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NICE CG95

'Chest pain of recent onset'

Kay Townsend RACPC CNS May 2018

NICE CG95

- Originally published 2010
 - Two pathways
 - Acute chest pain
 - Stable chest pain
 - Decision to investigate based on typicality of symptoms
 - Choice of test based on likelihood of disease
 - Updated November 2016
 - Updated guideline removes 'chest pain score' and choice of diagnostic test
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Key message

- Symptom driven
 - Clinical history and physical examination
 - Assess the typicality of chest pain
 - Typical or atypical angina
 - Non-anginal chest pain
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Clinical history and physical examination

Take a detailed clinical history documenting:

- the age and sex of the person
 - the characteristics of the pain, including its location, radiation, severity, duration and frequency, and factors that provoke and relieve the pain
 - any associated symptoms, such as breathlessness
 - any history of angina, myocardial infarction, coronary revascularisation or other cardiovascular disease **and**
 - any cardiovascular risk factors.
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Clinical history and physical examination

Carry out a physical examination to:

- identify risk factors for cardiovascular disease
 - identify signs of other cardiovascular disease
 - identify non-coronary causes of angina (for example, severe aortic stenosis, cardiomyopathy) **and**
 - exclude other causes of chest pain.
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Assess the typicality of chest pain

Anginal pain is:

- constricting discomfort in the front of the chest, or in the neck, shoulders, jaw or arms
- precipitated by physical exertion
- relieved by rest or GTN within about 5 minutes.

Assess the typicality of chest pain as follows:

- Presence of three of the features is defined as typical angina.
 - Presence of two of the features is defined as atypical angina.
 - Presence of one or none of the features is defined as non-anginal chest pain.
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Assess the typicality of chest pain

Do not define typical and atypical features of anginal chest pain and non-anginal chest pain differently in men and women.

Do not define typical and atypical features of anginal chest pain and non-anginal chest pain differently in ethnic groups.

Unless clinical suspicion is raised based on other aspects of the history and risk factors, exclude a diagnosis of stable angina if the pain is non-anginal. Features which make a diagnosis of stable angina unlikely are when the chest pain is:

- continuous or very prolonged **and/or**
- unrelated to activity **and/or**
- brought on by breathing in **and/or**
- associated with symptoms such as dizziness, palpitations, tingling or difficulty swallowing.

Exclude a diagnosis of stable angina if clinical assessment indicates non-anginal chest pain and there are no other aspects of the history or risk factors raising clinical suspicion.

Initial management and ECG

Initial management

- Arrange blood tests to identify conditions which exacerbate angina, such as anaemia, for all people being investigated for stable angina.
 - Consider aspirin only if the person's chest pain is likely to be stable angina, until a diagnosis is made. Do not offer additional aspirin if there is clear evidence that people are already taking aspirin regularly or are allergic to it.
 - Follow the recommendations in 'CG126 Stable angina: management' while waiting for the results of investigations if symptoms are typical of stable angina.
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Initial management and ECG

ECG

- For people in whom stable angina cannot be excluded on the basis of the clinical assessment alone, take a resting 12-lead ECG as soon as possible after presentation.
 - **Do not** rule out a diagnosis of stable angina on the basis of a normal resting 12-lead ECG.
 - A number of changes on a resting 12-lead ECG are consistent with coronary artery disease and may indicate ischaemia or previous infarction. These include:
 - pathological Q waves
 - left bundle branch block
 - ST-segment and T wave abnormalities (for example, flattening or inversion).Note that the results may not be conclusive.
 - Consider any resting 12-lead ECG changes together with the clinical history and risk factors.
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Diagnostic investigations

If clinical assessment indicates typical or atypical angina, offer diagnostic testing.

- First-line
 - Second-line
 - Third-line
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First-line: 64-slice CT coronary angiography

- Offer 64-slice (or above) CT coronary angiography if:
 - clinical assessment indicates typical or atypical angina, **or**
 - clinical assessment indicates non-anginal chest pain but 12-lead resting ECG has been done and indicates ST-T changes or Q waves.
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Second-line: non-invasive functional testing

- Offer non-invasive functional imaging for myocardial ischaemia if 64-slice (or above) CT coronary angiography has shown coronary artery disease of uncertain functional significance or is non-diagnostic.
 - When offering non-invasive functional imaging for myocardial ischaemia use:
 - MPS with SPECT **or**
 - stress echocardiography **or**
 - first-pass contrast-enhanced magnetic resonance perfusion **or**
 - MRI for stress-induced wall motion abnormalities.
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Third-line: invasive coronary angiography

- Offer invasive coronary angiography as a third-line investigation when the results of non-invasive functional imaging are inconclusive.
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Confirmed coronary artery disease

- For people with confirmed coronary artery disease (for example, previous myocardial infarction, revascularisation, previous angiography) offer non-invasive functional testing when there is uncertainty about whether chest pain is caused by myocardial ischaemia.
 - An exercise ECG may be used instead of functional imaging.
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Investigations that should not be used

- **Do not use** MR coronary angiography for diagnosing stable angina.
 - **Do not use** exercise ECG to diagnose or exclude stable angina for people without known coronary artery disease.
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Non-anginal chest pain

- Consider causes of chest pain other than angina (such as gastrointestinal or musculoskeletal pain).
 - Only consider chest X-ray if other diagnoses, such as a lung tumour, are suspected.
 - Do not offer diagnostic testing to people with non-anginal chest pain on clinical assessment unless there are resting ECG ST-T or Q waves.
 - If a diagnosis of stable angina has been excluded at any point in the care pathway, but people have risk factors for cardiovascular disease, follow the appropriate guidance.
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Stable angina

Confirm a diagnosis of stable angina and follow the recommendations in CG126 'Stable angina: management' when:

- significant coronary artery disease is found during invasive or 64-slice (or above) CT coronary angiography **or**
 - reversible myocardial ischaemia is found during non-invasive functional imaging.
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Other causes of chest pain

Investigate other causes of chest pain when:

- significant coronary artery disease is not found during invasive coronary angiography or 64-slice (or above) CT coronary angiography **or**
 - reversible myocardial ischaemia is not found during non-invasive functional imaging.
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Other causes of angina

- Consider investigating other causes of angina, such as hypertrophic cardiomyopathy, in people with typical angina-like chest pain and a low likelihood of coronary artery disease.
 - Consider investigating other causes of angina, such as hypertrophic cardiomyopathy or syndrome X in people with typical angina-like chest pain if investigation excludes flow-limiting disease in the epicardial coronary arteries.
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Future options?

HeartFlow FFR_{CT} for estimating fractional flow reserve

- The following recommendations are from NICE medical technologies guidance on [HeartFlow FFR_{CT} for estimating fractional flow reserve from coronary CT angiography](#).
 - The case for adopting HeartFlow FFR_{CT} for estimating fractional flow reserve from coronary CT angiography is supported by the evidence. The technology is non-invasive and safe, and has a high level of diagnostic accuracy.
 - HeartFlow FFR_{CT} should be considered as an option for patients with stable, recent onset chest pain who are offered coronary CT angiography as part of the NICE chest pain pathway. Using HeartFlow FFR_{CT} may avoid the need for invasive coronary angiography and revascularisation. For correct use, HeartFlow FFR_{CT} requires access to 64-slice (or above) coronary CT angiography facilities.
 - Based on the current evidence and assuming there is access to appropriate coronary CT angiography facilities, using HeartFlow FFR_{CT} may lead to cost savings of £214 per patient. By adopting this technology, the NHS in England may save a minimum of £9.1 million by 2022 through avoiding invasive investigation and treatment.
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Any questions?