

Tailor treatment to the patient in stable angina

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If patients with stable angina have positive exercise tests further investigation should be undertaken



British Heart Foundation

What constitutes optimal medical therapy?

When should investigations be carried out?

What are the indications for revascularisation?



STABLE ANGINA IS A CHRONIC CONDITION WHICH MAY PERSIST FOR YEARS. IT AFFECTS A

significant proportion of the population, and is more common with advancing age. According to the 2006 Health Survey for England, angina affects 8% of men and 3% of women aged 55-64 increasing to 14% and 8% respectively for men and women aged 65-74.¹

Symptoms of angina can be alarming and distressing and it is therefore important that patients understand the underlying problem and what therapies are available to improve or abolish their symptoms.

The management of stable angina in all patients should include appropriate lifestyle changes and optimal medical therapy - and in some patients revascularisation. It is important to reassure patients with clinically significant coronary artery disease, both symptomatic and asymptomatic, that for most a combination of lifestyle modification and optimal medical therapy will prove sufficient treatment. However, a minority of patients may also require intervention either by stents or surgery.

In discussions with patients, it is useful to involve appropriate friends or family and to adapt recommendations

to the patient's individual circumstances. For example, whereas some limitation of strenuous exercise in an elderly patient may be appropriate this might be less attractive to younger patients.

Two important evidence-based guidelines have recently been published in this area. In 2010, the European Society of Cardiology and the European Association for Cardio-Thoracic Surgery (ESC/EACTS) published joint guidelines for myocardial revascularisation.² In July 2011, NICE published guidelines on the management of stable angina.³



SYMPOSIUM CARDIOVASCULAR DISEASE

STABLE ANGINA

Table 1**Indications for revascularisation in stable angina or silent ischaemia**

	Subset of coronary artery disease by anatomy	Class of recommendation	Level of evidence	References
For prognosis	Left main >50%*	I	A	4,5,6
	Any proximal LAD >50%*	I	A	4,5,7-12
	2VD or 3VD with impaired LV function*	I	B	4,5,7-12
	Proven large area of ischaemia (>10% LV)	I	B	13,14,15
	Single remaining patent vessel >50% stenosis*	I	C	-
For symptoms	IVD without proximal LAD and without >10% ischaemia	III	A	16,17,18
	Any stenosis >50% with limiting angina or angina equivalent, unresponsive to optimal medical therapy	I	A	4,5,16,17,19-21
	Dyspnoea/chronic heart failure & >10% LV ischaemia/viability supplied by >50% stenotic artery	IIa	B	14,15
	No limiting symptoms with optimal medical therapy	III	C	-

LAD= left anterior descending; LV= left ventricle; VD= vessel disease * With documented ischaemia or fractional flow reserve <0.80 for angiographic diameter stenoses 50-90%

Adapted from table 8, ESC/EACTS Guidelines on myocardial revascularization (2010)²**Table 2****Indications for coronary artery bypass grafting (CABG) versus percutaneous coronary intervention (PCI) in stable patients with lesions suitable for both procedures and low predicted surgical mortality**

Subset of coronary artery disease by anatomy	Favours CABG	Favours PCI	References
IVD or 2VD - non-proximal LAD	IIb C	I C	-
IVD or 2VD - proximal LAD	I A	IIa B	4,5,22,23
3VD simple lesions, full functional revascularisation achievable with PCI, SYNTAX score ≤ 22	I A	IIa B	24,4,5,7-12,18
3VD complex lesions, incomplete revascularisation achievable with PCI, SYNTAX score >22	I A	III A	24,4,5,7-12,18
Left main (isolated or IVD, ostium/shaft)	I A	IIa B	24,6
Left main (isolated or IVD, distal bifurcation)	I A	IIb B	24,6
Left main + 2VD or 3VD, SYNTAX score ≤ 32	I A	IIb B	24,6
Left main + 2VD or 3VD, SYNTAX score ≥ 33	I A	III B	24,6

LAD= left anterior descending; VD= vessel disease

Adapted from table 9, ESC/EACTS Guidelines on myocardial revascularization (2010)²**LIFESTYLE MODIFICATION**

It is vital that patients with obvious precipitating factors that may promote or aggravate underlying coronary artery disease address these with appropriate lifestyle changes.

Cigarette smoking should be stopped and a balanced diet and regular exercise should be encouraged. Weight loss should be strongly advised for those who are significantly overweight and its additional benefits of reducing the risk of developing diabetes (or improving its control) and musculoskeletal problems emphasised.

Patients should also be given general advice about factors that aggravate angina for example:

- cold weather
- heavy exercise
- emotional stress

Advice on appropriate physical exertion and sexual activity should also be included. Patients may have to adapt their expectations to the severity of their symptoms.

OPTIMAL MEDICAL THERAPY

What defines optimal therapy in an individual patient will be dependent on the burden and severity of the underlying coronary artery disease.

'The severity of symptoms does not necessarily correlate with the severity of the underlying disease process'

A short-acting nitrate for angina prevention and treatment of episodes of angina is recommended. It should be used prophylactically in advance of any exertion.

