Chest and thumb ECG detects atrial fibrillation after cryptogenic stroke: transient ECG assessment in stroke evaluation (TEASE)

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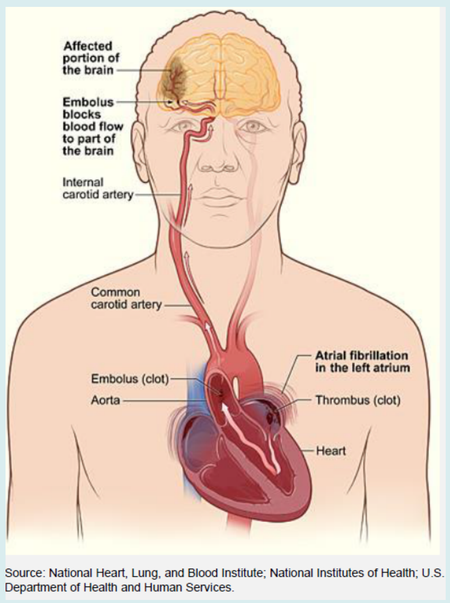

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services.

Summary

Using the Coala Heart Monitor for chest and thumb ECG provides an additional, non-invasive, feasible tool to accurately detect AF in patients with cryptogenic stroke. This may improve detection of atrial fibrillation in stroke survivors and enable risk reduction of recurrent embolization stroke.

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Background Atrial fibrillation (AF) is associated with ischaemic stroke. Because anticoagulation therapy effectively prevents ischaemic stroke in patients with AF, reliable AF detection after cryptogenic stroke is important. A previous multicentre study of patients who had a stroke found previously unknown AF in 2.6% of patients at 24 hours and 4.3% at 72 hours. However, prolonged continuous ECG monitoring is inconvenient and insertable cardiac monitors are invasive and costly. The diagnostic yield of chest and thumb ECG after cryptogenic stroke is unknown.

Purpose The purpose of this study was to assess the presence of newly diagnosed AF during 28 days of chest and thumb-ECG in patients who had a recent cryptogenic stroke.

Method We included adults with a confirmed diagnosis of ischaemic stroke at the stroke unit in Gävle or Hudiksvall hospital, Sweden. The definition of cryptogenic stroke is cerebral ischaemia of unknown aetiology, i.e. not attributable to cardiac embolism, large artery atherosclerosis or small artery disease despite a standard vascular, cardiac and laboratory evaluation. Exclusion criteria were previously known atrial arrhythmia or other disease with an indication for anticoagulation, implantable cardioverter-defibrillator, pacemaker or insertable cardiac monitor, pregnancy, and patients with a life expectancy ≤6 months. Chest and thumb ECG monitoring using the Coala Heart Monitor was prescribed twice daily, once between 06:00 and 10:00 hours and the second time between 18:00 and 22:00 hours. Clinical Trial Registration NCT03301662.

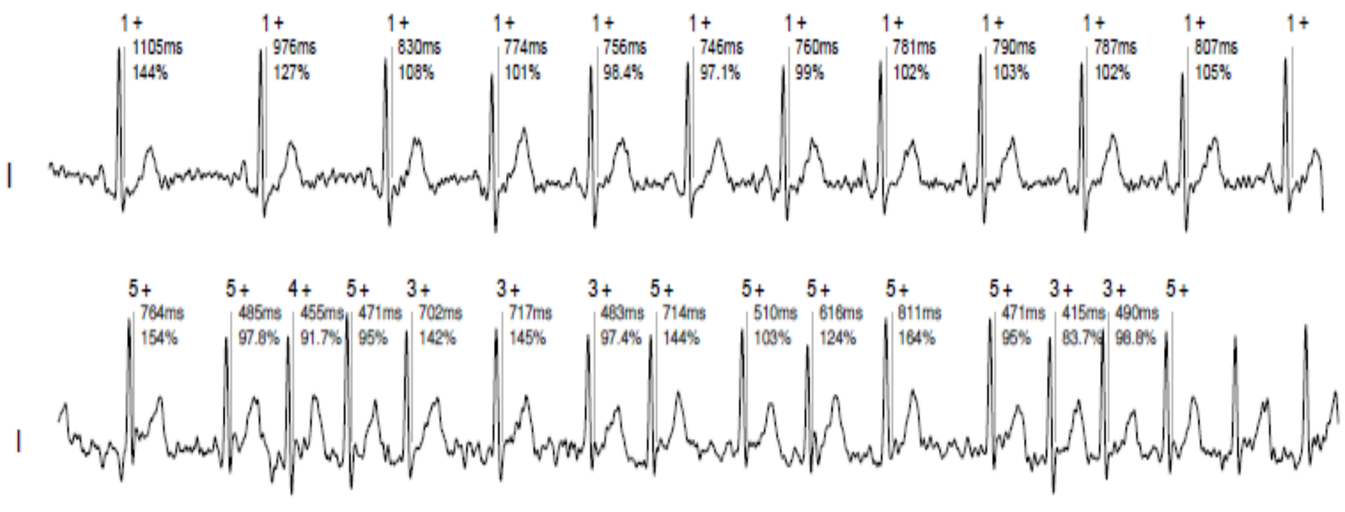

Figure 1. Coala Life Monitor shows sinus rhythm (upper ECG-strip) and detects atrial fibrillation (lower strip).

Results In total, 72 patients have completed the 28-days of monitoring. A majority were males (n=44; 61.1%) and mean age was 69.1 ±11.2 years. At least one episode of AF was detected in 7 patients (9.7%). They were all prescribed novel oral anticoagulation. In general, the feasibility of the Coala Life monitor was good. Due to the web-based application for monitoring based on smart-phone transmissions from patients, in the cases of AF detection, prompt anticoagulation was possible.

Conclusions Chest and thumb ECG monitoring using the Coala Heart Monitor provides an additional, non-invasive, feasible tool to accurately detect AF in patients with cryptogenic stroke.

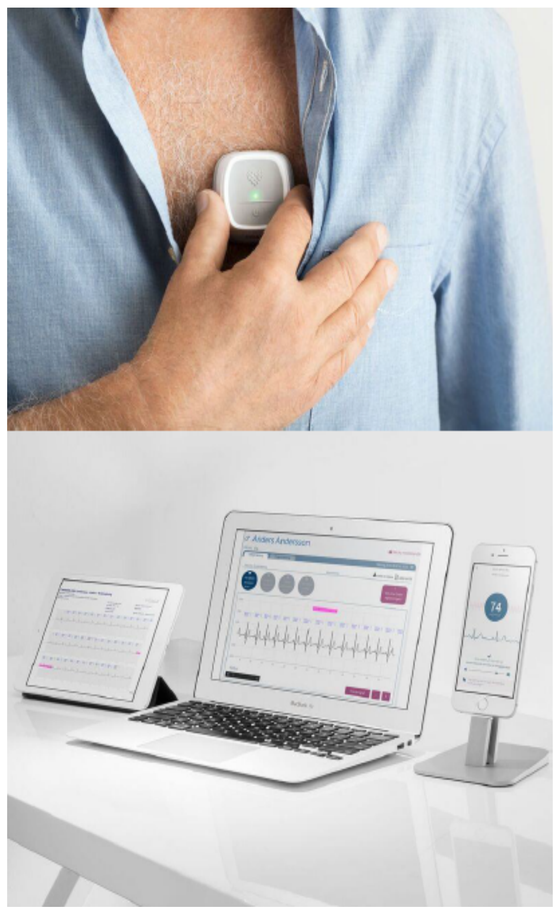

Figure 2. Coala Heart Monitor and its web-based system. Images with permission from Coala Life AB.

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