

Study finds patients with mitral annulus calcification at higher risk of heart valve and cardiovascular disease

June 1 2022



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A retrospective review of more than 24,000 patients who underwent an EKG at Mayo Clinic finds that nearly one-quarter of the patients had

mitral annulus calcification, a chronic degeneration of tissue at the base of the heart's mitral valve. Mitral valve dysfunction was more than twice as prevalent for those patients, who also were at higher risk of all-cause mortality.

Mitral annulus calcification has been associated with cardiovascular diseases and events, as well as higher mortality rates, though less is known about its associations with ventricular and valvular function. The new Mayo Clinic research suggests that mitral annulus calcification is a predictor of mortality, as well as a marker of valvular and cardiovascular disease.

The findings are outlined in *Mayo Clinic Proceedings*.

Among key findings:

- Moderate or greater degrees of mitral valve dysfunction was more than twice as common in patients with mitral annulus calcification than without.
- After adjustment for comorbidities, mitral annulus calcification was associated with higher mortality.
- Mortality was highest in patients with mitral annulus calcification and mitral valve dysfunction.

"The association between mitral annulus calcification and mitral valve dysfunction is important to understand because it affects treatment considerations for valve dysfunction," says Patricia Pellikka, M.D., a Mayo Clinic cardiologist and the study's corresponding author.

"Mitral valve surgery is associated with high risk for patients with mitral annulus calcification, in part because advanced age can be a factor. Severe calcification makes mitral valve procedures more challenging to perform. Our study aimed to assess the characteristics and risk factors of

mitral annulus calcification, and the prognostic impact of associations with mitral valve dysfunction."

Of 24,414 patients evaluated with an EKG, 5,502, or 23%, had mitral annulus calcification, according to the study. Mitral valve disease was observed in 16% of those patients. Among patients with mitral annulus calcification, 54% of those with mitral valve dysfunction were female, and frailty was common.

The presence of mitral annulus calcification was associated with higher mortality, after statistical adjustment. Mitral valve dysfunction increased mortality, regardless of the presence of mitral annulus calcification. But patients with both conditions had the highest mortality, the study finds.

"Mitral annulus calcification has been known to be associated with [cardiovascular disease](#) and mortality, but we did not previously appreciate the strength of this relationship even after adjustment for multiple clinical and echocardiographic variables," says Dr. Pellikka. "Patients with calcification more commonly had not only [mitral valve](#) dysfunction, but also aortic valve disease. For clinicians, suspicion for valve diseases should be increased and evaluations carefully performed for patients with mitral annulus calcification."

"The highest risk group of patients with mitral annulus calcification are women and [patients](#) who have aortic valve disease, left ventricular outflow tract obstruction and renal dysfunction. Patients with any valve dysfunction in the setting of mitral annulus calcification should have regular follow-up visits with their physician. Periodic follow-up imaging also is appropriate, and echocardiography works well for this purpose," Dr. Pellikka says.

More information: Nahoko Kato et al, Prevalence and Natural History of Mitral Annulus Calcification and Related Valve Dysfunction, *Mayo*

Clinic Proceedings (2022). [DOI: 10.1016/j.mayocp.2021.12.015](https://doi.org/10.1016/j.mayocp.2021.12.015)

Provided by Mayo Clinic

Citation: Study finds patients with mitral annulus calcification at higher risk of heart valve and cardiovascular disease (2022, June 1) retrieved 7 May 2024 from <https://medicalxpress.com/news/2022-06-patients-mitral-annulus-calcification-higher.html>

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