In terms of secondary prevention, basic therapy includes aspirin and a statin and antihypertensive agents for those with higher blood pressure.

Optimal drug therapy consists of two anti-anginal drugs, such as a beta-blocker or calcium channel blocker as first-line treatment and in preference to other drug therapy unless there are side-effects or contraindications to these.

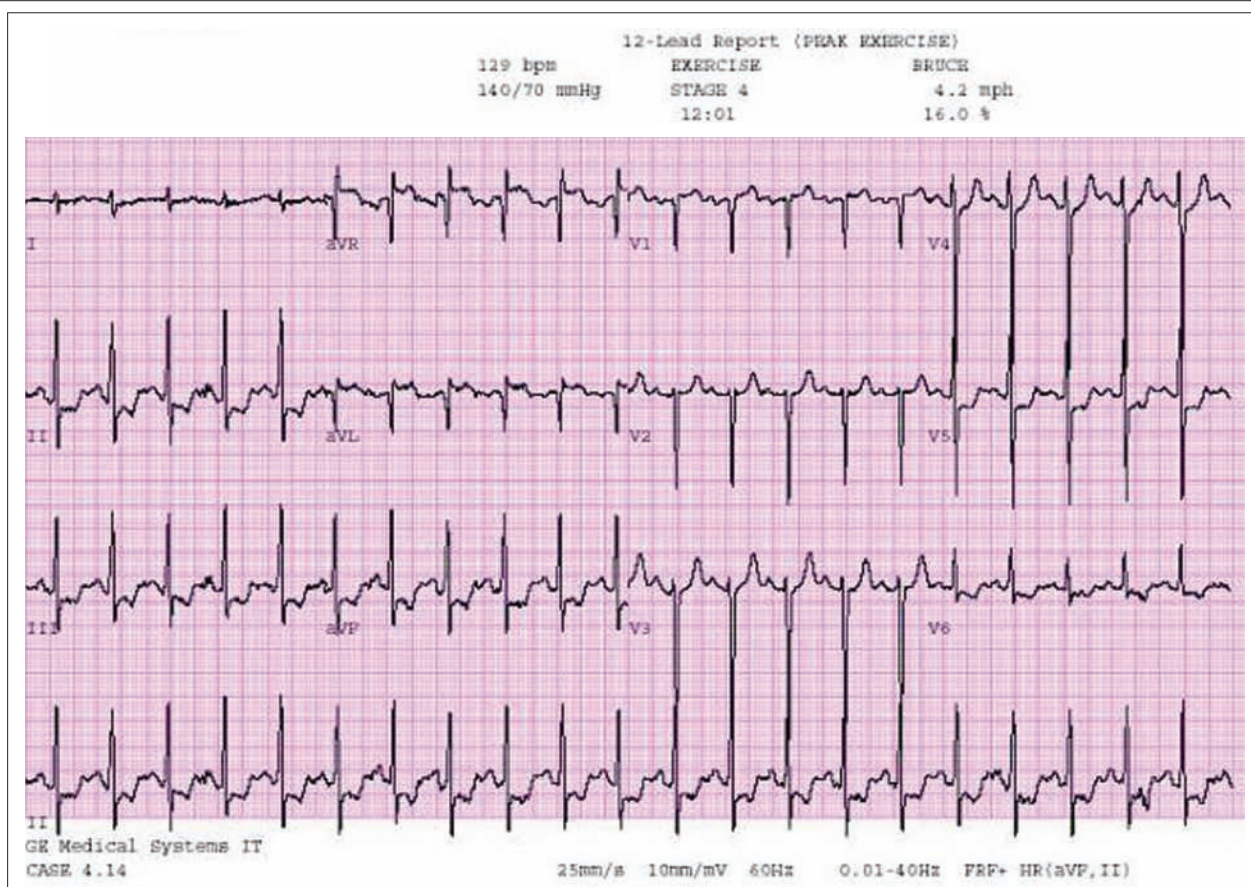
A third anti-anginal drug is not necessary in those patients whose angina is adequately controlled on dual therapy but should be considered if symptoms remain intrusive. In such situations advice from a cardiologist may be useful.

INVESTIGATIONS

Some consideration should be given to the need for further investigation in patients with angina even if symptoms are appropriately controlled by lifestyle changes and optimal medical therapy. This is because the severity of symptoms does not necessarily correlate with the severity of the underlying disease process.

It is of critical importance to understand that the prognosis of coronary artery disease is strongly linked to the volume of underlying

Positive exercise ECG trace showing significant ST segment abnormalities suggestive of ischaemia



myocardial ischaemia and this cannot be determined simply by the level of symptoms. This should be explained to patients who should be offered further investigation if they wish and should certainly be encouraged in younger patients. It is mandatory in those with obvious changes in their level of symptoms.

A relatively normal exercise test provides considerable reassurance that the patient is at low risk of subsequent adverse cardiac events. In patients who have positive exercise tests further investigation, usually by angiography, should be undertaken. This can define the number of diseased coronary arteries and in association with simultaneous fractional flow reserve measurements can quantify the functional significance of any particular stenoses in causing ischaemia.

