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

Cost-effectiveness of hepatitis C treatment in Estonia

Summary

Objectives: To evaluate the cost-effectiveness and budget impact of hepatitis C virus (HCV) treatment with one of the three available direct-acting antivirals (DAAs) in Estonia.

Methods: A literature review on the effectiveness and cost-effectiveness of compared drug regimens was conducted from June to August of 2019. A Markov cohort model was used to perform the cost-effectiveness analysis. A hypothetical cohort of 1000 (an estimated annual treatment cohort) 45-year-old HCV patients was distributed between initial fibrosis (F0–F3) or cirrhosis (F4) stages based on Estonian research data and followed in annual cycles for a lifetime horizon of 55 years. According to Estonian prescribing restrictions, in the base-case analysis the DAAs were only assumed to be used on patients with moderate to severe stage of fibrosis (F2-F3) or cirrhosis (F4). Based on reviewed clinical trials the effectiveness of compared DAAs was assessed to be equal at 98%. Disease progression probabilities and quality of life estimates were based on published literature. The analysis used the perspective of the Estonian Health Insurance Fund (EHIF), which was taken into account in determining the costs for the analysis. The DAA prices were calculated based on EHIF 2019 statistical data. Costs of HCV monitoring and treatment of concurrent liver-related conditions were calculated based on resource use data from Estonian experts and EHIF health care service prices. Costs and effects were discounted using an annual discount rate of 5%. Results were presented in terms of costs, quality adjusted life-years (QALY) and incremental cost-effectiveness ratios (ICER). A 5-year budget-impact analysis of removing fibrosis stage based prescribing restrictions was carried out from the healthcare payer perspective. In addition, the costs of treating all HCV infected HIV-positive people, prisoners and injection drug users were calculated.

Results: The analysis showed that in the base-case scenario the lifetime cost of HCV treatment with compared DAAs ranges from €7,138 to €21,491 per HCV infected person. In the same time horizon implementing DAA-treatment enables to gain 2,63 QALYs per every HCV patient treated compared to no treatment. Elbasvir + grazoprevir and glecaprevir + pibrentasvir treatment regimens dominated the no treatment strategy, which means that both of these were more effective and less costly than withholding treatment. Treatment with sofusbuvir + velatasvir regimen resulted in an ICER of €5267 per QALY gained compared to no treatment. In sensitivity analysis, the results were most influenced by the discount rate and the stage of fibrosis on treatment initiation. The 5-year budget impact analysis showed that if the DAAs would be prescribed to all HCV patients instead of only to patients with stage F2 to F4 liver fibrosis or cirrhosis, the total cost of hepatitis C treatment would increase by 6,5 – 37 million euros, depending on assumptions on the number of patients. The treatment of all HCV infected HIV-positive people would cost 27,8 million, all HCV infected prisoners 7,5 million and all HCV infected injection drug users 46,3 million euros.

Conclusions: Currently three DAAs are available in Estonia, but these are only available to HCV patients with moderate and severe fibrosis (F2–F3) or cirrhosis (F4). In order to get the best treatment result in terms of effectiveness and cost-containment prescribing restrictions should be removed so that treatment could be initiated at all HCV fibrosis stages.

Citation: Eek A, Lutsar K, Salupere R, Kase K, Kiivet R-A. *C-hepatiidi ravi kulutõhusus.* Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2020.