



Asymptomatic coronary artery disease shown on noninvasive imaging: a disbelieving patient

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Convincing patients with asymptomatic coronary disease that drug therapy is required can be challenging, but there is ample evidence of benefit.

Case scenario

Mr JB is 56 years old, outwardly healthy and has no past history of ischaemic heart disease in himself or close relatives. He plays golf regularly with a radiologist who has become interested in noninvasive CT-coronary angiography. He offers Mr JB CT-coronary angiography at no charge and this is performed a few weeks later. Imaging reveals a 30% blockage in the left anterior descending artery (mid-section) and atheromatous changes in the right coronary artery, together with a calcium score of 350. Mr JB is immediately referred to his GP for follow up.

His GP knows Mr JB quite well but has only treated him in the past for minor problems. The patient is already expressing the notion that he feels just fine and cannot understand the fuss. His diet is relatively high in energy and saturated fat, he is a nonsmoker, his body mass index is 29 kg/m² (about 8 kg beyond the reference range for his height) and his blood pressure is 140/90 mmHg in both arms. The physical examination is otherwise unremarkable and he is sent for blood tests with the following results:

- cholesterol 5.1 mmol/L
- triglycerides 1.9 mmol/L
- HDL cholesterol 1.0 mmol/L
- LDL cholesterol 3.2 mmol/L

- glucose 4.9 mmol/L
- creatinine 91 µmol/L
- high-sensitivity C-reactive protein 3.6 mg/L
- electrolytes, liver function tests, creatine kinase and full blood count were all within normal limits.

How did his GP react to the various findings?

Although this is not the usual or recommended clinical pathway to CT-coronary angiography, the findings indicate the presence of significant coronary artery disease with a calcium score consistent with moderate plaque burden. Mr JB manifests several modifiable coronary risk factors, including a poor diet, being overweight and an elevated blood pressure and LDL cholesterol level; yet the patient is still at a stage of disbelief.

Mr JB requests a second opinion and he is referred to a cardiologist.

Case scenario continued

The cardiologist reviews the initial findings and performs a stress echocardiogram, which does not show any abnormality at 12 minutes on the Bruce protocol. The cardiologist supports the concerns expressed by the GP, and thinks there is no need at this stage for further investigation.

Key points

- Patients with demonstrated coronary artery disease need attention to all their risk factors.
- Standard diet and lifestyle advice and increased physical activity are applicable in all relevant cases.
- Aspirin, ACE inhibitors and statins are part of standard therapy, but additional drugs may be required in relevant cases.
- As more patients with asymptomatic disease are diagnosed, it will become increasingly difficult to convince them to accept the therapy. It needs to be appreciated that standard drug therapy does more than control blood pressure or cholesterol.

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CASE STUDY CORONARY ARTERY DISEASE CONTINUED

He recommends treatment with aspirin, an ACE inhibitor and a statin, and returns Mr JB to the care of his GP.

The GP attempts to prescribe the relevant medications but Mr JB resists the use of so many drugs, asking whether he can solve his problems with diet and lifestyle changes alone. He is referred to an expert dietitian for help with weight reduction and a better long-term diet, but he is also counselled that there remains a need for the prescribed drugs. The patient agrees to start aspirin 100 mg daily but decides to postpone any other drugs for another six weeks, after which he will return for further examination and blood tests.

At review six weeks later, Mr JB has lost 3.5 kg, his diet is more favourable and his blood pressure is a little lower at 136/82 mmHg in the right arm and 132/80 mmHg in the left arm. (There is justification here for 24-hour ambulatory blood pressure monitoring, but this was not ordered.) Blood test results are as follows:

- cholesterol 4.8 mmol/L
- triglycerides 1.6 mmol/L
- HDL cholesterol 1.1 mmol/L
- LDL cholesterol 3.0 mmol/L.

How should his GP now manage this situation?

Although Mr JB is showing good motivation, has increased his level of physical activity and has improved his risk factors to a degree, there is ample clinical trial evidence that a patient with demonstrated coronary artery disease will have clinical benefit from the use of an ACE inhibitor and a statin. Furthermore, this benefit is over and above just good blood pressure control and an ideal LDL cholesterol level.

The challenge ahead is how to convince Mr JB that it is now time for additional drug therapy. If a patient is of good comprehension it may be possible for the GP to offer abstracts from some of the research studies. Also available are some excellent books written by mainstream cardiologists for lay consumption, as well as publications from the Heart Foundation. Perhaps Mr JB will respond to extra counselling or a conversation with another patient requiring similar treatment.



Mr JB eventually agrees to start statin therapy, but still resists use of an ACE inhibitor ('too many drugs, doctor'). He needs a further major reduction in his LDL cholesterol level and he is given atorvastatin 20 mg daily. This is a 'middle order' dose because he is not representative of patients given low-dose statins in trials. The Treating to New Targets study suggests he could be given atorvastatin 80 mg daily, but this high dose may be unacceptable to a reluctant patient, especially when a smaller dose might suffice.

Case scenario continued

Mr JB is reviewed a further six weeks later. He has lost only 0.5 kg since last time, his blood pressure is essentially unchanged and blood test results are as follows:

- cholesterol 3.3 mmol/L
- triglycerides 1.4 mmol/L
- HDL cholesterol 1.0 mmol/L
- LDL cholesterol 1.7 mmol/L
- liver and muscle enzymes essentially unchanged from baseline.

Implications for further patient management

Mr JB's lipid profile is excellent with an LDL cholesterol level below 2.0 mmol/L. Although his blood pressure is not very high, the case

for use of an ACE inhibitor is unchanged. His GP should still try to convince Mr JB to start an ACE inhibitor. Mr JB requires long-term supervision and support, continuing relevant drug therapy plus a healthy diet and weight maintenance. There may also be a role here for supplementary fish oil capsules, seen as a general preventative agent, not something for lipid management.

The presence of coronary artery disease in this man was revealed through a non-conventional pathway. Nevertheless, this patient has demonstrated coronary disease and will need standard therapies. CT-coronary angiography is not a suitable screening test in patients without heart symptoms, nor in those with obvious coronary disease. It is more clearly indicated in patients who seem to be at 'intermediate' risk of coronary artery disease (e.g. patients with atypical chest pain, those carrying major risk factors) as an aid to further management decisions. (A comprehensive discussion on the role of coronary calcium scanning in the risk assessment of asymptomatic patients and the diagnostic role of CT-coronary angiography in symptomatic patients is available in *Cardiology Today* 2011; 1(3): 9-16.) **CT**

COMPETING INTERESTS: None. The views expressed are purely those of the author.