevation
  - Known as Imposters
Practice Case 1

- 48 year old male
  - Dull central CP 2/10, began at rest
- Pale and wet
- Overweight, smoker
- Vital signs: RR 18, P 80, BP 180/110, \( \text{SaO}_2 \) 94% on room air
Practice Case 1
Normal ECG
Practice Case 2

- 68 year old female
  - Sudden onset of anxiety and restlessness,
  - States she “can’t catch her breath”
  - Denies chest pain or other discomfort

- History of IDDM and hypertension

- RR 22, P 110, BP 190/90, SaO₂ 88%
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Practice Case 2
Inferior/Lateral Wall MI
Practice Case Summary

- Must take into Account
  - Story
  - Risk factors
  - ECG
  - Treatment
STEMI

- *ST Elevated Myocardial Infarction*

- *Rapidly* identify and treat patients eligible for acute reperfusion therapy
Acute Reperfusion Therapy

- Thrombolytics
  - Retaplase (rPA)
  - Actiplase (tPA)

- Percutaneous Transluminal Coronary Angioplasty (PTCA)
  - Balloon
  - Stent
  - Atherectomy
Atherectomy

Atherectomy is a non-surgical procedure to open blocked coronary arteries or vein grafts by using a device on the end of a catheter to cut or shave away atherosclerotic plaque.
Acute Reperfusion Therapy
Acute Reperfusion Therapy
Intra Aortic Balloon Pump

- The balloon is guided into the descending aorta, approximately 2 cm from the left subclavian artery.
- At the start of diastole, the balloon inflates, augmenting coronary perfusion.
Intra Aortic Balloon Pump

- At the beginning of systole, the balloon deflates; blood is ejected from the left ventricle, increasing the cardiac output by as much as 40 percent and decreasing the left ventricular stroke work and myocardial oxygen requirements.

- In this manner, the balloon supports the heart indirectly.
Intra Aortic Balloon Pump
The 12-Lead ECG Summary

- ST elevation - the key to the acute reperfusion therapy subset

- You can’t see ST elevation without a 12-lead ECG
The 12-Lead ECG Summary

- Perform on every patient suspected of ACS
- Obtain early with the first vital signs
- Repeat frequently
  - every 5-10 minutes
  - each change of symptoms
Special Thanks!

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