Implantable heart monitor doesn't benefit heart attack survivors overall

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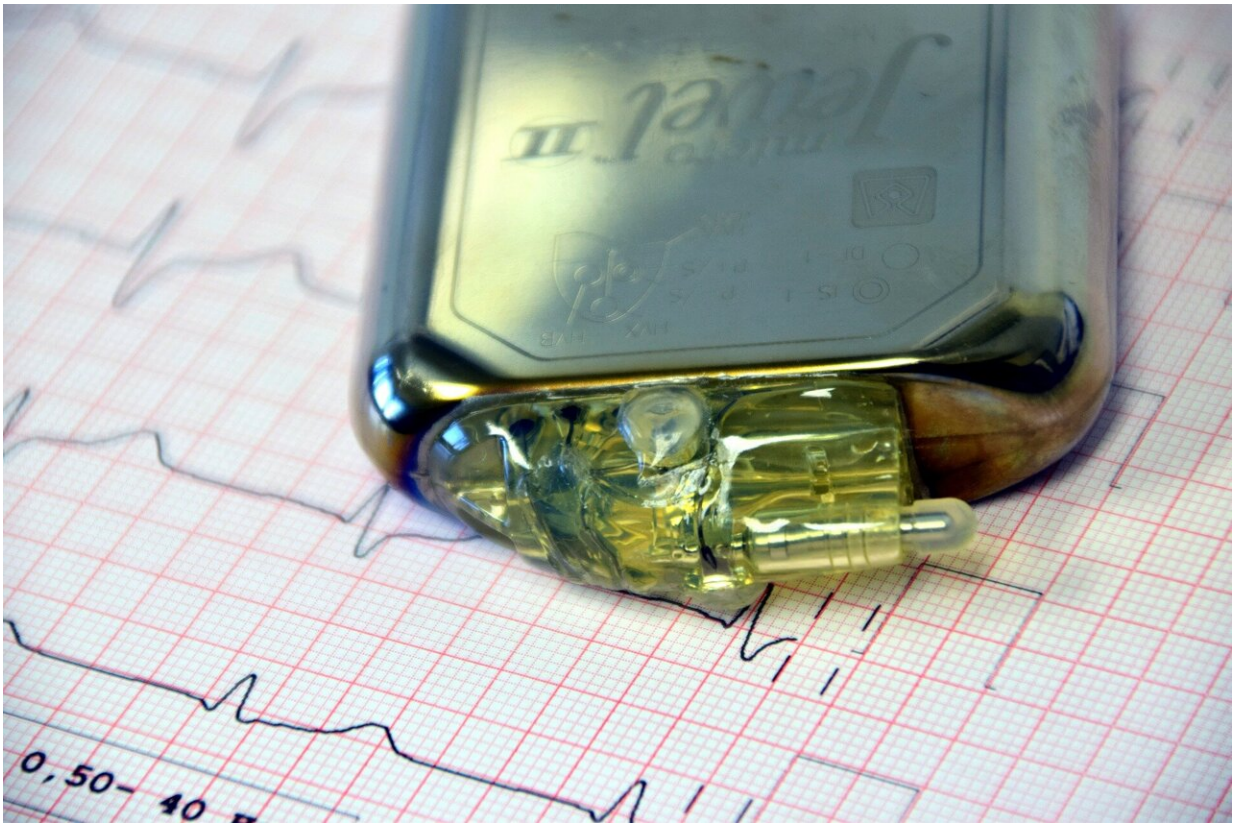

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Patients who received an implantable heart rhythm monitor after suffering a heart attack did not have fewer subsequent cardiovascular events overall, but a subset of patients whose heart attack was classified

as non-ST segment elevation myocardial infarction (NSTEMI) did see strong benefits, in a study presented at the American College of Cardiology's 71st Annual Scientific Session.

Although the trial did not meet its primary endpoint, the results suggest that monitoring for abnormal heart rhythms could help guide care for patients with NSTEMI heart attacks, according to researchers. NSTEMI heart attacks result from a gradual stiffening of the artery, which constrains the flow of blood to the heart. Patients who suffer NSTEMI heart attacks are generally older, have more risk factors and have more advanced heart disease than those who suffer STEMI heart attacks, which occur when a blood clot suddenly blocks an artery to the heart, depriving the heart of oxygen completely. The findings suggest that early identification of arrythmias may be more clinically useful following NSTEMI heart attacks.

