

Cost-effectiveness of treatment strategies in patients with metastatic lung cancer

Summary

Objectives: To evaluate the current use and assess the cost-effectiveness of the anticancer drugs pemetrexed, erlotinib, afatinib, gefitinib, nivolumab, pembrolizumab and crizotinib in the treatment of metastatic lung cancer in Estonia.

Methods: A literature search for evidence of the efficacy and cost-effectiveness of pemetrexed, erlotinib, afatinib, gefitinib, nivolumab, pembrolizumab and crizotinib was performed in the Medline database, and health technology appraisal evaluations of the cost-effectiveness of these drugs were sought from the databases of the respective agencies in Australia, Canada, England, Ireland and Scotland. The current use of anticancer drugs in the treatment of lung cancer in Estonia was analysed using the administrative database of health services of the Estonian Health Insurance Fund.

Results: The TKI inhibitors erlotinib, afatinib and gefitinib prolong progression-free survival of patients with EGFR-positive metastatic lung cancer as compared to standard chemotherapy. The current use of TKI inhibitors in Estonia is in line with the recommendations of international guidelines.

The potential health gain of using crizotinib in ALK-positive lung cancer is up to 3 months of progression-free survival, making 0.25 QALYs per patient treated. The potential health gain of using nivolumab in patients previously treated with chemotherapy is up to 2.8 months of overall survival, making 0.44–0.68 QALYs per patient treated. The potential health gain of using pembrolizumab in patients with PD-L1 positive lung cancer previously treated with chemotherapy is up to 2 months of overall survival, making 0.30–0.61 QALYs per patient treated.

In the event that either nivolumab, pembrolizumab or crizotinib is reimbursed for the treatment of metastatic lung cancer in Estonia, this will increase the health insurance costs by 1.1, 0.4 and 1.3 million euros, respectively.

Conclusions: The incremental cost per QALY gained was estimated 120,000 euros for crizotinib, 21,000–46,000 euros for nivolumab, and 43,000–87,000 euros for pembrolizumab, according to the estimates of survival increase in the studies published.

The comparison of evidence on the efficacy and cost-effectiveness of anticancer drugs with current availability and use in Estonia resulted in recommendations to change the reimbursement principles and regulations of metastatic lung cancer chemotherapy.

Citation: Oselin K, Pintson M, Vettus E, Kutsar A, Kiivet R-A. Kopsukasvajate kemoterapia kliiniline tõendus põhjus ja kulutõhusus. Tartu: Tartu Ülikooli tervishoiu toimetised; 2016.