

Prolonged Cardiac Monitoring May Benefit Patients With Cryptogenic Stroke or TIA

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HONOLULU—At least one in six patients older than 55 with a cryptogenic ischemic stroke or transient ischemic attack (TIA) has undiagnosed paroxysmal atrial fibrillation, according to research presented at the 2013 International Stroke Conference. These patients, the majority of whom would not otherwise be treated with anticoagulants, may benefit from prolonged, home-based cardiac monitoring, said David Gladstone, MD, PhD, stroke neurologist and scientist at Sunnybrook Health Sciences Centre and the University of Toronto Department of Medicine.

In the largest randomized trial of its kind to date, an event-triggered loop recorder worn for 30 days detected atrial fibrillation more effectively than repeat Holter monitoring, according to Dr. Gladstone. The device also increased the number of patients who could be prescribed anticoagulants for secondary stroke prevention.

Comparing Repeat Holter Monitoring to Prolonged Cardiac Monitoring

Dr. Gladstone and colleagues randomized 572 patients with a recent diagnosis of cryptogenic ischemic stroke or TIA to 24 hours of repeat Holter monitoring or 30 days of monitoring with an event-triggered loop recorder programmed for automatic detection of atrial fibrillation. The maximum memory storage capacity of the recorder was 30 minutes, and the maximum recording time per episode was 2.5 minutes. When the device's memory was full, the recorded events were downloaded by phone to a central station. A central, blinded physician interpreted all recorded events and sent a report of the results to the enrolling neurologist.

The investigators assessed participants at baseline and at day 90. Eligible subjects had no prior history of atrial fibrillation and were enrolled within six months of their ischemic stroke or TIA. To qualify for the study, patients were required to have baseline tests, including ECG and Holter monitoring that did not reveal atrial fibrillation, in addition to neurovascular imaging and echocardiography that did not suggest an alternate etiologic stroke diagnosis.

The primary outcome was the detection of one or more episodes of atrial fibrillation or atrial flutter lasting 30 seconds or more. Secondary outcomes were episodes of longer

duration, episodes of any duration, the proportion of patients who were anticoagulated, and monitoring adherence.

Prolonged Cardiac Monitoring Had High Rate of Adherence

Approximately 96% of patients had complete follow-up at 90 days. Participants' mean age was 73. Less than half of patients were female, 90% were Caucasian, and the median CHADS2 score was 3 in each treatment group. More than 80% of patients adhered to the monitoring strategy for three weeks or more.

The index event was an ischemic stroke in roughly two-thirds of the patients and a TIA in about one-third of patients. "It's important to emphasize that more than 90% of patients were ambulatory and functionally independent at the time of randomization, so this reflects a relatively mild stroke cohort ideally suited for aggressive secondary prevention efforts," said Dr. Gladstone.

Approximately 3% of patients assigned to the repeat Holter monitor group had newly detected atrial fibrillation, including 2% who were diagnosed by the Holter monitor and 1% who were diagnosed outside the study monitor. About 16% of patients in the 30-day monitoring group had newly detected atrial fibrillation, including 15% who were identified by the monitor and 1% who were detected outside the study monitor.

Approximately 10% of patients with atrial fibrillation in the 30-day monitoring group had episodes of at least 2.5 minutes' duration (the maximum duration that could be recorded by the study monitor), and 20% of patients had episodes of any duration. All differences between the study groups were statistically significant. "We found a 13% absolute difference in detection between the 30-day group and the repeat Holter group," said Dr. Gladstone. Therefore, eight patients must be screened with the 30-day strategy to identify one additional patient with atrial fibrillation, he added.

The prevalence of atrial fibrillation detection was similar regardless of whether the index event was a TIA or an ischemic stroke. Atrial fibrillation was most prevalent (20%) among patients older than 75. The majority of the events were captured within the first two weeks of monitoring.

Anticoagulant use was at a low level at baseline, but about three-quarters of patients in whom atrial fibrillation was detected were anticoagulated. Anticoagulant use increased in the 30-day monitoring group from 6% to 18% by 90 days, compared with an increase from 7% to 11% in the repeat Holter group. These treatment differences were statistically significant, said Dr. Gladstone.

Device Could Not Document Total Duration of Atrial Fibrillation

The study's main limitation was its inability to document the total duration of episodes of atrial fibrillation, because the device could not record episodes longer than 2.5 minutes. "We suspect that the study underestimated the total burden of atrial fibrillation, because patients stopped monitoring early if atrial fibrillation was detected prior to 30 days," noted Dr. Gladstone.

"The results suggest that we ought to be more aggressive at monitoring the heart in patients with unexplained embolic stroke events," he said. "We can make stronger recommendations now supporting the role of prolonged monitoring." Short-duration monitoring is still a useful initial screening test, Dr. Gladstone continued, but if the results are negative, prolonged monitoring should be considered in elderly patients with cryptogenic stroke or TIA and suspected atrial fibrillation who would be appropriate candidates for anticoagulants.

—Erik Greb
Senior Associate Editor

Suggested Reading

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Seet RC, Friedman PA, Rabinstein AA. Prolonged rhythm monitoring for the detection of occult paroxysmal atrial fibrillation in ischemic stroke of unknown cause. *Circulation* 2011; 124(4):477-486.