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RHEUMATOID ARTHRITIS

Assessment of CVD in patients with RA by strain imaging

An advanced echocardiographic diagnostic modality—myocardial strain imaging—might help to detect altered heart function before classic markers of heart failure develop, which could benefit patients with rheumatoid arthritis (RA). "We chose this approach," explains Sherine Gabriel of the Mayo Clinic team that conducted a new study, "because we hoped it would be useful for early detection of myocardial dysfunction in patients with RA, at a time when the abnormalities could potentially be reversible."

People with RA are more than twice as likely as the general population to have cardiovascular disease (CVD). Compounding this situation, patients with RA are most likely to die from a type of heart failure—left ventricular diastolic dysfunction with preserved ejection fraction (as opposed to systolic dysfunction with reduced ejection fraction)—that lacks the classic signs and symptoms of the disease. Seeking a way to detect this subclinical CVD, Gabriel and colleagues turned to myocardial strain imaging, which monitors morphological changes in the myocardium as it contracts and relaxes. "Strain imaging has been shown to be sensitive for early detection of myocardial dysfunction in conditions with preserved left ventricular ejection fraction," says Gabriel.

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In a retrospective, population-based study, 87 patients with RA and no history of CVD (59 of whom were paired with controls matched for age, race and gender) underwent echocardiography. After adjusting for factors including BMI, gender, age, heart rate and blood pressure, "we found that global longitudinal left ventricular and right ventricular strain were significantly reduced in RA patients compared with healthy patients," reports Gabriel. Among the patients with RA, worse strain values correlated with markers of disease severity, such as requirement for DMARDs, and were not predicted by traditional CVD risk factors.

The pattern of ventricular strain, in which apical measures on both left and right were worse than middle or basal values, suggest that a characteristic signature might, in future, distinguish RA-related myocardial disease from that of other sources. Nevertheless, larger prospective studies will be needed to establish this modality as a routine resource. "We will continue to study the clinical usefulness of this technique as a screening test," promises Gabriel.

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Original article Fine, N. M. *et al.* Evaluation of myocardial function in patients with rheumatoid arthritis using strain imaging by speckle-tracking echocardiography. *Ann. Rheum. Dis.* doi:10.1136/annrheumdis-2013-203314
Further reading Symmons, D. P. M. & Gabriel, S. E. Epidemiology of CVD in rheumatic disease, with a focus on RA and SLE. *Nat. Rev. Rheumatol.* **7**, 399–408 (2011)