

The cost-effectiveness of new oral anticoagulants in Estonia

Summary

Objectives: To evaluate the effectiveness, current use and cost-effectiveness of new oral anticoagulants in patients with non-valvular atrial fibrillation in Estonia.

Methodology: Literature reviews for evidence on effectiveness and cost-effectiveness were carried out in the PubMed database in June–October 2012. Estonian Health Insurance Fund data including all bills with twice occurring main diagnosis of atrial fibrillation (ICD 10: I48) were obtained for 2010–2011. In addition, all prescription bills for oral anticoagulants and cardiovascular medications in 2010–2012 for these patients were analysed. A Markov cohort model was used to simulate the effectiveness and safety of the new anticoagulants – dabigatran and rivaroxaban – compared to the standard warfarin and no treatment scenarios. In the base-case scenario, a hypothetical cohort of one thousand 65-year-old patients with atrial fibrillation was followed in three month cycles for 35 years. Data for disease transition probabilities and quality of life outcomes for different treatments was obtained from published literature. Complications treatment costs were calculated based on 2010–2012 Estonian Health Insurance Fund data and drug costs based on retail prices. The model evaluated different treatment regimens for avoided complications, differences in costs and quality-adjusted life-years (QALYs) using incremental cost-effectiveness ratios (ICER). Costs and effects were discounted using an annual discount rate of 5%.

Results: Using Estonian Health Insurance Fund data, we identified 15,287 patients (1.2% of total population) with an atrial fibrillation diagnosis; anticoagulants were used by 10,063 patients (97% using warfarin). In the base-case scenario, ICER for dabigatran (150 mg twice per day and 110 mg twice per day from age 80) was €20,696 per QALY and €30,215 for rivaroxaban, respectively, compared to warfarin treatment. Compared to warfarin, QALY gains for new oral anticoagulants were 0.23–0.37 per patient. Compared to no treatment, new anticoagulants add 1.05–1.20 QALYs with an ICER of €7,734–7,970. In the sensitivity analysis, ICER for dabigatran ranged from €6,028 to €14,313 and for rivaroxaban, €6,221 – €14,546 per QALY, most influenced by change in time perspective, discount rate and reduction in medication costs.

Conclusions: The currently available new anticoagulants dabigatran and rivaroxaban are increasingly used for stroke prevention in patients with atrial fibrillation. Although their better efficiency comes with higher costs, the cost-effectiveness ratio from our analysis is comparable to results from previously published data.

Reference: Reile R, Kõrv J, Voitk J, Alloja J, Võrno T, Lutsar K, Kiivet R-A. Antikoagulantide kulutõhusus virvendusarütmia tüsistuste ennetamisel Eestis. Tartu: Tartu Ülikooli tervishoiu instituut; 2014.