Implantable cardiac monitors predict complications in selected post-infarction patients

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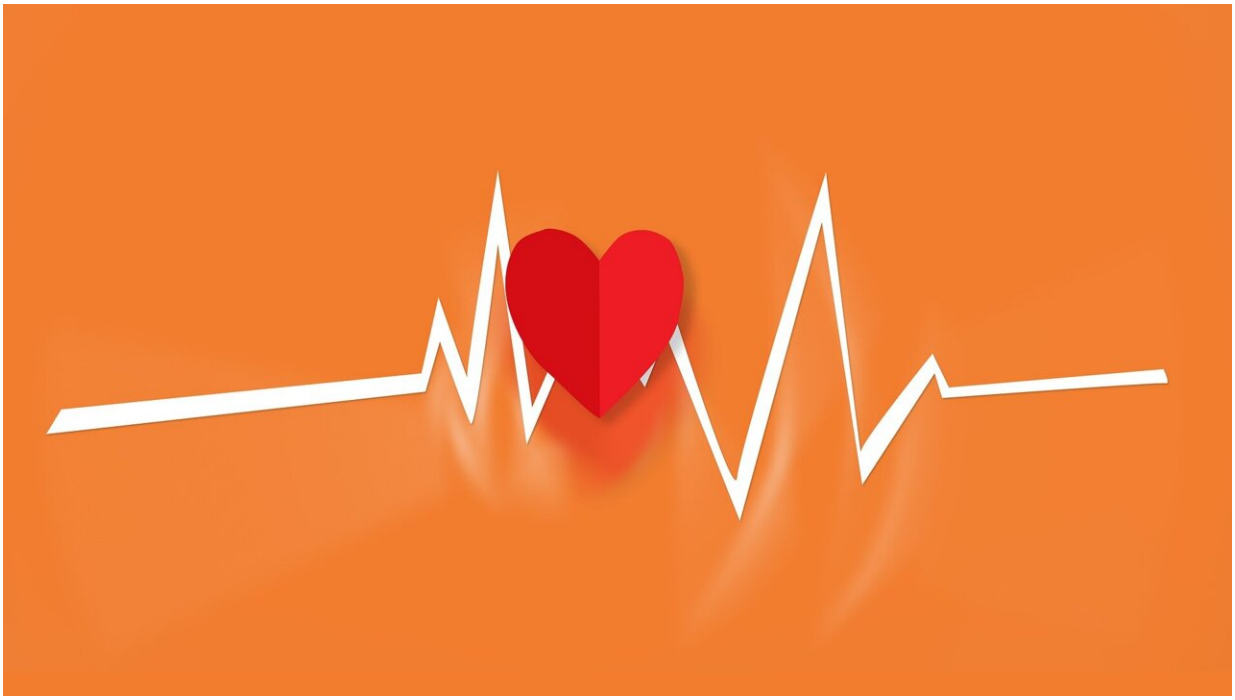

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Remote monitoring of implantable cardiac monitors (ICMs) is highly effective for early detection of serious arrhythmias in high-risk post-infarction patients with cardiac autonomic dysfunction and moderately reduced ejection fraction. That's the finding of late breaking research

presented in a Hot Line session today at ESC Congress 2021.

Patients with severely reduced left ventricular ejection fraction (LVEF; 35% or below) after myocardial infarction (MI) are candidates for prophylactic implantation of a cardioverter defibrillator. However, the vast majority of fatal and non-fatal complications after MI occur in patients with LVEF above 35%, for whom no specific preventive measures exist.

Previous studies in post-MI patients with reduced LVEF suggested that cardiovascular complications are preceded by arrhythmic events. However, as most of these arrhythmias are asymptomatic or subclinical, their detection escapes conventional follow-up. This study examined whether ICMs could provide early detection of such arrhythmias.

SMART-MI was a prospective, randomized, open-label trial conducted between May 2016 and February 2021 at 33 centers in Germany and Austria. The study enrolled MI survivors with LVEF 36–50% and cardiac autonomic dysfunction, which is associated with poor outcomes after MI (including arrhythmias and sudden death) independently of ejection fraction. Autonomic dysfunction was identified by a core lab using digital biomarkers calculated from a 20-minute high-resolution resting electrocardiogram (ECG).

A total of 400 patients were randomly allocated in a 1:1 ratio to ICM implantation and remote monitoring or conventional follow-up. The monitor was implanted subcutaneously using a minimally invasive procedure and a telemonitoring system transmitted a daily report to an ICM core lab. Local study centers were informed about detection of serious arrhythmic events by the ICM core lab.

The primary endpoint was time to detection of serious arrhythmic events, which included atrial fibrillation lasting 6 minutes or longer,

higher-degree atrioventricular block, fast non-sustained ventricular tachycardia (VT), and sustained VT/ventricular fibrillation. Principal investigator Professor Axel Bauer of the Medical University of Innsbruck, Austria said: "All arrhythmias included in the primary composite endpoint have been associated with poor outcomes or would trigger appropriate therapies in patients with an implantable cardioverter defibrillator (ICD)."

During a median follow-up of 21 months, the primary endpoint occurred in 60 (29.9%) patients in the ICM group and 12 (6.0%) patients in the control group (hazard ratio [HR] 6.3; 95% confidence interval [CI] 3.4–11.8; p