Loop Recorders to Detect Atrial Arrhythmias in Patients Post-Discharge Who Have Had a Cryptogenic Stroke: A Review

Context
Atrial fibrillation (AF) is the most common type of atrial arrhythmia (irregular heartbeat) and a major risk factor for stroke. Strokes caused by AF result in higher morbidity and mortality than those from most other causes. Because AF is often asymptomatic, there is growing interest in monitoring technologies that can detect AF for days, weeks, or even months after hospitalization — especially for the 20% to 30% of patients whose strokes are cryptogenic (cannot be attributed to a specific cause). Once AF is detected, patients can be treated with anticoagulant drugs, which can reduce the annual risk of recurrent stroke by 40% to 60%.

Technology
Longer monitoring periods may allow for higher AF detection rates. Externally worn loop recorders and Holter monitors can record electrocardiograms for weeks. However, implantable loop recorders — which are surgically inserted under the skin of the chest wall — can record electrocardiograms for up to three years.

Issue
A review of the clinical effectiveness, safety, and cost-effectiveness of loop recorders, compared with Holter monitors, for detecting atrial arrhythmias will help inform decisions about their use in cryptogenic stroke patients following discharge from the hospital.

Methods
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
For detection of AF in cryptogenic stroke patients following discharge from the hospital:
- Both external and implantable loop recorders appear to be better than limited or no post-discharge monitoring.
- Loop recorders were found to be cost-effective (based on limited evidence; devices were assumed to be worn externally).
- Loop recorders and Holter monitors were both found to be generally safe (with one report of contact dermatitis from an external loop recorder).

Results
The literature search identified 369 citations, with 10 additional articles identified from other sources. After screening the abstracts, 36 were deemed potentially relevant, and 5 met the criteria for inclusion in this review — 4 clinical studies and 1 economic analysis.

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