

CASE PRESENTATION

- 87 year old male
- No past history of diabetes, HTN, dyslipidemia or smoking
- Very active
- Medications: omeprazole for "heart burn"
- Admitted because of increasing retrosternal chest pressure of 2 hours duration
- Physical Exam: looks younger than his chronological age, BP=120/70 (Rt=Lt), HR=87 regular, Killip class 1, normal exam

The Management of ST Elevation MI in October 2004: From Guidelines to the Real World

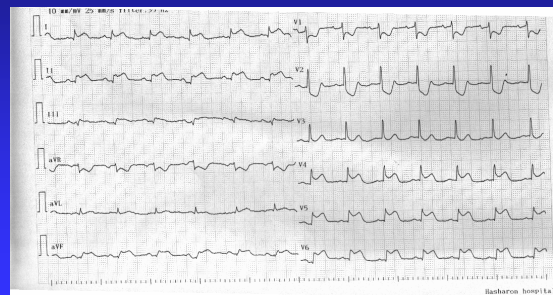
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DISCUSSION QUESTION - 1

- If this patient was seen in your outpatient clinic, what should be the immediate treatment?
 1. Aspirin
 2. Sublingual nitrates
 3. Opioids
 4. All of the above
 5. Answers 1 + 3

First ECG



STEMI-guidelines 2

- **Morphine sulfate** is the analgesic of choice for management of pain (ACC/AHA,2004,class I) ; iv **opioids** are recommended for relief of pain, breathlessness and anxiety (ESC , 2003)
- The routine use of **nitrates** is not recommended. IV nitrates may be given for pain relief (ESC 2003), and for ongoing ischemic discomfort, hypertension and CHF (ACC/AHA 2004, class I).

STEMI-guidelines 1

- In the initial management of patients with suspected acute MI, **aspirin (chewed)** at a dose of 162 (150) to 325 mg should be given to all patients, unless there are contraindications , no enteric coated (class I - ACC/AHA 2004, ESC 2003)
- **Oxygen** should be given in case of desaturation ($\text{SaO}_2 < 90\%$),(ACC/AHA 2004,class I), to all pts for 6h (IIa); breathlessness or heart failure (ESC 2003).

STEMI-GUIDELINES & TRIALS

- Patients with “acute ischemic-type chest discomfort” should be managed in the pre-hospital phase and transferred by emergency medical services (EMS) staffed by persons trained to treat cardiac arrest with defibrillation (ACC/AHA, 2004)
- DANAMI-2 trial –transfer of acute ST \uparrow MI pts for primary PCI or onsite tPA . The combined endpoint significantly less in pts transferred for PCI, as long as the transfer time was \leq 3 hrs
- AIR PAMI trial – pts with high-risk AMI at hospitals without cath labs may have an improved outcome when transferred for primary PTCA vs. on-site thrombolysis (JACC 2002)

DISCUSSION QUESTION - 2

- If this patient was seen in your outpatient clinic, how should he/she be transferred, and to which hospital?
 - For the purpose of discussion , a close hospital(20 mins) is not performing primary PCI , while a distant hospital (2 hours) has 24h cath lab facilities.
1. Ambulance staffed with emergency medical personal transport to the close hospital
 2. Ambulance staffed with emergency medical personal transport to the distant hospital
 3. Patient’s own car transport to the close hospital
 4. Patient’s own car transport to the distant hospital
 5. Air transfer to the distant hospital

STEMI-GUIDELINES

- “For patients with the clinical presentation of MI and with persistent ST elevation or new LBBB, in the absence of contraindications...reperfusion should be initiated as soon as possible” (ESC 2003 ; ACC/AHA 2004, class I)
- Echocardiography helpful to rule out acute MI, and useful in the triage of pts with acute chest pain (ESC 2003 ;ACC/AHA 2004,class II)

DISCUSSION QUESTION - 3

- At the hospital (with or without cath lab), what is the correct statement regarding initial management?
1. Treatment should await troponin levels
 2. Treatment should await CPK-MB levels
 3. Treatment should await performance of echocardiography
 4. Reperfusion treatment should be initiated immediately
 5. Treatment should await performance of perfusion scintigraphy

STEMI-GUIDELINES

Primary PCI for Acute MI:

- Preferred treatment for ST elevation MI if performed within 90 min of first medical contact by an experienced team (class I - ESC 2003;ACC/AHA 2004)
- As a reperfusion strategy in candidates for reperfusion who have a contraindication to lytic Rx (ACC/AHA 2004)
- In pts who are within 18 hrs from the onset of cardiogenic shock and are $<$ 75 yrs (ACC/AHA 2004 class I); $>$ 75yrs, (ACC/AHA 2004 class IIa)

DISCUSSION QUESTION - 4

- What should be the initial therapeutic strategy when all treatments are available ?
1. Reperfusion by thrombolysis
 2. Reperfusion by primary PCI
 3. GP IIb/IIIa inhibitor therapy
 4. Heparin and nitrates

STEMI-GUIDELINES

Thrombolytic Rx

- “Choice of fibrinolytic agent depends on individual assessment of benefit and risk, availability and cost” (ESC 2003)
- Small advantage of TPA over STK observed in GUSTO-1 (14% 30 day mortality reduction), not observed in GISSI-2 or ISIS-3
- Higher rates of hemorrhagic stroke with TPA observed in GUSTO-1 and ISIS-2
- Variants of TPA such as reteplase and tenecteplase were not found to be more effective than TPA, but have advantages in the ease of administration (GUSTO-3, ASSENT-2). Tenecteplase was associated with a lower rate of bleeding
- The combination of abciximab with tPA is not recommended > 75 y -GUSTO V, due to ICH (ACC/AHA 2004 class III);

