Mon ESC en Tunisie : Session en Collaboration avec l’ESC

Syndromes coronariens chroniques

Présentation du cas clinique
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39è Congrès NATIONAL de CCCV
25/10/2019
Clinical presentation

- 47y, man
- Current smoker, family history of CAD

1 year ago
- NSTEMI
- 2V CAD → PCI (V stenting LAD0 and RIO, only PCI report was available)

Current presentation
- Chest discomfort + dyspnea
Schematic illustration of the natural history of CCS
Schematic illustration of the natural history of CCS
Schematic illustration of the natural history of CCS

- **Subclinical phase**
- **Recent diagnosis or revascularization (≤12 months)**
- **Long-standing diagnosis**

**Cardiac risk (death, MI)**

**Time**

- **Higher risk with insufficiently controlled risk factors, suboptimal lifestyle modifications and/or medical therapy. Large area at risk of myocardial ischaemia**

- **Lower risk with optimally controlled risk factors, lifestyle changes, adequate therapy for secondary prevention (e.g., aspirin, statins, ACE inhibitors) and appropriate revascularization**

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6-step approach
Approach for the initial diagnostic management of patients with angina and suspected CCS
Step 1: Assess symptoms

- **Current presentation**
  - Anxiety ++
  - Chest discomfort + dyspnea
  - Without typical irradiations
  - Precipitated by physical exertion
  - Brief episodes, spontaneous relief
  - Mild severity (3-4/10)
  - Starting 2 months ago

- No smoking cessation
- Medical Rx: aspirin + clopidogrel + statin
## STEP 1: assess symptoms

### Table 3  Traditional clinical classification of suspected anginal symptoms

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical angina</strong></td>
<td>Meets the following three characteristics:</td>
</tr>
<tr>
<td></td>
<td>(i) Constricting discomfort in the front of the chest or in the neck, jaw, shoulder, or arm;</td>
</tr>
<tr>
<td></td>
<td>(ii) Precipitated by physical exertion;</td>
</tr>
<tr>
<td></td>
<td>(iii) Relieved by rest or nitrates within 5 min.</td>
</tr>
<tr>
<td><strong>Atypical angina</strong></td>
<td>Meets two of these characteristics.</td>
</tr>
<tr>
<td><strong>Non-anginal chest pain</strong></td>
<td>Meets only one or none of these characteristics.</td>
</tr>
</tbody>
</table>
Approach for the initial diagnostic management of patients with angina and suspected CCS

Active young patient
Approach for the initial diagnostic management of patients with angina and suspected CCS

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>Assess symptoms and perform clinical investigations</th>
<th>Unstable angina?</th>
<th>Follow ACS guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP 2</td>
<td>Consider comorbidities and quality of life</td>
<td></td>
<td>Revascularization fistle Medical therapy</td>
</tr>
<tr>
<td>STEP 3</td>
<td>Obtain ECG, biochemistry, chest X-ray in selected patients, echocardiography at rest</td>
<td>LVEF &lt;50%</td>
<td>See section 4</td>
</tr>
<tr>
<td>STEP 4</td>
<td>Assess pre-test probability and clinical likelihood of CAD</td>
<td>Cause of chest pain other than CAD?</td>
<td>Treat as appropriate or investigate other causes</td>
</tr>
</tbody>
</table>

**STEP 5**

- **No diagnostic testing initiated**: Coronary CTA
  - Choice of the test based on clinical likelihood, patient characteristics and preferences, availability, as well as local expertise
  - Testing for ischaemia (imaging testing preferred)

**STEP 6**

Choose appropriate therapy based on symptoms and event risk
Step 3: Rest ECG

Resting electrocardiogram in the initial diagnostic management of patients with suspected coronary artery disease

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A resting 12 lead ECG is recommended in all patients with chest pain without an obvious non-cardiac cause.</td>
<td>I</td>
<td>C</td>
</tr>
</tbody>
</table>
STEP 3: Resting TTE

- Normal LVEF
- No WMA
- Normal diastolic function
### Step 3: Basic biochemistry testing

