Depression Is a Predictor of Mortality After Coronary Artery Bypass Surgery


Study Overview

Objective. To determine if depression before and 6 months after coronary artery bypass graft (CABG) surgery is associated with an increased risk of death.

Design. Prospective cohort study.

Setting and participants. 817 of 1075 patients who underwent CABG surgery at a single academic medical center between 1989 and 2001 were screened for depression using the Center for Epidemiological Studies-Depression scale before surgery. Of this group, 555 who completed the depression screening again 6 months after surgery were included in a secondary analysis. Patients were excluded if they were undergoing concomitant thoracic surgery, had active liver or renal disease, had substantial cognitive impairment, could not read, had less than a seventh grade education level, had a prior psychiatric diagnosis, or were currently under treatment for a psychiatric disorder. Mean follow-up was 5.2 years.

Main outcome measures. All-cause mortality was the primary endpoint. Variables included in multivariable models were smoking, left ventricle ejection fraction, sex, age, number of grafts, diabetes, and prior myocardial infarction (MI).

Main results. Before CABG surgery, 310 (38%) patients had depression, and for 97 of these (12%) the depression was moderate to severe. 122 (15%) patients died. Mild depression was not associated with an increased risk of death (hazard ratio [HR], 1.02 [95% confidence interval {CI}, 0.67–1.57]). Moderate to severe depression was associated with an increased risk of death (HR, 1.63 [95% CI, 1.02–2.62]). After adjustment for other predictors of death, moderate to severe depression was associated with an even larger increased risk (HR, 2.37 [95% CI, 1.40–4.00]). In the secondary analysis of 555 patients who completed depression screening 6 months after surgery, 10% of patients who were never depressed died compared with 19% of persistently depressed patients (adjusted HR, 2.20 [95% CI, 1.17–4.15]). Patients who were no longer depressed at 6 months had a death rate similar to the never depressed group (adjusted HR, 0.99 [95% CI, 0.48–1.99]).

Conclusion. Moderate to severe depression is an independent predictor of death following CABG surgery.

Commentary

Blumenthal et al provide solid evidence that the association between depression and increased mortality observed in patients following MI is also present for post-CABG patients. This report and prior studies suggest that moderate to severe depression is common in patients with ischemic heart disease and may carry at least as much risk of death as established risk factors such as left ventricular dysfunction [1]. Several mechanisms have been advanced to explain the link between depression and cardiovascular mortality following a cardiovascular event [2]. Depressed patients may be less likely to participate actively in cardiac rehabilitation programs or adhere to medication and lifestyle recommendations. Differences in susceptibility to arrhythmias, autonomic tone, and platelet activation could also be responsible.

Whether or not treatment for depression can attenuate this risk is largely unknown. The selective serotonin reuptake inhibitor (SSRI) sertraline appears to be safe in a select group of depressed patients following an acute coronary syndrome [3]. In this randomized controlled trial [3], sertraline improved symptoms of depression and was associated with a nonsignificant reduction in subsequent cardiovascular events. Trials of behavioral interventions have had mixed results, and I recent large study of cognitive behavior therapy did not show a reduction in mortality but did show improvements in psychosocial outcomes in depressed or socially isolated patients following a MI [4]. This study may have failed to show a benefit because similar numbers of patients in both treatment groups received pharmacotherapy for depression. If pharmacotherapy is considered, SSRIs are preferred. Tricyclic antidepressants, on the other hand, could increase risk and should be avoided [2].

Applications for Clinical Practice

Depression is common among patients undergoing CABG
surgery and is an independent predictor of death. Severe depression and depression that persists for at least 6 months are especially dangerous. Clinicians can improve patients' quality of life by treating depression, but additional studies are needed to determine if treatment for depression reduces the risk of death for patients following CABG surgery.

—Review by Stephen D. Persell, MD, MPH

References

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