Unless a significant volume of myocardium (>10%) is at risk from ischaemia, there may be no prognostic benefit from revascularisation. However, even in patients in whom there is no significant burden of ischaemia, revascularisation can be justified on symptomatic grounds if the patient remains highly symptomatic despite optimal medical therapy or is

intolerant of maximal medical therapy.

REVASCULARISATION

The choice of revascularisation, whether by stents or surgery, has been the subject of much debate and recent guidelines produced jointly by the ESC and EACTS have helped clarify recommendations on when stents or coronary artery bypass grafting (CABG) should be carried out (see tables 1 and 2, opposite).

The guidelines emphasise that the recommendations apply where both therapies are potentially suitable and where the patient is at low risk for surgical intervention.

As the SYNTAX trial²⁴ shows, for the majority of patients with three-vessel coronary artery disease (around 79%) and for almost two thirds of patients with left main stem disease, there is still a clear survival advantage associated with CABG rather than stents and in such patients stents are contraindicated unless the patient is unfit for, or refuses, surgery, see table 2 opposite.

However, for patients with less

severe three-vessel coronary artery disease and less severe anatomical forms of left main disease there now appears to be equivalence in terms of survival between CABG and stents, although CABG still remains far more effective in reducing the need for further interventions.

'Prognosis of coronary artery disease is strongly linked to the volume of underlying myocardial ischaemia'

ONGOING MANAGEMENT

NICE emphasises the importance of the role of the multidisciplinary team. This should include a non-interventional cardiologist, a cardiac surgeon and an interventional cardiologist. It recommends the team meet regularly to discuss »

key points

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According to the 2006 Health Survey for England, angina affects 8% of men and 3% of women aged 55-64 increasing to 14% and 8% respectively for those aged 65-74. It is important to reassure patients with clinically significant coronary artery disease, both symptomatic and asymptomatic, that for most lifestyle modification and optimal medical therapy will prove sufficient treatment. However, a minority of patients may also require intervention by stents or surgery.

It is vital that patients with obvious precipitating factors that may promote or aggravate underlying coronary artery disease address these with appropriate lifestyle changes. Cigarette smoking should be stopped and a balanced diet and regular exercise should be encouraged. Patients should be given advice about factors that aggravate angina e.g. cold weather, heavy exercise and emotional stress. Advice on physical exertion and sexual activity should be included.

A short-acting nitrate for angina prevention and treatment of episodes of angina is recommended. It should be used prophylactically in advance of any exertion. In terms of secondary prevention, basic therapy includes aspirin and a statin and antihypertensive agents for those with higher blood pressure. Optimal drug therapy consists of two anti-anginal drugs, such as a beta-blocker or calcium channel blocker as first-line treatment and in preference to other drug therapy unless there are side-effects or contraindications to these.

It is of critical importance to understand that the prognosis of coronary artery disease is strongly linked to the volume of underlying myocardial ischaemia and this cannot be determined simply by the level of symptoms. This should be explained to patients who should be offered further investigation if they wish and should certainly be encouraged in younger patients. A relatively normal exercise test provides considerable reassurance that the patient is at low risk of subsequent adverse cardiac events. In patients who have positive exercise tests further investigation, usually by angiography, should be undertaken. Unless a significant volume of myocardium (>10%) is at risk from ischaemia, there may be no prognostic benefit from revascularisation. However, even in patients in whom there is no significant burden of ischaemia, revascularisation can be justified if the patient remains highly symptomatic despite optimal medical therapy or is intolerant of maximal medical therapy.

For the majority of patients with three-vessel coronary artery disease (around 79%) and for almost two thirds of patients with left main stem disease, there is still a clear survival advantage associated with CABG rather than stents and in such patients stents are contraindicated unless the patient is unfit for, or refuses, surgery. However, for those with less severe three-vessel coronary artery disease and less severe anatomical forms of left main disease there now appears to be equivalence in terms of survival between CABG and stents, although CABG still remains far more effective in reducing the need for further interventions.

the risks and benefits of continuing drug treatment or the revascularisation strategy.

Even after intervention, it is mandatory to ensure that the patient remains on optimal medical therapy, usually consisting of at least one antiplatelet agent, a beta-blocker and a statin. Additional therapy may be necessary depending on the severity of the coronary artery disease.

CONCLUSION

Most patients with chronic stable angina can be treated satisfactorily these days with a combination of lifestyle changes and optimal medical therapy. For a smaller cohort of patients with more severe disease, revascularisation may be appropriate. For patients with the most severe forms of coronary artery disease there is still a prognostic benefit from coronary artery bypass grafting while stents may be appropriate in less severe forms of disease.

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Useful information

The British Heart Foundation
Accessible explanatory booklets for patients with coronary artery disease
www.bhf.org.uk

NICE CG126. The management of stable angina

The full guideline, quick reference guide, and summary for patients are available from
www.nice.org.uk

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