**Basic biochemistry testing in the initial diagnostic management of patients with suspected coronary artery disease**

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>If evaluation suggests clinical instability or ACS, repeated measurements of troponin, preferably using high-sensitivity or ultrasensitive assays, are recommended to rule-out myocardial injury associated with ACS.&lt;sup&gt;28,29&lt;/sup&gt;</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td><strong>The following blood tests are recommended in all patients:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Full blood count (including haemoglobin);&lt;sup&gt;30&lt;/sup&gt;</td>
<td>I</td>
<td>B</td>
</tr>
<tr>
<td>● Creatinine measurement and estimation of renal function;&lt;sup&gt;31,32&lt;/sup&gt;</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>● A lipid profile (including LDL-C);&lt;sup&gt;33,34&lt;/sup&gt;</td>
<td>I</td>
<td>A</td>
</tr>
</tbody>
</table>

It is recommended that screening for type 2 diabetes mellitus in patients with suspected and established CCS is implemented with HbA1c and fasting plasma glucose measurements, and that an oral glucose tolerance test is added if HbA1c and fasting plasma glucose results are inconclusive.<sup>16,35</sup>

Assessment of thyroid function is recommended in case of clinical suspicion of thyroid disorders. | I | C |
Approach for the initial diagnostic management of patients with angina and suspected CCS

STEP 1: Assess symptoms and perform clinical investigations
- Unstable angina?
  - Follow ACS guidelines
- Revascularization feasible
  - Medical therapy

STEP 2: Consider comorbidities and quality of life
- Revascularization feasible
  - Medical therapy

STEP 3: Resting ECG, biochemistry, chest X-ray in selected patients, echocardiography at rest
- LVEF <50%
  - See section 4

STEP 4: Assess pre-test probability and clinical likelihood of CAD
- Cause of chest pain other than CAD?
  - Treat as appropriate or investigate other causes

STEP 5: Offer diagnostic testing
- No diagnostic testing mandated
- Coronary CTA
  - Choice of the test based on clinical likelihood, patient characteristics and preferences, availability, as well as local expertise
  - Testing for ischaemia (imaging testing preferred)

STEP 6: Choose appropriate therapy based on symptoms and event risk

Invasive angiography (with IVR/FFR)
Table 5: Pre-test probabilities of obstructive coronary artery disease in 15,815 symptomatic patients according to age, sex, and the nature of symptoms in a pooled analysis of contemporary data.

<table>
<thead>
<tr>
<th>Age</th>
<th>Typical Men</th>
<th>Typical Women</th>
<th>Atypical Men</th>
<th>Atypical Women</th>
<th>Non-anginal Men</th>
<th>Non-anginal Women</th>
<th>Dyspnoea Men</th>
<th>Dyspnoea Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>30–39</td>
<td>3%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>40–49</td>
<td>22%</td>
<td>10%</td>
<td>10%</td>
<td>6%</td>
<td>3%</td>
<td>2%</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td>50–59</td>
<td>32%</td>
<td>13%</td>
<td>17%</td>
<td>6%</td>
<td>11%</td>
<td>3%</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>60–69</td>
<td>44%</td>
<td>16%</td>
<td>26%</td>
<td>11%</td>
<td>22%</td>
<td>6%</td>
<td>27%</td>
<td>14%</td>
</tr>
<tr>
<td>70+</td>
<td>52%</td>
<td>27%</td>
<td>34%</td>
<td>19%</td>
<td>24%</td>
<td>10%</td>
<td>32%</td>
<td>12%</td>
</tr>
</tbody>
</table>
Approach for the initial diagnostic management of patients with angina and suspected CCS
Approach for the initial diagnostic management of patients with angina and suspected CCS

STEP 1: Assess symptoms and perform clinical investigations
- Unstable angina?
  - Follow ACS guidelines

STEP 2: Consider comorbidities and quality of life
- Revascularization futile
  - Medical therapy

STEP 3: Resting ECG, biochemistry, chest X-ray in selected patients, echocardiography at rest
- LVEF <50%
  - See section 4

STEP 4: Assess pre-test probability and clinical likelihood of CAD
- Cause of chest pain other than CAD?
  - Treat as appropriate or investigate other causes