DISCUSSION QUESTION - 5

- If thrombolytic Rx is chosen, what should be the preferred agent?
 1. STK
 2. TPA
 3. Reteplase
 4. Tenecteplase

STEMI-GUIDELINES

- With STK, UFH treatment optional (ESC 2003) High risk pts - I, reasonable to all- IIb (ACC/AHA 2004)
- With alteplase (tPA) and reteplase - UFH administration recommended for 24-48 hrs (ESC 2003, class IIa; ACC/AHA, 2004) less evidence about LMWH
- With tenecteplase - enoxaparin for a maximum of 7 days appears to be preferable to UFH (ASSENT-3, ENTIRE-TIMI 23)

DISCUSSION QUESTION - 6

- Should anti-thrombin co-treatment be administered with the thrombolytic agent?
 1. No
 2. Yes, with unfractionated heparin (UFH)
 3. Yes, with low-molecular weight heparin (LMWH)
 4. The answer depends on which thrombolytic agent is chosen

GUIDELINES and TRIALS - AGE

- Class IIa recommendation for the use of thrombolytic therapy in patients older than 75 (ACC/AHA 1999)
- “Elderly patients without contraindications should be given fibrinolytic therapy when timely mechanical reperfusion can not be performed” (ESC 2003).
- Primary PCI - preferred to ALL (class I, ESC-2003, ACC/AHA, 2004)

DISCUSSION QUESTION - 7

- Please note that the patient is 87 year old. Would you change your choice for the preferred reperfusion mode?
 1. Thrombolysis with STK
 2. Thrombolysis with TPA
 3. Primary PCI
 4. No reperfusion therapy

Back to the Patient

- Because the cath lab was busy with another urgent patient, the patient was treated with STK
- After about an hour from treatment initiation the patient became asymptomatic and reperfusion signs appeared in the ECG
- About two hours later the patient developed a few episodes of non-sustained VT at a rate of 150/min without symptoms or hemodynamic compromise

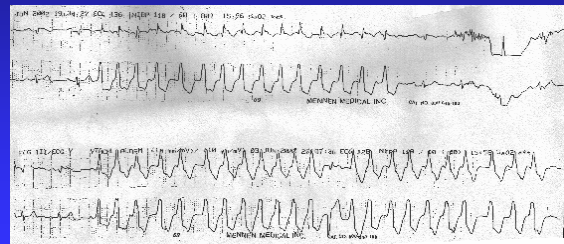
GUIDELINES and TRIALS – AGE (cont.)

- Older MI pts > 75 years have a significant clinical benefit when compared to IV STK (reduction in the primary endpoint of death, reinfarction or stroke) (M. de Boer et al (JACC 2002)
- PAMI-SENIOR trial – on-going

DISCUSSION QUESTION - 8

- How should the arrhythmia be treated?
 1. Lidocaine
 2. Amiodarone
 3. Procaineamide
 4. No anti-arrhythmic treatment

ECG Strip



Back to the Patient

- The rest of the hospitalization was uneventful – the patient was stable hemodynamically and asymptomatic
- Echo demonstrated mild LV dysfunction with infero-posterior hypokinesia

STEMI-GUIDELINES

- Anti-arrhythmic treatment of non-sustained VT or runs of AIVR in an AMI patient is considered a class III recom. (not recommended) (ACC/AHA, 2004)
- “Runs of non-sustained VT may be well tolerated and do not necessarily require treatment. For more prolonged episodes...beta blockers, if tolerated are the first line of therapy” (ESC 2003)

GUIDELINES – Invasive Evaluation

- Coronary angiography recommended for pts with spontaneous episodes of myocardial ischemia, ischemia provoked by minimal exertion, persistent hemodynamic instability and before definitive therapy of a mechanical complication (class I ACC/AHA, 2004)
- Pts with depressed LV function (EF \leq 40%), CHF, prior revascularization or malignant arrhythmias (class I, ACC/AHA 2004)
- Coronary angio recommended for pts with high risk or moderate risk + symptoms, by imaging criteria (mainly perfusion scintigraphy or stress echo (ESC 2003)
- Coronary angio should not be performed in survivors of STEMI who are thought not to be candidates for coronary revascularization (class III, ACC/AHA 2004)

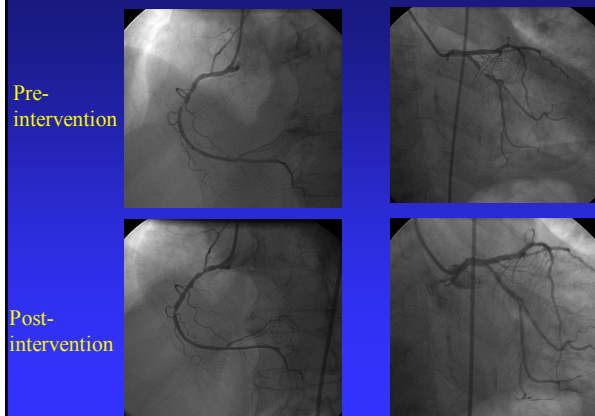
DISCUSSION QUESTION - 9

- What should be the mode of risk stratification during hospitalization?
 1. Perfusion scintigraphy
 2. Stress echocardiography
 3. Exercise stress test (stress ECG)
 4. Coronary angiography
 5. None

Implementation of Evidence Based Medicine and Guidelines

- **1st controlled clinical trial:**
- Frederick II, Emperor of Rome and king of Sicily and Jerusalem, 13th century
- Objectives: to evaluate the effect of exercise on digestion
- Methods: two knights, identical meals
 - One hunting, one bed rest
 - Execution after several hours
 - Examination of GIT contents
- Results: less GIT contents found in resting knight
- Conclusions: digestion is better when resting

The patient underwent angiography in his 6th hosp. day



Thank You