Investigation and management of chronic stable angina

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INTRODUCTION
Like many ancient terms in medicine, angina pectoris is not a diagnosis but a symptom. The term implies the occurrence of myocardial ischaemia, the usual mechanism of which is an increase in myocardial oxygen demand that cannot be met by an appropriate increase in coronary blood flow because of the physical obstruction imposed by atheromatous coronary heart disease. Thus, as noted by Heberden in 1772, angina is precipitated mainly by effort and disappears with rest. Several non-cardiac mechanisms, including anaemia or polycythaemia, can also cause angina; as can a number of other cardiac or vascular mechanisms independently of or in association with atheroma—including coronary vasoconstriction, ventricular hypertrophy with or without associated valve disease and platelet aggregation or thrombosis.

In this chapter we will concentrate on the investigation and management of those patients in whom angina due to coronary heart disease is suspected and in whom the pattern of symptoms is stable, in that angina usually is induced by exercise (albeit variably) and relieved by rest. It is in these patients that clinical investigation has reached the stage where it allows the cardiologist to formulate a therapeutic strategy based not only on the symptoms but also on the prognostic information provided by non-invasive and invasive assessment.

But, equally, the availability of such an array of powerful diagnostic tests as computer assisted exercise electrocardiography, radionuclide ventriculography, thallium perfusion scintigraphy and coronary arteriography poses some of the most crucial and controversial questions in cardiology today:

(1) Which patients should be investigated?
(2) When and how far?
(3) Who should have surgery or angioplasty?
(4) Who may safely continue on medical treatment?
ISCHAEMIC HEART DISEASE

Basically three related questions arise at the outset. Firstly, are the symptoms definitely due to coronary heart disease? Secondly, do they significantly limit exercise capacity and detract from the quality of life? And thirdly, irrespective of symptoms, does the underlying coronary heart disease pose a threat to life or well being in the short or medium term? The inevitable paradox of the practice of medicine is that in most diseases, including coronary heart disease, the need for investigation is usually signalled by the onset of a symptom such as chest pain. But since sudden death, unheralded by any symptom, is a common presentation of coronary heart disease and since in certain categories of patients with angina, coronary bypass surgery may improve prognosis, it is important not to depend entirely on the perceived severity of the symptoms when considering further investigation. Moreover, personality factors may be such that symptoms might be minimized by some patients and exaggerated by others. Modern non-invasive methods enable us to quantify the severity of the underlying coronary heart disease thus providing information on prognosis that, regardless of the symptoms, may be very important in management.

Another stimulus to careful investigation is that often it may exclude a cardiac cause for chest pain in a very symptomatic patient, thereby allowing the withdrawal of a complex drug regimen and removal of the fear of heart disease that could be contributing significantly to the symptoms. Also a negative cardiac investigation may lead to a change in the diagnostic direction towards the correct identification of, for example, oesophageal or other upper alimentary pathology.

THE APPROACH TO INVESTIGATION

At the outset it is very important to make a working clinical diagnosis by means of a detailed history supplemented by a careful clinical examination – to exclude other forms of heart disease or serious pathology, especially concomitant vascular disease, to detect hypertension and to identify any other attendant coronary risk factors. Strong pointers to the presence of coronary heart disease are a characteristic history of effort related retrosternal or epigastric pain that builds up gradually, radiates to the throat, jaw, back, shoulders or arms and which passes off gradually but promptly with cessation of activity (or, subsequently, with the use of nitrates). Dyspnoea commonly accompanies the chest discomfort and may be the main or, indeed, the only complaint in some patients – the pathophysiological basis for which could be one or other or a combination of reversible myocardial ischaemia and poor left ventricular function, although associated airways disease may be a factor in smokers. Often the presence of one or more coronary risk factors is a persuasive factor, especially when the symptoms are atypical. The differential diagnosis and investigation of chest pain that is not typical for coronary heart disease is beyond the scope of this chapter, but caution must be observed in ascribing such symptoms to anxiety or to