STEP 5: Offer diagnostic testing
- Coronary CTA
  - Testing for ischaemia (imaging testing preferred)

STEP 6: Choose appropriate therapy based on symptoms and event risk
Approach for the initial diagnostic management of patients with angina and suspected CCS

1. Assess symptoms and perform clinical investigations
   - Unstable angina?
     - Follow ACS guidelines
   - Revascularisation futile
     - Medical therapy

2. Consider comorbidities and quality of life
   - LVEF <50%
     - See section 4
   - Cause of chest pain other than CAD?
     - Treat as appropriate or investigate other causes

3. Resting ECG, biochemistry, chest X-ray in selected patients, echocardiography at rest
   - Coronary CTA
     - Choice of the test based on clinical likelihood, patient characteristics and preferences, availability, as well as local expertise
     - Testing for ischaemia (imaging testing preferred)

4. Assess pre-test probability and clinical likelihood of CAD
   - Clinical likelihood of obstructive CAD
     - Very low
     - Clinical likelihood of obstructive CAD
     - Very high

5. Choose appropriate therapy based on symptoms and event risk

6. Follow ACS guidelines
Step 5: SPECT
Step 5: SPECT

Scintigraphie Myocardique au Sestamibi Gated Spect - Effort

Indication :
Patient élective, coronarien connu, stenté de l’IVA proximalement et de la basse corona avec une lésion intermédiaire corona à la CX et une lésion non significative de la CD proximale.

Technique :
Epreuve à efforts selon protocole de BRUCE
Importante IV du tracé au maximum de l’effort.
- Acquisition tomographique après 1 heure, au repos.
Tomographies synchronisées à l’ECG permettant l’étude de la perfusion et de la fonction du VG.

Epreuve d’effort :
L’épreuve d’effort sensitisée à la Persantine a été menée à 85% de la FMT positive cliniquement, lutéique électriquement.

Coupes tomoscintigraphiques réalisées après effort :
Hypoperfusion hétérogène inférieure, étendue en inféro-latéral-basal.
Perfusion normale et homogène par ailleurs.

Coupes tomoscintigraphiques réalisées au repos :
Reversibilité partielle mais significative des troubles perfusionnels notés en inférieur et en inféro-latéral-basal, témoignant d’un décollement évolutif.
L’analyse des images synchronisée à l’ECG montre une bonne fonction VG avec une FE normale à 70% sur un VG de volume normal.
Absence de trouble de la cinétique pariétale.
Conclusion :

La scintigraphie myocardique Gated Spect montre :

- Une ischemie myocardique partiellement reversible inferieure et inféro-latéro-basale correspondant à 15% du VG.

- L'analyse du Gating montre une bonne fonction VG avec une FE normale à 70% sur un VG de volume normal.

- Absence de trouble de la cinetique parietale.
Main diagnostic pathways in symptomatic patients with suspected obstructive coronary artery disease.

- **Non-invasive testing for ischaemia**
  - Preferentially considered if:
    - High clinical likelihood
    - Local expertise and availability
    - Viability assessment also required

- **Coronary CTA**
  - Low clinical likelihood
  - Patient characteristics suggest high image quality
  - Information on atherosclerosis desired
  - No history of CAD

- **Drug therapy**
  - Ongoing symptoms

- **Invasive coronary angiography**
  - Preferentially considered if:
    - High clinical likelihood and severe symptoms refractory to medical therapy
    - Typical angina at low level of exercise and clinical evaluation including exercise ECG indicates high-risk of events
    - LV dysfunction suggestive of CAD

- **Drug therapy**
  - Functional assessment
  - Stenosis >90% or with established correlation to ischaemia

- **Revascularization**
Main diagnostic pathways in symptomatic patients with suspected obstructive coronary artery disease.
Ranges of clinical likelihood of coronary artery disease in which a given test can rule-in (red) or rule-out (green) obstructive CAD,
### Exercice ECG

Use of exercise electrocardiogram in the initial diagnostic management of patients with suspected coronary artery disease

