

Editorial

Non-cardiac chest pain: assessment and management

Chest pain is a common reason for patients to attend cardiac clinics, but the cause of pain in more than 50% of these patients is non-cardiac.¹ In a recent study of 660 consecutive referrals to a “one stop” clinic, only 27% had a cardiac cause for their symptoms.² Another group, which is particularly difficult to manage, is that with a combination of ischaemic heart disease and non-cardiac pain.³ Patients with non-cardiac pain have a good outcome in terms of mortality⁴ but continue to experience pain, tend to remain on cardiac medication, and continue to attend emergency departments, primary care, and outpatient clinics.⁴ Regrettably, both patient and doctor may find an initial, but erroneous, diagnosis of cardiac pain difficult to revoke.⁵

Aetiology

Most research has involved patients with a normal angiographic appearance to the large epicardial arteries. Although a small proportion of such patients with ST segment depression may have underlying cardiac disease,⁶ most have atypical pain and normal exercise tests.^{7,8} In these patients, a benign non-cardiac cause is likely. Thus about 50% of all patients with normal coronary anatomy and non-cardiac chest pain have oesophageal reflux or motility disorders,⁴ approximately 60% have evidence of breathing disorders,^{7,8} and 60% a psychiatric disorder.^{4,9} Psychiatric causes include panic, major depression, and health anxiety (hypochondriasis-like and other so called somatoform disorders). However, the clinical significance of oesophageal and respiratory abnormalities is not straightforward as they often do not coincide with pain.^{10,11} Furthermore, the response to specific treatment is variable⁴ raising the possibility that these abnormalities are coincidental rather than causative.

Half of the patients with chest pain and normal angiographic anatomy have two or more of the aforementioned conditions (oesophageal, respiratory, or psychiatric abnormalities).⁸ Therefore, an alternative view of aetiology is that there are interactions between physiological and psychological causes.¹⁴ Psychological variables may be of considerable importance, even when there is no diagnosable psychiatric disorder, in that they are associated with the perception and interpretation of bodily sensations. Individual interpretation is affected not only by mental state but also by the patient's past experience and knowledge of illness, especially of heart disease. Once non-cardiac chest pain has occurred it may be perpetuated by secondary anxiety and by behavioural changes—for example, avoidance of exercise, as well as by the concern of others. Overcautious medical care, lack of explanation or ambiguous and contradictory explanations are common and may make symptoms and disability worse, especially in those who are already anxious.

Assessment: the clinical history

The view that the aetiology of non-cardiac symptoms is multifactorial means that the assessment in primary care or outpatient clinics should encompass not only heart disease but other possible physical causes as well as psychological factors, including the patient's beliefs and concerns. This can be done with relatively simple standardised

questionnaires.¹² The possibility of a positive diagnosis of non-cardiac chest pain also needs to be considered.¹³

A psychological cause is suggested if there is a situational or phobic component to the somatic symptoms. Asking specific questions about panic attacks is important. For example, “have you ever had a panic attack, when you suddenly felt frightened, anxious, or extremely uncomfortable? When you have chest pain how frightened do you feel? What other symptoms do you experience?” It is also worth asking whether the patient has ever experienced or received treatment for nervous problems in the past, and inquiring about recent upsetting events or a history of previous unexplained medical symptoms and multiple current complaints. Depression is less common but it is important to identify the key symptoms of hopelessness, lack of interest, pleasure and concentration, poor sleep, and irritability.

Even if there is no formal diagnosis, psychological factors may still be important contributors to symptoms and disability. It is important to elicit the patient's beliefs and worries about chest pain, as inappropriate beliefs can perpetuate the symptoms. A suitable question might be “When you experience chest pain, what is your worst fear?”

Investigation and referral

Decisions about further investigation should be based on the assessment of the chest pain characteristics and on the coronary risk profile. A patient with a low risk of coronary disease (for example, young female with no coronary risk factors) and atypical pain seen in primary care does not usually need hospital referral. If referral is necessary because of anxiety or continuing severe symptoms, it should be made with the minimum of delay to the appropriate specialist; this may be a gastroenterologist, rheumatologist or psychiatrist/clinical psychologist. It is important that the patient understands that there are numerous causes for chest pain other than heart disease and that the referral letter outlines the history and the need for an explanation for the symptoms.

