The Health Technology Report Series has been developed by the Institute of Family Medicine and Public Health of the University of Tartu

Screening programme for abdominal aortic aneurysm in Estonia

Summary

Objectives: To assess the effectiveness, costs and cost-effectiveness of a proposed population-based abdominal aortic aneurysm (AAA) screening programme in Estonia.

Methodology: A systematic literature review covering the diagnostic and treatment guidelines and evidence on the effectiveness and cost-effectiveness of AAA screening was performed. Evidence from the literature review and the public data on AAA-related disease burden was used to describe the current treatment practices in Estonia and to propose a potential organizational model for the screening programme. A previously constructed Markov cohort model was used to evaluate the cost-effectiveness of AAA screening with one-time ultrasonography and subsequent follow-ups of detected cases compared to no population-based AAA screening from the healthcare provider's perspective. A hypothetical cohort of 6,000 men aged 65 was followed for 35 years. Data for disease transition probabilities and quality of life outcomes was obtained from published literature; costs were calculated based on Estonian data. Costs and effects were discounted using an annual discount rate of 5%. The model evaluated the number of avoidable AAA ruptures and AAA-related deaths, and differences in costs and quality-adjusted life-years (QALYs). The incremental cost-effectiveness ratio (ICER) was calculated comparing AAA screening to no population-based AAA screening. An additional budget-impact analysis from the healthcare payers' perspective was carried out.

Results: There are approximately 31 AAA related deaths annually in Estonia. The evidence from previous randomized controlled trials indicates that population-based screening of men aged 65 and up is effective in preventing AAA ruptures and AAA-related deaths. The one-time ultrasonographic screening of 6,000 men aged 65 would prevent 10 AAA ruptures and 6 AAA-related deaths (including deaths before reaching the hospital and deaths after an AAA operation), resulting in 23 QALYs gained (0.000378 QALYs per person). The overall additional cost of the screening and treatment was €392,429 (€65.4 per person). In the base-case scenario the incremental cost-effectiveness ratio (ICER) for screening compared to no screening was €17,303 per QALY gained. The annual cost of AAA screening and related diagnostic and treatment costs are €261,502–395,999.

Conclusions: Based on available evidence, a population-based AAA screening programme for men aged 65 is likely to be an effective measure in reducing AAA-related disease burden. The ICER is within the range of findings from most previous cost-effectiveness analyses. Nevertheless, as the screening programme would increase overall costs, the actual policy decisions are likely to be influenced by budget constraints as well. Additional recommendations for implementing the national screening programme were proposed.

Citation: Reile R, Võrno T, Kals J, Ilves P. *Kõhuaordi aneurüsmi sõeluuring.* Tartu: Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2017.