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise ECG is recommended for the assessment of exercise tolerance, symptoms, arrhythmias, BP response, and event risk in selected patients.</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>Exercise ECG may be considered as an alternative test to rule-in and rule-out CAD when non-invasive imaging is not available.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>Exercise ECG may be considered in patients on treatment to evaluate control of symptoms and ischaemia.</td>
<td>IIb</td>
<td>C</td>
</tr>
<tr>
<td>Exercise ECG is not recommended for diagnostic purposes in patients with ≥0.1 mV ST-segment depression on resting ECG or who are being treated with digitalis.</td>
<td>III</td>
<td>C</td>
</tr>
</tbody>
</table>

<sup>a</sup> Recommendation class: I: routine use, II: use with caution, III: do not use

<sup>b</sup> Level of evidence: A: Class I evidence, B: Class IIa evidence, C: Class IIb evidence
Approach for the initial diagnostic management of patients with angina and suspected CCS
Step 6: Risk stratification

Based on patient’s symptoms and event risk as assessed by non-invasive testing
Comparison of risk assessments in asymptomatic apparently healthy subjects (primary prevention) and patients with established CCS (secondary prevention).
Comparison of risk assessments in asymptomatic apparently healthy subjects (primary prevention) and patients with established CCS (secondary prevention).
Main diagnostic pathways in symptomatic patients with suspected obstructive coronary artery disease.
Medical Rx optimization

BB + AMLODIPINE
Suggested stepwise strategy for long-term anti-ischaemic drug therapy in patients with chronic coronary syndromes and specific baseline characteristics.
Main diagnostic pathways in symptomatic patients with suspected obstructive coronary artery disease.
Main diagnostic pathways in symptomatic patients with suspected obstructive coronary artery disease.
IVUS

LCXo  LM bif  LM shaft  LMo
Final result
Long term management

Figure 7 The five As of smoking cessation.
Long term secondary prevention
Adding a second AT drug to aspirin

Adding a second antithrombotic drug to aspirin for long-term secondary prevention should be considered in patients with a **high risk** of ischaemic events\(^\text{c}\) and without high bleeding risk\(^d\) (see Table 9 for options).\(^\text{289,296,297,307}\)

Adding a second antithrombotic drug to aspirin for long-term secondary prevention may be considered in patients with at least a **moderately increased risk** of ischaemic events\(^a\) and without high bleeding risk\(^d\) (see Table 9 for options).\(^\text{289,296,297,307}\)

\(\text{c}\) Diffuse multivessel CAD with at least one of the following: diabetes mellitus requiring medication, recurrent MI, PAD, or CKD

\(\text{d}\) At least one of the following: multivessel/diffuse CAD, diabetes mellitus requiring medication, recurrent MI, PAD, HF, or CKD
Long term secondary prevention
Adding a second AT drug to aspirin

Table 9  Treatment options for dual antithrombotic therapy in combination with aspirin 75 – 100 mg daily in patients who have a high\textsuperscript{a} or moderate\textsuperscript{b} risk of ischaemic events, and do not have a high bleeding risk\textsuperscript{c}

<table>
<thead>
<tr>
<th>Drug option</th>
<th>Dose</th>
<th>Indication</th>
<th>Additional cautions</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clopidogrel</td>
<td>75 mg o.d.</td>
<td>Post-MI in patients who have tolerated DAPT for 1 year</td>
<td></td>
<td>289,290</td>
</tr>
<tr>
<td>Prasugrel</td>
<td>10 mg o.d or 5 mg o.d.; if body weight &lt;60 kg or age &gt;75 years</td>
<td>Post-PCI for MI in patients who have tolerated DAPT for 1 year</td>
<td>Age &gt;75 years</td>
<td>289,290,313</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>2.5 mg b.i.d.</td>
<td>Post-MI &gt;1 year or multivessel CAD</td>
<td>Creatinine clearance 15 - 29 mL/min</td>
<td>297</td>
</tr>
<tr>
<td>Ticagrelor</td>
<td>60 mg b.i.d.</td>
<td>Post-MI in patients who have tolerated DAPT for 1 year</td>
<td></td>
<td>291 – 293,307,314</td>
</tr>
</tbody>
</table>
My ESC in Tunisia!