

Cost-effectiveness of population screening for atrial fibrillation: the STROKESTOP study

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Abstract

Aims: Previous studies on the cost-effectiveness of screening for atrial fibrillation (AF) are based on assumptions of long-term clinical effects. The STROKESTOP study, which randomised 27 975 persons aged 75/76 years into a screening invitation group and a control group, has a median follow-up time of 6.9 years. The aim of this study was to estimate the cost-effectiveness of population-based screening for AF using clinical outcomes.

Methods and results: The analysis is based on a Markov cohort model. The prevalence of AF, the use of oral anticoagulation, clinical event data, and all-cause mortality were taken from the STROKESTOP study. The cost for clinical events, age-specific utilities, utility decrement due to stroke, and stroke death was taken from the literature. Uncertainty in the model was considered in a probabilistic sensitivity analysis. Per 1000 individuals invited to the screening, there were 77 gained life years and 65 gained quality-adjusted life years. The incremental cost was €1.77 million lower in the screening invitation group. Gained quality-adjusted life years to a lower cost means that the screening strategy was dominant. The result from 10 000 Monte Carlo simulations showed that the AF screening strategy was cost-effective in 99.2% and cost-saving in 92.7% of the simulations. In the base-case scenario, screening of 1000 individuals resulted in 10.6 [95% confidence interval (CI): -22.5 to 1.4] fewer strokes (8.4 ischaemic and 2.2 haemorrhagic strokes), 1.0 (95% CI: -1.9 to 4.1) more cases of systemic embolism, and 2.9 (95% CI: -18.2 to 13.1) fewer bleedings associated with hospitalization.

Conclusion: Based on the STROKESTOP study, this analysis shows that a broad AF screening strategy in an elderly population is cost-effective. Efforts should be made to increase screening participation.

Keywords: Atrial fibrillation; Cost-effectiveness; Markov modelling; Screening; Stroke prevention.

Conflict of interest statement

Conflict of interest: J.L. has no conflicts of interest to report. E.S. has received institutional grants outside this work from Stockholm County Council (research position), Åke Wiberg Foundation, Swedish Heart Foundation, institutional consulting fees/payment honoraria for lectures/advisory board from Bayer, Bristol-Myers Squibb–Pfizer, Boehringer Ingelheim, Johnson & Johnson, Merck Sharp & Dohme, and is an

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