



International Journal of Gerontology

journal homepage: <http://www.sgecm.org.tw/ijge/>



Editorial Comment

Depression and Coronary Artery Disease: Challenging Traditional Risk Paradigms

Coronary artery disease (CAD) and depression are both highly prevalent diseases.¹ A number of studies, largely epidemiologic, have shown that depression is a common comorbid condition in CAD, strongly associated with an increased risk of cardiovascular morbidity and mortality.² Observational studies have indicated that depression is associated with CAD.³ The complex interplay between CAD and depression has long intrigued clinicians and researchers.

Dr. Chen-Ju Lin et al. conducted a nationwide retrospective cohort study utilizing Taiwan's National Health Insurance Research Database examined 1,287,904 individuals with CAD who survived beyond two years, categorizing them based on depression onset timing, with clear inclusion/exclusion criteria, well-defined temporal relationships between CAD and depression.⁴ The most surprising aspect is the finding, contrary to previous literature that depression appears protective in 2-year CAD survivors. The hazard ratios for all-cause mortality were consistently lower in groups with depression compared to those without depression, with the "after one month" group showing the lowest risk (HR 0.52, 95% CI 0.49–0.54). This observation stands in contrast to the well-established literature documenting increased mortality risk in CAD patients with comorbid depression during the initial years following diagnosis.

The study's methodology is noteworthy for its careful stratification of depression timing relative to CAD diagnosis: before CAD, within one month of diagnosis, and after one month of diagnosis. And over 1.2 million individuals of the sample size as well as the comprehensive follow-up period strengthen the reliability of these findings. But several points require careful consideration. First, the apparent protective effect of depression raises questions about potential survival bias. Patients who survive the initial two years post-CAD diagnosis may represent a particularly resilient subgroup, with better healthcare engagement or support systems. Second, the findings could be attributed to Taiwan's specific health system and cultural setting, where confirmed depression is less common than in Western nations. The study also reveals significant sociodemographic patterns that warrant attention. The higher prevalence of depression among female CAD patients, younger individuals, and those with lower incomes points to vulnerable populations requiring targeted interventions in which prevention and treatment strategies should be focused.

The biological mechanisms responsible for this unexpected association still need further exploration. Previous studies have consistently shown depression as a risk factor for adverse cardiovascular outcomes, particularly in the acute and early phases of CAD.^{5–7} The findings indicate the link between depression and CAD may change in long-term survivors, prompting questions about how this relationship evolves over time.

Several factors could explain these findings, such as enhanced medical attention and monitoring in depressed patients might lead to better overall care. As well as the psychological impact of surviving CAD for two years might modify how depression affects cardiovascular health. Additionally, the potential heart-protective effects

of antidepressant medications were not investigated in this research.^{7–9} From a clinical perspective, these findings suggest the need for a more nuanced approach to depression screening and management in CAD patients.

In conclusion, this study reveals findings that could fundamentally change clinical practice, though further validation and mechanistic studies are needed. The results also suggest we need to reconsider how heart disease and depression interact over longer time periods. It highlights the importance of considering factors in disease progression and treatment planning, potentially leading to more effective, personalized approaches to patient care.

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Jin-Ding Lin*

*Institute of Long-term Care, MacKay Medical College, No. 46, Sec. 3,
Zhongzheng Rd., Sanzhi Dist., New Taipei City 252005, Taiwan*
E-mail address: jack.lin4691@mmc.edu.tw

Shu-Feng Lin

*Graduate Institute of Life Sciences, National Defense Medical Center,
Taipei, Taiwan*