A Case of Chest Pain in an Obese T2 Diabetic Patient with Afib and VKA

Clinical Case Presentation

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Case # 1

- 60 year obese female patient
- Hypertensive (untreated)
- Known diabetes type II
- Known hypercholesterolemia
- Paroxysmal atrial fibrillation
- Previous embolic stroke (no sequellae)

Current treatment:
- Metformin 850mg three times daily
- Sotalol 60 mg X 2 daily
- Warfarin with target INR 3.0
Case # 1

- Spontaneous chest pain, 1 hour duration, radiating into chest, jaws and back
- Dialed 112 after one hour
- Taken to CCU by EMS without prior ECG recording
- At admission, vital status OK, pain has vanished – BP 155/90 – HR 95
Case # 1 – ECG

- Working Diagnosis: Non-ST Segment Elevation Acute Coronary Syndrome
Case # 1 Echocardiography

- Normal heart chambers dimensions except slight LA enlargement
- No valvular abnormality
- No wall motion abnormality
- Normal LVEF
- Moderate concentric wall hypertrophy
- Some degree of diastolic dysfunction
- No pericardial effusion
Case # 1 – Biology

- Glycemia 11.7 mmol/L (2.1g/L)
- HbA1c 8.5%
- Hemoglobin 11g/dL
- Creatinine 95 mmol/L (10.2 mg/L)
- Cr clearance 80ml/min
- LDL cholesterol 4.25 mmol/L (1.65 g/L)
- Troponin I 0.02ng/mL (ULN = 0.15)
- INR 3.2
Question # 1

What do you recommend?

1. Record ECG in case of recurrence of symptoms and redo troponin testing after 6 hours
2. Same as above plus aspirin
3. Same as above plus ADP receptor antagonist
4. Same as above plus anticoagulantion
Case # 1 – Biology

- Second troponin measurement 6 hours after first assay: 2.5 ng/mL
Questions # 2

Is the patient at low, medium or high risk?

1. For further coronary ischemic events
2. For bleeding
3. For systemic embolism due to AFib
Grace Risk Score
Crusade Bleeding Risk

Enter values in drop-down boxes below:

- Baseline Hematocrit: 31 - 33.9
- Prior Vascular Disease: No
- GFR: Cockcroft-Gault: 61 - 90
- Diabetes Mellitus: Yes
- Heart rate on admission: 81 - 90
- Signs of CHF on admission: No
- Systolic blood pressure on admission: 121 - 180
- Sex: Female

Clear Selections

CRUSADE Bleeding Score: 42
Risk of In-Hospital Major Bleeding: 9.8%
High Risk
Stroke risk in AF by CHADS\textsubscript{2} score

- C—CHF: 1
- H—Hypertension: 1
- A—Age >75: 1
- D—Diabetes mellitus: 1
- S\textsubscript{2}—TIA/stroke: 2

Stroke rate (% per year)

- CHADS\textsubscript{2} score 0: 1.9 (n=120)
- CHADS\textsubscript{2} score 1: 2.8 (n=463)
- CHADS\textsubscript{2} score 2: 4 (n=523)
- CHADS\textsubscript{2} score 3: 5.9 (n=337)
- CHADS\textsubscript{2} score 4: 8.5 (n=220)
- CHADS\textsubscript{2} score 5: 12.5 (n=65)
- CHADS\textsubscript{2} score 6: 18.2 (n=5)

Gage, B. F. et al. JAMA 2001;285:2864-2870

www.escardio.org/guidelines
Questions # 3

Which first line treatment?

1. Keep current treatment unchanged
2. Add aspirin loading dose
3. Interrupt warfarin
4. Interrupt warfarin and start anticoagulants
5. Go for DAPT and parenteral anticoagulant and stop warfarin
In the acute setting, it may be prudent to stop VKA therapy and administer antiplatelet therapy and anticoagulants as recommended if the international normalized ratio (INR) is <2.0. In the medium to long term, if VKA therapy needs to be given in combination with clopidogrel and/or low dose aspirin, careful monitoring of the INR is warranted, with target values in the range of 2.0–2.5. Triple therapy should be limited in duration depending on the clinical setting, the implantation of a BMS or a DES, and ischaemic or bleeding risks as assessed by risk scores and/or baseline characteristics (Table 6). Since ~50% of all spontaneous bleeds are gastrointestinal, gastric protection should be implemented with a proton pump inhibitor.
Questions # 4

Option 5 is selected? Which anticoagulant would you recommend?

