Chest pain in patients with normal coronary arteriograms

Studies of patients with persistent chest pain but normal coronary arteries have consistently shown that the risk of subsequent myocardial infarction is low.1 2 3 As a corollary, no demonstrable abnormality of the coronary arteries is found in 1-2% of patients who do sustain a myocardial infarction.4 5 6

Up to a third of patients with chest pain who undergo coronary arteriography have no arterial abnormalities,7-10 yet half11 to three quarters12 of them remain appreciably disabled after the investigation. In a recent study (p 1505) Bass et al showed that one year after normal coronary arteriography 41% of patients still complained of chest pain, 46% had morbid fears, and 24%, were unable to work. A previous study reported persistent symptoms in 94% of patients,13 while in another 73% improved; most studies report an overall improvement in about half of the cases, although some 22% to 51% of patients were unable to return to work. Faxon et al argue that arteriography is justified by an improvement in physical activity and a decline in the consultation rate after normal coronary arteriography,14 but the residual disability which follows this investigation offers no grounds for complacency.

Given these facts, understandably the management of these patients may be difficult. Most studies have shown a low subsequent cardiac mortality in patients with normal coronary arteriograms, who have been told that they are not suffering from structural heart disease and that there is no need to limit their physical activity. At the same time a warning should be sounded. Fox believes that these patients need to be followed up carefully and that subsequent episodes of chest pain must be treated promptly.15

So how may these contrasting approaches be reconciled? A stressful event which threatens personal survival or disrupts an individual's close attachments—for example, the loss of a spouse, a treasured object, or a valued status—may be associated with both emotional disturbance and increased mortality even in stable people.16 Some evidence suggests that the broken heart is a reality,17 and it is not too speculative to suggest that some of these deaths result from spasm in otherwise normal coronary arteries.18 "Spoiling" an individual's home through flood or burglary is also associated with a significant increase in morbidity and mortality.19

Intimations of mortality, whether through participation in an accident which might have been fatal,20 witnessing the death of comrades,21 or actually experiencing a sudden pain in the chest, are all associated with acute anxiety, which may persist and become disabling. Common features of such anxiety are disordered breathing, chest pain, or oppression and an impending sense of doom. In the American civil war Da Costa described "the irritable heart of the soldier," and "disorderly action of the heart" in the first world war and "effort syndrome" in the second world war were commonplace. The characteristic symptoms of these syndromes were left sided chest pain, breathlessness, palpitations, and fatigue.22 23 Psychogenic disorders may thus simulate heart disease, and psychological factors may precipitate myocardial infarction in the absence of coronary artery disease.24 25

Fit patients without coronary artery disease should be told firmly that they need not restrict their physical activity and that their subjective experiences do not presage death. Anyone who consults a doctor should be advised to give up smoking, avoid obesity, and undertake regular exercise. It is probably best for patients not to know that they have had a "mild heart attack," for subsequent anxiety may well outweigh any benefits which may accrue from accepting medical advice.26

Extensive cardiac investigations should be avoided when possible, for patients with angina and normal coronary arteries can often be distinguished clinically; indeed, according to Todd,27 the history is the most important pointer to the cause of recurrent chest pain. Patients without cardiac abnormalities must be identified and if an emotional disturbance is suspected it is necessary to make a specific diagnosis so that effective treatment may be given.

Depression is frequently associated with pain and may be accompanied by a sense of precordial oppression. Treatment with non-cardiotoxic tricyclic antidepressants such as mianserin should result in a complete recovery. Grief may simulate heart disease and patients should be asked about recent bereavement, particularly through heart disease or sudden

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1 Vegetables Administration Cooperative Study Group on Antihypertensive Agents. Effects of treatment on morbidity in hypertension II. Results of patients with diastolic pressure averaging 90 through 114 mm Hg. JAMA 1970;213:1143-52


3 Hypertension Detection and Follow-up Program Cooperative Group. Five-year findings of the hypertension detection and follow-up program. 1. Reduction in mortality of persons with high blood pressure, including mild hypertension. JAMA 1979;242:2562-71.


death. Appropriate counselling and support may then lead to relief of symptoms.

An unexplained breathing disorder was found in 65% of patients in a recent study, and this was reduced to 50% after arteriography. The hyperventilation syndrome may be distinguished from other anxiety states by the precipitation of typical symptoms by voluntary overbreathing and by the termination of spontaneous attacks by controlled breathing or rebreathing into a paper bag. Support and reassurance with occasional short term sedation with benzodiazepines may be required initially, but many patients will achieve complete control over their symptoms.

The status of the “hyperdynamic β adrenergic circulatory state” is less certain. Panic attacks, chest pain, and palpitations may be induced by beta adrenergic agents, and beta blockers such as propranolol may reverse or suppress such attacks.

A recent revision of American psychiatric nomenclature includes a diagnostic category 300.01 panic disorder, whose criteria include chest pain or discomfort, choking or smothering sensations, dyspnoea, palpitations, and fear of dying. There are now several claims that this syndrome responds to treatment with tricyclic antidepressants. Mixed neurotic states, often with symptoms of both anxiety and depression, may require drug treatment to control symptoms and supportive psychotherapy. Patients with residual chest pain but no evidence of physical or emotional disorder may be treated with (among other agents) nitrates, advised to avoid coronary risk factors, and given regular positive counselling from their general practitioner.

The exceptional patient may sustain a subsequent myocardial infarction but this is likely to be recognised and dealt with promptly. More common, but harder to recognise, is the patient who denies emotional distress or stressful life events but goes on to manifest unequivocal but still unacknowledged evidence of their effects. It is this group which is most likely to tax the physician’s therapeutic skills.

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A better deal for overseas doctors

Some of the most distinguished members of our profession and many others who provide indispensable service first came to Britain as “overseas doctors”. The problems facing these doctors seem likely to become worse in the immediate future.

The last few years have seen competition for good senior house officer posts increase as British medical schools have increased their output of doctors and vocational training programmes for general practice have burgeoned. Too often, foreign graduates find that they are unable to get good jobs in the specialty which they wish to study and they fail the examinations which they had hoped would testify on their return home to their successful training. They then stay on in a series of unsatisfactory posts, sometimes as locums, until, in their late 30s or early 40s, married and with a family, they realise the have no prospects here or in their own country. With an understandable sense of grievance they are apt to blame the system for lack of training opportunities.

Certainly more could be done to give care guidance earlier on. There are still some poor junior hospital posts despite efforts by hospital staff and postgraduate authorities to provide integrated senior house officer rotation schemes and the recent requirement by the General Medical Council that only posts approved for training by the royal colleges and faculties can be filled by doctors with limited registration. The Professional and Linguistic Assessments Board test does ensure minimum...