潜在性脳卒中における心房細動をモニターによって検出できる（Abstract: LB11）

CRYSTAL-AF:挿入型心モニターは原因不明の脳卒中後の発見しづらい心房細動を検出する

CRYSTAL-AF: Insertable heart monitor finds elusive atrial fibrillation after unexplained stroke

皮下に植え込まれた小型の心臓モニターは標準的なモニター法よりも、患者に脳卒中を引き起こした不規則な心調律の検出率が6～7倍高いことが示されたとのlate-breaking scienceの結果が2014年American Stroke Association's International Stroke Conferenceで発表された。虚血性脳卒中のうち潜在性（つまり原因不明）のものは30%にも及ぶ。CRYSTAL-AF（CRYptogenic STroke And UnderLying Atrial Fibrillation）スタディでは、潜在性脳卒中を来した患者441人を対象とした。対象患者全員が脳卒中発症後90日以内に少なくとも24時間の心臓モニターを施行され、そのうち半数は最長3年間持続的にデータを供給する植込み型モニターにより追跡された。6か月間に心房細動が検出されたのは植込み型モニター群で8.9%であったのに対し、標準的検査群では1.4%であった。1年間に心房細動が検出されたのは植込み型モニター群で12.4%であったのに対し、もう一方の群では2%であった。3年間では、植込み型モニター群30%に対し標準検査群で3%であった。合併症のため植込み型装置を除去せざるを得なかったのは、わずか2.4%であった。

Full Text

A small cardiac monitor implanted under the skin proved six to seven times more likely than standard monitoring methods to find an irregular heart rhythm that may have caused a patient's stroke, according to a late-breaking science report presented at the American Stroke Association's International Stroke Conference 2014.

As many as 30 percent of ischemic strokes are labeled as cryptogenic — meaning no known cause. But one possible explanation is atrial fibrillation (AF). Stroke risk is about five times higher in people with atrial fibrillation.

"Atrial fibrillation can be difficult to detect due to its sometimes intermittent nature, and the fact that it isn't always accompanied by symptoms," said Richard A. Bernstein, M.D., Ph.D., an author of the new study and professor of neurology at Northwestern University's Feinberg School of Medicine in Chicago. "For a patient who has had an unexplained stroke, it's really important to determine if they have AF, because left untreated, it could result in a second and even more devastating stroke."

The new study, called CRYSTAL-AF (CRYptogenic STroke And UnderLying Atrial Fibrillation), included 441 patients who had an unexplained stroke. All had at least 24 hours of standard cardiac monitoring within 90 days of the stroke, and half were tracked with an insertable monitor (the Reveal® XT by Medtronic) which can provide data continuously for up to three years.

Six months later, atrial fibrillation had been found in 8.9 percent of patients with an insertable monitor, versus 1.4 percent of those who had standard testing. At one year, the condition had been detected in 12.4 percent of patients with the insertable monitor, compared with 2 percent of the others. After three years, that gap was 30 percent with the insertable monitor, versus 3 percent for standard testing.

The study was conducted in 55 centers in the United States, Canada and Europe. Limitations of the research include variation in methods of standard cardiac monitoring in the control arm, due to different local practices, he said.

Most people who have a stroke caused by a blood clot are given aspirin or similar drugs, such as clopidogrel, to prevent another stroke, said Bernstein, who is also director of the Stroke Program at Northwestern Memorial Hospital. But in patients with atrial fibrillation, anticoagulants, such as warfarin, or the newer anticoagulants, have been found much more effective at preventing stroke. Anticoagulants aren't routinely given in the absence of atrial fibrillation because they can be riskier and more inconvenient for patients.

"Finding AF after a stroke changes therapy from the aspirin class of drugs, which are not very effective in AF, to anticoagulants," he said. Among patients in the study found to have AF, oral anticoagulants were prescribed for 97 percent of cases, the researchers reported.

An insertable cardiac monitor resembles a USB flash drive and has two electrodes to monitor heart rhythm. It can detect various kinds of heart irregularities and stores a log of events that indicates when and for how long each event occurred, and what was the heart rate.

The device is slipped under the skin of the chest via a small incision, using local anesthetic in a brief outpatient procedure. The monitor does not touch the heart.

The benefits of the insertable device far outweigh risks, Bernstein said, noting just 2.4 percent of the devices had to be removed in the study because of complications, and the patients had no long-term problems. "On the other hand, if a stroke patient has AF that hasn't been caught; they could be at very high risk of another potentially disabling stroke because they aren't on the right medication."

However, the study did not have enough participants to see whether there was a difference between the two groups in rates of subsequent stroke. Stroke guidelines currently call for only 24-hour monitoring. The new study suggests long-term continuous monitoring may uncover more AF in patients with unexplained stroke, and can be useful if traditional monitoring fails.

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