

# Depression predicted cardiac death within 18 months after myocardial infarction

Frasure-Smith N, Lespérance F, Talajic M. Depression and 18-month prognosis after myocardial infarction. *Circulation*. 1995 Feb;91:999-1005.

## Objective

To investigate the association between depression and subsequent risk for cardiac mortality after myocardial infarction (MI).

## Design

18-month cohort analytic study.

## Setting

University-affiliated cardiac hospital in Quebec.

## Patients

Eligible patients had acute MI (at least 2 of the following: chest pain lasting  $\geq$  20 min; new pathologic Q waves in 2 contiguous leads; or peak creatinine phosphokinase [CPK] concentration  $>$  1.5 times normal or CPK-MB value  $>$  5% of a simultaneous CPK value exceeding the normal concentration). Exclusion criteria were MI secondary to coronary surgery or angioplasty, or other serious illness. 337 patients were eligible; 222 (mean age, 62 y; 173 men) gave informed consent and survived to hospital discharge.

## Commentary

Depressive symptoms shortly after MI may have been preexisting, may have been exacerbated by the MI, or may apparently have been precipitated by the MI. Depressive symptoms are often transient, but almost one quarter of patients continue to report clinically significant low mood for long periods. Later onset of depression is not uncommon. Depression is known to be associated with poor compliance with medical care, increased use of resources, and adverse effects on quality of life for patients and families. Despite its small sample size, the study by Frasure-Smith and colleagues provides a key piece of evidence about outcome, which is consistent with accumulating evidence (1) that various psychosocial factors at baseline predict subsequent mortality (and other aspects of outcome). The study also emphasises the significance of depressive symptoms that do not

## Assessment of Prognostic Factors

Patients were interviewed in hospital within 2 weeks of having an MI. Questions focused on social and demographic characteristics and included modified versions of the National Institute of Mental Health Diagnostic Interview Schedule (DIS) to diagnose major depression. The Beck Depression Inventory (BDI) also was used as a continuous measure of depressive mood. Information extracted from patients' charts included previous MI, left ventricular ejection fraction, Killip class, frequency of premature ventricular contractions (PVC), thrombolytic therapy, and  $\beta$ -blockade and angiotensin-converting enzyme inhibitor prescriptions at discharge.

## Main Outcome Measure

Survival status 18 months after MI. 3 cardiologists independently classified deaths as cardiac or noncardiac.

## Main Results

During the first 18 months after MI, 21 patients died, 19 from cardiac causes. Major depression in hospital (DIS criteria) and depressive symptoms (BDI score  $\geq$  10) were associated with cardiac mortality. 20% of the depressed patients compared with 6.4%

satisfy diagnostic criteria for major affective disorder.

The complexity of the variables that may be involved and the lack of information about out-of-hospital course other than mortality make it difficult to speculate about mechanisms. There may be no single explanation. Antidepressant or other medications, compliance, medical care, lifestyle differences, or extent of chronic stress may all be involved. The proposed direct arrhythmic mechanism, however, is supported by other evidence about sudden death in cardiac patients. Further research will require detailed prospective study of large representative samples.

Both the link with mortality and other substantial evidence that early depression predicts poor quality of life and an unsatisfactory use of resources are powerful ar-

of the nondepressed patients died of cardiac causes (odds ratio [OR], 3.64; 95% CI, 1.32 to 10.05;  $P = 0.012$ ), and 17.6% of patients with depressive symptoms compared with 2.7% of patients without depressive symptoms died of cardiac causes (BDI score  $<$  10) (OR, 7.82; CI, 2.42 to 25.26;  $P = 0.001$ ). When the study controlled for traditional risk factors after MI (previous MI, PVCs, and Killip class), BDI scores remained an important predictor of cardiac mortality (adjusted OR, 6.64; 95% CI, 1.76 to 25.09;  $P < 0.003$ ). The effect of depression primarily occurred in the first 6 months after MI. The risk was greatest in patients with  $\geq$  10 PVCs/h.

## Conclusion

In-hospital major depression and depressive symptoms were predictors of cardiac mortality during the subsequent 18 months.

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guments for placing much greater clinical emphasis on specific psychological and psychiatric interventions in this population. Early recognition of depression and other psychological problems and a wider use of safer antidepressants seems to be indicated. Additionally, more focused, flexible, and individually planned rehabilitation, including proven psychological interventions such as cognitive behavioural treatment, need to be considered.

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## Reference

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