

Mood disorders as risk factors for coronary heart disease: evidence update

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Can anxiety and depression be risk factors for coronary heart disease? What is the evidence, and the clinical implications?

It has long been recognised that patients with significant psychiatric disorders have increased mortality from a range of medical conditions, most commonly cardiovascular diseases. It was widely believed that this increased risk was largely attributable to the adverse 'lifestyle' risk factors of patients with depression, such as smoking, poor exercise, obesity and alcohol consumption. However, recent evidence shows that this is by no means the major explanation for the association.

The link between mood disorders and coronary heart disease is important because depression and anxiety are the most frequent psychological disorders in



the community (together their prevalence is approximately 15 to 20% in women and 10 to 12% in men) and coronary artery disease remains the single biggest cause of mortality in the western world. Evidence also shows a significant overlap between mood disorders and coronary artery disease; for instance, studies show that 20 to 40% of patients with acute myocardial infarction will have a diagnosable major depressive or anxiety disorder in the months following their cardiac episode. Most of these mood disorders are, however, both unreported and undiagnosed.

Recent evidence

There has been a considerable increase in published studies examining the links between mood disorders and coronary heart disease. Firstly, studies of clinical populations show that patients with diagnosed coronary heart disease, such as acute myocardial infarction, who have postinfarction depression or anxiety have a significantly increased risk of

recurrent acute myocardial infarction, cardiac arrhythmia or death compared with coronary heart disease patients who do not have postinfarction depression or anxiety. This increased risk ranges from twice to fourfold and is greatest in the months immediately following an acute cardiac event, although it remains significant over an 18-month period.

Secondly, some prospective, community-based, cohort studies have studied normal subjects (free of coronary artery disease) over periods of up to 10 years. They show that subjects who were depressed or anxious at study entry had greater risk of acute coronary heart disease events and mortality during the follow up period.

Thirdly, there have been studies of specific groups, such as patients with congestive cardiac failure, sleep disorders, hypertension and coronary artery bypass graft, which all show similarly that those with depression have an increased risk of subsequent adverse cardiac events.¹

These studies have taken into account the possibility that the mood disturbance is associated with other 'conventional' cardiac risk factors (smoking, obesity, alcohol consumption and so on); when these conventional risk factors are controlled, the increased risk of adverse cardiac events in patients who are depressed or significantly anxious remains in the order of at least threefold or greater. Thus, as a coronary heart disease risk factor, mood disorders appear to have the same degree of impact as conventional risk factors such as an adverse lipid profile.^{1,2}

Furthermore, a meta-analysis of intervention studies has indicated that psychological treatments for these disorders can improve cardiac outcomes.³ The results of the first clinical intervention study using SSRIs in coronary heart disease prognosis (the SADHEART study) is yet to be published.

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Possible mechanisms

The mechanisms by which anxiety and depression may predict acute myocardial infarction and other adverse cardiac events may overlap to some degree, but there are also distinct differences.

Anxiety

In relation to anxiety, there is good experimental evidence which shows that acute emotional arousal (such as occurs with anxiety) is associated with significant coronary vasospasm on ventriculography. This is very often clinically 'silent' in that the patients may not report chest pain and indeed the ischaemia may not be demonstrable on ECG. The cardiac scans, nonetheless, show significant reduction in coronary perfusion, and in patients with underlying disease this may be up to a 50% reduction in perfusion. This vasospasm is not observed in subjects with normal arteries.⁴

In addition, during acute emotional arousal, increases in catecholamines (causing marked changes in blood pressure and pulse rate) may contribute to plaque rupture.

Depression

In relation to depression, a number of different mechanisms have been identified as possible mediating risk factors. These include low heart rate variability (an index of increased vagal activity), prothrombotic platelet changes, changes in coagulation factors, adverse lipid profile, changes in cytokines and in the acute phase reaction, and insulin resistance. Of course some of these latter changes may also be associated with the underlying pathogenesis of coronary heart disease, namely atherosclerosis.

Clinical implications

- Depression and anxiety following acute cardiac events are common and these disorders should be screened for routinely in the weeks following acute cardiac events.

- Because depression and coronary heart disease have some symptoms in common, diagnosis of depression after acute myocardial infarction may sometimes be difficult. (The symptoms in common include fatigue, low energy, lethargy and poor cognition, especially after bypass surgery.) Symptoms more obviously related to depression include poor sleep, loss of pleasure, low self-esteem or confidence, and social withdrawal. Tearfulness and sadness are more common in women, while irritability and anger are more common in men.
- Treatment of depression in coronary heart disease patients will not only improve depressive symptoms, quality of life and compliance with rehabilitation but may also improve clinical prognosis for coronary heart disease.
- Unlike the tricyclics, the new antidepressants – including the SSRIs (selective serotonin reuptake inhibitors), the SNRIs (serotonin and noradrenaline reuptake inhibitors) and the NaSSAs (noradrenergic and specific serotonergic antidepressants) – can all be used relatively safely in the presence of coronary heart disease (except if the patients are on warfarin).

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References

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