1. UFH, if yes which dose?
2. LMWH, if yes which dose?
3. Fondaparinux, if yes which dose?
4. Bivalirudin
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>Initial dose of 150-300 mg non-enteric formulation followed by 75-100 mg/day (i.v. administration is acceptable).</td>
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<tr>
<td>P2Y&lt;sub&gt;12&lt;/sub&gt; inhibitor</td>
<td>Loading dose of ticagrelor or clopidogrel.</td>
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<tr>
<td>Anticoagulation</td>
<td>Choice between different options depends on strategy:</td>
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<tr>
<td></td>
<td>• Fondaparinux 2.5 mg/daily subcutaneously,</td>
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<td></td>
<td>• Enoxaparin 1 mg/kg twice daily subcutaneously,</td>
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<td></td>
<td>• UFH i.v. bolus 60-70 IU/kg (maximum 5000 IU) followed by infusion of 12-15 IU/kg/h (maximum 1000 IU/h) titrated to aPTT 1.5-2.5 × control,</td>
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<td></td>
<td>• Bivalirudin is indicated only in patients with a planned invasive strategy.</td>
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<tr>
<td>Oral ß-Blocker</td>
<td>If tachycardic or hypertensive without signs of heart failure.</td>
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Questions # 5

Which strategy would you recommend?

1. Invasive
2. Conservative
Criteria for high risk with indication for invasive management

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<th>Primary</th>
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<tr>
<td>• Relevant rise or fall in troponin.</td>
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<td>• Dynamic ST- or T-wave changes (symptomatic or silent).</td>
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<table>
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<th>Secondary</th>
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<tr>
<td>• Diabetes mellitus.</td>
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<tr>
<td>• Renal insufficiency (eGFR &lt; 60 mL/min/1.73 m²).</td>
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<tr>
<td>• Reduced LV function (ejection fraction &lt; 40%).</td>
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<tr>
<td>• Early post infarction angina.</td>
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<tr>
<td>• Recent PCI.</td>
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<td>• Prior CABG.</td>
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<td>• Intermediate to high GRACE risk score.</td>
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</table>
Questions # 6

You decide for invasive strategy angiography? When and how do you proceed?

1. Which time window?
2. Do you neutralize VKA?
3. Prevention of contrast-induced nephropathy?
4. What about metformin?
5. Which vascular access?
What do guidelines recommend?

- High risk patient
- Stop warfarin, don't administer Vit K
- DAPT plus anticogulant, betablocker, nitrate as first line treatment
- Angiography within 72 hours (24 hours in high risk patients)
  - Stop metformin
  - Add GP IIb/IIIa inhibitors in the cathlab if high risk patient and bleeding risk low
- Revascularization whenever possible
Case # 2 – Angiography

- Normal LV function
Question # 7

What do you recommend?

1. Discharge with adapted antidiabetic treatment and warfarin
2. All of the above plus DAPT
3. All of the above plus statin
4. Five big plus # 1
At discharge

- Patient discharged with antidiabetics, sotalol and warfarin
- Not considered to have suffered from NSTE-ACS by attending physician
- ‘Troponinitis’ (considered as a false positive, but without alternative diagnosis)
- Comes back 2 months later with anterior wall STEMI!
Case # 2 – Follow-up – STEMI 2 months later
What do guidelines (and common sense) recommend?

- ~15% of patients with proven ACS have patent coronary arteries, but with clear atheromatous burden
- They should be treated as any other ACS patient
- Aspirin, ADP receptor antagonists (9-12 months), beta-blockers, statin and ACE-inhibitors
- Careful INR control if VKA on board
- Aggressive secondary prevention
  - Diabetes
  - target LDL < 0.7 g/L
  - BP control
In patients admitted with suspected NSTE-ACS, the demonstration of normal or near-normal coronary arteries at angiography challenges the diagnosis. However, ST-segment changes and release of biomarkers in patients with typical chest pain and patent coronary arteries without significant stenotic lesions may be due to true necrosis rather than false-positive results. This tends to be more common in women. Relevant atherosclerotic burden may be present even in the absence of angiographically significant stenoses because it may occur in a diffuse manner and lead to the development of myofibroblastic cells that can excessively expand the intima.
Myocardial Infarction with Patent Coronary Arteries

- Concealed Atherosclerosis
- Coronary Vasospasm
- Embolisation
- Thrombosis and Hypercoagulability
- Inflammation

AMI with patent coronary arteries

- Kardasz & De Caterina, J Int Med 2007