"In NSTEMI patients, we found that diagnosing an investigated asymptomatic arrhythmia with an implantable cardiac monitor prevented cardiac events, whereas it didn't in STEMI patients," said Christian Jøns, MD, an electrophysiologist at Rigshospitalet in Copenhagen, Denmark and the study's lead author. "Even though the main study was negative, our sub-analysis indicates that NSTEMI patients could benefit from continuous [heart rhythm] monitoring and intervention."

Having an abnormal heart rhythm, or arrhythmia, is not always dangerous on its own, but it can increase the risk of cardiovascular problems and may be an early marker of more serious problems, such as worsening heart failure or a blood vessel that is becoming too narrow. Previous studies have shown that a large proportion of heart attack survivors develop arrhythmias before suffering subsequent cardiac events. The trial sought to assess whether identifying those arrhythmias early could help doctors intervene and prevent subsequent events.

Researchers enrolled 802 patients with a previous heart attack at 60 medical centers in 14 countries in Europe, Australia and the U.S. About half of the patients suffered a STEMI heart attack and half had a NSTEMI heart attack. Before being discharged from the hospital, half of the patients were randomly assigned to receive an implantable loop recorder, a device about the size of a AAA battery that is implanted close to the heart below the skin to monitor a person's heartbeat and detect any abnormal rhythms. The researchers tracked arrhythmias and outcomes for a median of about 2.5 years.

The trial's primary endpoint was a composite of cardiovascular death or acute unscheduled hospitalization for heart failure, arrhythmia, acute coronary syndrome, stroke, major bleeding or systemic embolism. The analysis revealed a trend toward reduced primary endpoints among patients who received an implantable cardiac monitor, but the difference was not statistically significant. A prespecified sub-analysis revealed that NSTEMI patients were about 30% less likely to experience the primary composite endpoint if they received an implantable cardiac monitor.

The researchers also noted that a greater proportion of patients who received the cardiac monitor had their therapy adjusted to account for arrhythmias. This suggests the monitors were useful in alerting doctors to heart rhythm problems such as atrial fibrillation, which can be asymptomatic and commonly go undiagnosed, Jøns said.

Differences in the health status of patients who experience NSTEMI and STEMI heart attacks—along with differences in the treatments they receive—could account for the differences observed in the study, Jøns said. Patients who have STEMI heart attacks are generally younger and healthier than those experiencing NSTEMI heart attacks, and STEMI heart attacks are more often treated with stents or other interventions to reopen the blocked vessel.

Jøns said that a cardiac monitor may help reduce cardiac event rates by helping doctors identify patients with asymptomatic arrhythmias that may otherwise go undetected. Patients with these arrhythmias—as well as patients who develop heart disease symptoms—could then receive enhanced monitoring and therapeutic interventions when warranted to prevent heart problems from worsening.

"It seems that the NSTEMI patients had more risk factors and were treated less optimally, leaving more room for additional therapies to improve outcomes. The STEMI patients, on the other hand, had better treatments and fewer risk factors, so there was less for the doctor to do to further improve treatment for those patients," Jøns said.

The trial was stopped earlier than anticipated because of an unexpectedly high rate of non-cardiovascular events detected among patients who received an implantable cardiac monitor at the time of the first interim analysis. Enrollment was paused while researchers and the sponsor worked to reduce this bias. The issue was eventually resolved.

In addition to implantable cardiac monitors, some newer wearable devices such as smartwatches are being investigated as potential tools for detecting asymptomatic arrhythmias. Jøns said that even though the optimal method for heart rhythm monitoring and the optimal target population remains to be defined, there is good evidence that monitoring heart rhythm and treating any arrhythmia improves overall outcomes in selected high-risk patients after a heart attack.

More information: Christian Jons et al, The clinical effect of arrhythmia monitoring after myocardial infarction (BIO-GUARD|MI):study protocol for a randomized controlled trial, *Trials* (2019). DOI: 10.1186/s13063-019-3644-5

Christian Jons et al, The Clinical Effect Of Arrhythmia Monitoring

After Myocardial Infarction, American College of Cardiology's 71st Annual Scientific Session, April 4, 2022

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