Abstract: P6542

Early Prolonged Ambulatory Cardiac monitoring in Stroke (EPACS): An open-label randomised controlled trial and economic evaluation

Authors:
A Kaura1, L Sztriha2, FK Chan2, J Aeron-Thomas2, N Gall2, B Piechowski-Jozwiak2, JT Teo2, 1Imperial College Healthcare NHS Trust - London - United Kingdom of Great Britain & Northern Ireland, 2King's College Hospital NHS Foundation Trust - London - United Kingdom of Great Britain & Northern Ireland,

Topic(s):
Atrial Fibrillation - Diagnostic Methods

Citation:
Bristol-Myers Squibb-Pfizer alliance (Grant Number CV185-475)

Background
Cardioembolism in paroxysmal atrial fibrillation (PAF) is a preventable cause of transient ischaemic attack (TIA) or ischaemic stroke, however, due to its transient nature, a short-duration Holter monitor may miss a significant proportion of events.

Methods
We conducted an open-label randomised controlled trial of cardiac monitoring after a TIA or ischaemic stroke comparing a 14-day ECG monitoring patch with short-duration Holter monitoring for the detection of PAF. The primary outcome was the detection of one or more episodes of ECG-documented PAF lasting at least 30 seconds within 90 days in each of the study arms.

A budget impact analysis from the healthcare perspective was performed to assess the theoretical economic implications of the patch-based service versus Holter monitoring. Based on the AF detection rates found in this study, Hospital Episode Statistics data for the incidence of stroke and TIA (October 2016-September 2017) and National Health Service reference costs, the cost-effectiveness of the patch-based service versus Holter monitoring was calculated. The Sentinel Stroke National Audit Programme estimate of £13,452 was used as the mean year one direct medical cost of a stroke.

Results:
From February 2016 through February 2017, 43 (76.8%) of the 56 patients assigned to the patch-based monitoring group and 47 (78.3%) of the 60 patients assigned to the short-duration Holter monitoring group had successful monitor placement with 90 days of follow-up (Figure 1). Of the 26 protocol failures between the two groups, 23 (88.5%) were due to patient refusal for outpatient short-duration Holter monitor placement, whilst only 1 (3.8%) was due to unsuccessful patch placement. The rate of detection of PAF at 90 days was 16.3% in the patch-based monitoring group (7 patients) compared to 2.1% in the short-duration Holter monitoring group (1 patient), with an odds ratio of 8.9 (95% CI 1.1-76.0; P=0.026).

Implementation of the patch-based service at our hospital would result in 10.8 more strokes avoided per year compared to current practice with short-duration Holter monitoring. This would equate to a yearly saving in direct medical costs of £57,481, increasing to £106,342 over 5 years. When social care costs are included, incremental savings of £154,716 can be achieved in the first year and £410,449 at 5 years. In addition, an analysis of the potential reduction in outpatient follow-up appointment costs resulted in a further saving of £56,149, giving a total potential saving of £113,630 over the first year with the use of the patch-based service compared to short-duration Holter monitoring, increasing to £162,491 over 5 years.

Conclusions
Early, prolonged, patch-based monitoring after an index stroke or TIA is superior to short-duration Holter monitoring in the detection of PAF and likely cost-effective for preventing recurrent strokes.
Conclusions
Early, prolonged, patch-based monitoring after an index stroke or TIA is superior to short-duration Holter monitoring in the detection of PAF and likely cost-effective for preventing recurrent strokes.