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Title **Monitoring for Atrial Fibrillation in Discharged Stroke and Transient Ischemic Attack Patients: A Health Technology Assessment**

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Aim

This health technology assessment reviewed the evidence on the clinical effectiveness and cost-effectiveness of cardiac monitoring devices in patients discharged from hospital following a stroke or transient ischemic attack (TIA). Patient input on the value and impact of outpatient atrial fibrillation (AF) cardiac monitoring devices were also considered.

Conclusions and results

The systematic review of the clinical effectiveness literature assessed the proportion of post-stroke and/or TIA patients diagnosed with AF by four different outpatient cardiac monitoring devices in 36 studies. The evidence suggests that prolonged surveillance using outpatient monitoring devices following patient discharge can capture more AF cases than does cardiac monitoring for a shorter duration in hospital. There was a substantial increase in diagnostic yield when monitoring for greater than 24 hours. The economic findings, based on three individual randomized controlled trials, found that seven-day cardiac monitoring in patients with a very recent history of stroke or TIA who did not receive in-hospital continuous monitoring (patients who received electrocardiography, only) is likely to identify a substantial number of patients with AF at an acceptable incremental cost compared with standard practice. A review of nine studies that included patient input suggests that most patients perceive outpatient cardiac monitoring devices to be comfortable and easy to use; and satisfaction with outpatient cardiac monitoring is high, although reports of discomfort and negative side effects were recurrent. The overall findings suggest that, for discharged ischemic stroke or TIA patients who have received no prior in-hospital continuous cardiac monitoring, seven days of continuous outpatient cardiac monitoring with ambulatory Holter or external loop recorder may be feasible, as these strategies are likely to identify a substantial number of patients with AF at an acceptable incremental cost. Cardiac monitoring for the detection of AF is warranted in patients with embolic stroke of undetermined source, as this subpopulation also demonstrated high diagnostic yields.

Recommendations

For patients discharged from hospital after a stroke or TIA who did not undergo continuous cardiac monitoring while in hospital, the Health Technology Expert Review Panel recommends seven days of continuous outpatient cardiac monitoring with an ambulatory Holter monitor or ELR.

Methods

A systematic review of the literature on the clinical effectiveness of outpatient cardiac monitoring devices for AF monitoring in discharged stroke and/or TIA patients was conducted. The primary outcome of interest was the proportion of patients diagnosed with AF post-stroke or TIA. Secondary outcomes included time to detection, all-cause mortality, stroke mortality, and stroke recurrence. Data were synthesized narratively, and a post-hoc analysis was performed for studies comparing the combination of in-hospital electrocardiogram monitoring plus outpatient cardiac monitoring with each other, or no monitoring.

Three separate cost-effectiveness analyses based on three recent studies of cardiac monitoring were conducted. The cost-effectiveness of the intervention was calculated compared with the alternative in each study in the studied population. There was no comparison across populations, or technologies that were not directly studied because of differences in the study cohorts, including the type of stroke, time since index stroke or TIA, and the number and type of previous diagnostic evaluations performed.

A systematic review and thematic synthesis of the literature on patient preferences and experience was conducted. Descriptive data and original study results were extracted, and a thematic analysis was conducted, with coding, and descriptive and analytic themes.

Further research/reviews required

To determine the clinical effectiveness of outpatient cardiac monitoring devices for AF (compared with each other or no monitoring), more randomized controlled trials or studies evaluating multiple monitoring strategies simultaneously are needed. Additional knowledge about the risk of recurrent cardioembolic stroke in patients with AF is also needed, specifically greater knowledge about the relationship between AF burden and the risk of recurrent stroke; the eligibility of patients with post-stroke AF to be prescribed oral anticoagulation; and the comparative effectiveness of oral anticoagulation treatments, particularly in post-stroke patients. Whether and how the experience of negative side effects impacts on patient compliance with a recommended monitoring strategy is still unclear.

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