EE587

Cost-Effectiveness of Device-Based Long-Term Cardiac Monitoring in High-Risk Post-Myocardial Infarction Patients

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Objectives

Patients who survive a non-ST-elevation myocardial infarction (NSTEMI) are at an elevated risk of future major adverse cardiovascular events (MACE) which could be mitigated through long-term cardiac monitoring. This research aims to explore the cost-effectiveness of using BIOTRONIK BIOMONITOR in combination with BIOTRONIK Home Monitoring® combined with standard of care (SoC) compared to SoC alone.

Methods

A cost-effectiveness analysis using a lifetime partitioned survival model was developed for a cohort of NSTEMI post-myocardial infarction patients and had a UK NHS and Personal Social Services perspective. Modelled patients also had a CHA2DS2-VASc score ≥4 (men) or ≥5 (women) and an LVEF>35%. Survival analysis was used to determine the movement of patients from the pre-MACE health state (where patients could experience arrhythmia, major bleed and/or systemic embolism) to the post-MACE health states (worsening heart failure, stroke or acute coronary syndrome). Death was possible in all health states. The survival analysis, and arrhythmia diagnoses, were informed from the randomised, parallel, open-label BIO|GUARD-MI trial (NCT02341534). The model captured direct costs associated with each MACE (acute and long-term), implementation and removal of the ICM device, and treatment costs following arrhythmia detection. Disutilities associated with each MACE were also captured.

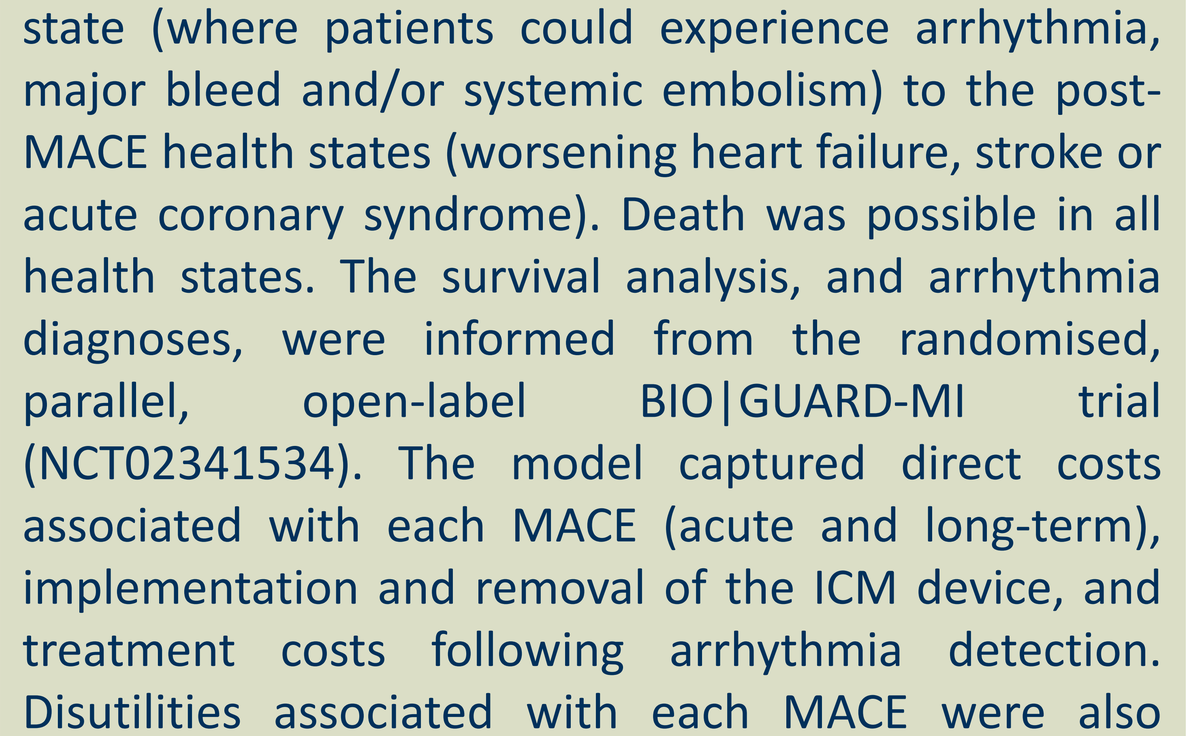


Figure 1. Schematic of model structure

Results

Over a lifetime time horizon, the use of ICMs for remote monitoring is cost-effective with an incremental cost-effectiveness ratio of £7,915 and a probability of cost-effectiveness of 72% at a threshold of £20,000 per quality-adjusted life year (QALY). The ICM was associated with additional 0.1842 QALYs per patient which outweighed the additional costs of £1,458. The ICM remained cost-effective when model inputs were varied in sensitivity and scenario analyses (deterministic and probabilistic).