A patient with an intermediate or high risk of coronary disease (middle aged male) should usually have non-invasive investigations even if the chest pain is “not typical” of ischaemic pain. This will usually require referral to a cardiologist, or to a one stop chest pain clinic. At this level the minimum of reasonable investigations should be performed; a normal exercise test at high workload in a patient with atypical pain is probably sufficient, with a myocardial perfusion scan as back up for equivocal cases.

Cardiac catheterisation should be reserved for those in whom non-invasive investigation suggests significant disease or for those—for example, bus drivers, whose livelihoods depend on the diagnosis. We believe that patients should be prepared for the possibility of a normal angiogram, as this may help them adjust to the diagnosis and accept and comply with appropriate treatment afterwards.¹³ Otherwise the patient may believe that the cardiologist has missed something. If normal coronary anatomy is found at coronary angiography, we recommend that the patient is re-assessed after 4–6 weeks when a “stepped” approach to management can be adopted.¹⁴

Treatment

We suggest a stepped approach to follow up care with management individually tailored according to clinical need.¹⁴ The initial assessment may suggest symptomatic treatment. Some patients may require no more than simple reassurance and explanation; they are willing to accept that they do not have a grave condition, provided that their symptoms are taken seriously and they are given a satisfactory explanation for the pain. Others find additional follow up discussion, explanation, and advice 4–6 weeks later is helpful. This means a review appointment for all patients either with a cardiac nurse in the cardiac clinic or with a doctor in primary care. This is valuable because it provides an opportunity for further explanation and discussion and to identify patients with recurrent or persistent symptoms who may require further help.

In some patients obvious musculoskeletal problems can be treated—for example, with non-steroidal anti-inflammatory agents. There is uncertainty about the status of oesophageal abnormalities; however, acid reflux is common in patients with normal coronary anatomy, and as many as a third respond well to H₂ receptor antagonists or proton pump inhibitors.¹⁵ In some cases oesophageal function testing may reveal a motility disorder or acid reflux unresponsive to first line medication. These may require specialist gastroenterological referral.

For patients with continuing symptoms and disability, often with coexisting psychological problems such as abnormal health beliefs, depressed mood, panic attacks, or other disabling physical symptoms such as fatigue or palpitations, psychological or psychopharmaceutical treatments have a role. We recognise however that cardiologists working in busy outpatient clinics may require additional resources if they are to provide adequate management of these patients. One possibility is to employ a specialist cardiac nurse who has received additional training in the management of these clinical problems, and who could undertake explanation and routine follow up in a separate part of the cardiac outpatient clinic.¹⁴

A small number of patients have complex enduring problems that are difficult to manage and may require specialised psychological help tailored to their specific needs. Recent evidence from controlled studies supports the use of both antidepressant drugs and cognitive behavioural therapy.^{16–18} The analgesic effect of imipramine was harnessed in a study of patients with chest pain and normal coronary arteries: there was a mean reduction in frequency of chest pain episodes by 50% in the imipramine group, which occurred independently of baseline levels of psychiatric morbidity and oesophageal abnormalities.¹⁶

Cognitive behavioural therapy is a psychological treatment that identifies the distinctive pattern of symptoms, thoughts, emotions and behaviours involved in the patient's chest pain. It is important to identify the thoughts that support the patient's negative beliefs—for example, "my heart won't stand any exercise," and thereafter to encourage the patient to carry out actions that oppose these fears; in this case a course of graded increase in activity. Cognitive behavioural treatment has been shown to be effective in recent randomised controlled trials,^{17 18} in both individual and group settings.¹⁹

Conclusions

A more imaginative approach is needed for the assessment and management of patients with chest pain. Attempts to establish a positive diagnosis of non-cardiac pain at an early stage after presentation would limit the potential for iatrogenic harm and probably reduce disability in these patients. This can be done in many cases by the general practitioner, sometimes with the help of rapid access chest pain clinics or other locally agreed arrangements. There must be a clear explanation and discussion with patients and families whether ischaemic heart disease is diagnosed or not, as well as follow up to determine any further need for treatment. There must be provision for easy referral to a rheumatologist, gastroenterologist, or psychiatrist/clinical psychologist. Care based on a symptom rather than a system can be expected to lead to more efficient use of investigations and medical treatment.

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