

The cost-effectiveness of treatment strategies for patients with multiple myeloma

Summary

Objectives: To assess the cost-effectiveness of following bortezomib and carfilzomib based treatment strategies in patients with multiple myeloma from the perspective of Estonian Health Insurance Fund: a) bortezomib for maintenance therapy after autologous stem cell transplantation (ASCT), b) bortezomib for induction and maintenance therapy (VMPT+VT) in patients not eligible for autologous stem cell transplantation (ASCT), and c) carfilzomib combined with lenalidomide and dexamethasone (KRd) in patients with refractory multiple myeloma.

Methods: A literature review covering the effectiveness, safety and the cost-effectiveness of multiple myeloma treatment schemes was performed based on systematic literature search of relevant databases. Simplified cost-effectiveness and budget impact analysis were carried out. The data on progression free survival (PFS) and health state utilities were derived from published literature, the estimates for costs and number of eligible patients were based on Estonian data. In order to perform probabilistic sensitivity analysis, an additional Markov model was constructed for KRd treatment strategy. Results are presented in terms of costs, QALYs and cost per QALY (ICER).

Results: The literature review indicates that both bortezomib- and thalidomide-based maintenance therapies prolong patients' PFS but no evidence on overall survival was found. Compared to currently reimbursed thalidomide treatment option, bortezomib maintenance therapy following ASCT would add 0.175–0.408 QALY with additional annual cost of €14,781 per patient. In sensitivity analysis the ICER ranged from €60,141 to €186,263 per QALY. Additional annual cost would be 0.56 million euros. VMPT+VT would add 0.417–0.834 QALYs compared to current MPT+T treatment scheme with ICER per QALY in the range of €39,810 – 119,637 in sensitivity analysis. The additional annual cost for Estonian Health Insurance Fund is expected to reach 1.72 million euros. The annual treatment cost for KRd is estimated at €280,809 per patient compared to €100,547 for alternative lenalidomide and dexamethasone treatment. With 0.508–0.581 QALYs gained, both the simplified and Markov model analysis estimated the ICER for KRd at more than €270,000 per QALY.

Conclusions: The novel treatment schemes can be considered more effective but their reimbursement would significantly increase the costs of multiple myeloma treatment in Estonia. As several new therapy options are expected to become available, regular reassessment of the cost-effectiveness evidence of myeloma treatment options is recommended.

Citation: Reile R, Võrno T, Kaare A, Lutsar K, Arrak M, Kiiwet R-A. Hulgimüeloomi ravistrateegiate efektiivsus ja kulutõhusus. Tartu: Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2016.