

Semaglutide in the treatment of obesity

Summary

Objective: To evaluate the effectiveness, safety and cost-effectiveness of subcutaneously injected semaglutide in the treatment of obesity compared to alternative treatments in Estonia.

Methods: To meet the objective, a literature review of the effectiveness and safety of semaglutide, liraglutide, tirzepatide and bariatric surgery was composed. In addition, an overview of previously published cost-effectiveness studies comparing semaglutide to relevant treatment options was compiled. Estonian cost-effectiveness calculations were performed in two populations: 1) population with semaglutide indication (body mass index (BMI) ≥ 30 kg/m² or ≥ 27 kg/m² with at least one weight-related comorbid condition) and 2) population with bariatric surgery indication (BMI ≥ 40 kg/m² or ≥ 35 kg/m² with at least one weight-related comorbid condition). In the semaglutide indication population semaglutide, liraglutide and tirzepatide, and in the bariatric surgery indication population semaglutide and bariatric surgery were compared to lifestyle modification. Cost-effectiveness analysis with a lifetime horizon and pharmacotherapy treatment duration of two years was performed using a Markov cohort model. Incidence of weight related conditions (diabetes and cardiovascular disease) was based on published risk functions, prevalence of sleep apnoea and probability of knee replacement were based on published literature and probability of bariatric surgery on Estonian data. Treatment effectiveness estimates were derived from published randomized controlled trials. Drug and treatment costs were calculated using Estonian Health Insurance Fund (EHIF) data, whose perspective the analysis employed. Quality of life estimates were derived from published literature. Costs and effects were discounted using an annual discount rate of 5%. Results were evaluated in terms of incident cases, costs, life years (LY), quality-adjusted life years (QALY) and incremental cost-effectiveness ratios (ICER). A budget impact analysis from the healthcare payer perspective was carried out.

Results: In the base case analysis all pharmacotherapies and bariatric surgery enabled to reduce incidence of weight-related comorbidities and increase quality of life compared to lifestyle modification. At the same time these interventions were associated with added intervention costs, but enabled to save from obesity treatment costs. In the population with semaglutide indication the ICER for semaglutide was €32 559, for liraglutide €38 133 and for tirzepatide €50 364 per QALY gained compared to lifestyle modification. In the population with bariatric surgery indication semaglutide had an ICER of €26 250 per QALY gained compared to lifestyle modification. Bariatric surgery dominated both lifestyle modification and semaglutide. In sensitivity analysis, the results were most influenced by the duration of pharmacotherapy treatment effect, baseline and recovery levels of BMI and BMI recovery time. The budget impact analysis showed that reimbursing semaglutide for two years would entail additional €42.47–€1148.68 million cost to the EHIF, depending on the size of the target population.

Conclusions: Since reimbursement of semaglutide would be associated with significant budget impact, narrowing down the target population and limiting the duration of treatment should be considered in potential reimbursement decisions.

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