Research study finds MRI effective in predicting major cardiac events

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Heart Failure impacts between three to four per cent of the general population. While commonly related to heart attacks it can also be due to a condition called dilated cardiomyopathy (DCM), a disease characterized by an enlarged and weak heart muscle that can't efficiently pump blood.

An international, multi-center study led by Dr. James White, MD, a clinician and researcher at the University of Calgary's Cumming School of Medicine (CSM), has revealed magnetic resonance imaging (MRI) can be used to predict major cardiac events for people diagnosed DCM.

White's study, published in *Circulation Cardiovascular Imaging*, confirms about 40 per cent of patients with DCM have scarring patterns on their heart muscle which can be seen with MRI. These patterns are associated with higher risk of future heart failure admissions, life-threatening heart rhythms and death.

The study, which was the largest ever-conducted using MRI in patients with DCM, also shows that cardiac MRI can play an important role in guiding the care of individual patients with heart failure. White says that treating patients with DCM is challenging because there is a lack of understanding into what causes the disease, and why patients respond differently to the available treatments.

"We have tended to think of dilated cardiomyopathy as one type of heart disease and that all patients should respond the same way, but we are learning that it is a collection of disease states that affect each patient differently," says White, explaining those that don't respond well to treatments are more prone to cardiac arrest, which kills about 35,000 Canadians annually. "The purpose of our study was to see if we could find individual patient features that can help us prescribe life-saving therapies, such as the implantable cardioverter defibrillator."

White and his team assembled the MINICOR (Multimodal International Cardiovascular Outcomes Registry) group, which involves 12 centers from Canada, the United States, Spain and Italy, to provide researchers access to highly standardized data collected from patients around the world with the goal of promoting personalized care for patients with cardiovascular disease.

"We can have a much greater impact on patient care and on clinical practice in general when we work together," says White "The true benefit of initiatives like this is our ability to test innovative ideas quickly and show they can work in different health-care systems and patient populations. This is the unique power of multi-national collaborations."

More information: Ana Carolina Alba et al, Prognostic Value of Late Gadolinium Enhancement for the Prediction of Cardiovascular Outcomes in Dilated Cardiomyopathy, *Circulation: Cardiovascular Imaging* (2020). DOI: 10.1161/CIRCIMAGING.119.010105

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