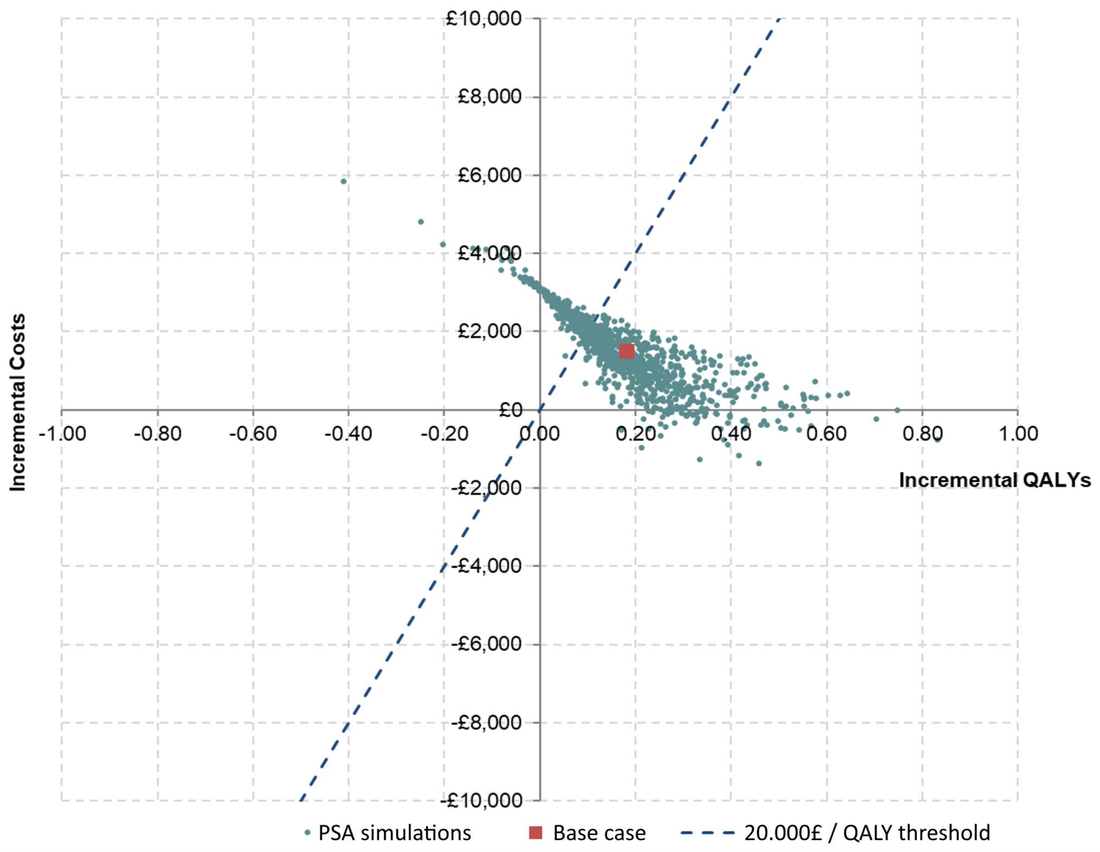
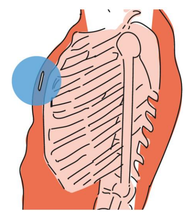
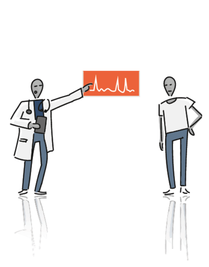


Figure 2. Cost-effectiveness plane

Monitoring and diagnosing using an Insertable Cardiac Monitor (ICM)



ICMs are inserted under the skin with a very small incision, and the patient can walk out immediately after the insertion.



The ICM works 24/7, sensing cardiac signals and detecting potential arrhythmias. Other diagnostic methods have a much smaller detection window, "catching" fewer arrhythmias.

Conclusions

In the UK NHS and Personal Social Services perspective, BIOTRONIK BIOMONITOR with BIOTRONIK Home Monitoring are cost-effective when used in NSTEMI patients post myocardial infarction.

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