Pembrolizumab monotherapy in first-line treatment of non-small-cell lung cancer

Approved at the meeting of the Council for Choices in Health Care in Finland (COHERE) on 13 March 2019

Recommendation by COHERE		Pembrolizumab is included in the range of services as monotherapy for the first-line treatment of metastatic non-small-cell lung cancer in adults whose tumours express PD-L1 ligand, whose tumour TPS is ≥ 50% and whose tumour has no EGFR or ALK positive mutations. Patients should be in good general condition (ECOG 0-1), have no serious immunity-weakening diseases or medications, and should not have been treated previously with PD-1/PD-L1 inhibitors. The effectiveness of treatment in relation to the adverse effects should be assessed closely and the treatment stopped when the cancer progresses. Among patients receiving benefits, the duration of treatment may be at most 2 years. A precondition for this recommendation is that the pharmaceutical company and the purchaser of the drug agree on a price lower than the drug's wholesale price.
Grounds	Severity and prevalence of the health issue	Lung cancer causes the most mortality of all cancer in Finland. The majority of lung cancers are non-small-cell cancers and are only detected in the metastatic stage, when the goal of treatments is generally to slow disease progression and prolong life. The age-adjusted relative survival rate of non-small-cell lung cancer 5 years after diagnosis is 11% for men and 16% for women. Fimea estimates that each year about 130 patients in Finland would be suitable for first-line treatment with pembrolizumab.
	Treatment options	The alternative treatment for patients suitable for pembrolizumab therapy is a combination of a platinum compound (cisplatin or carboplatin) and a second cytostatic agent (vinorelbine, gemcitabine, taxanes, pemetrexed). The treatment is carried out in courses of 3–4 weeks, which are usually administered four times.
	Effectiveness	According to research results, in an average of a little over two years of follow-up, the median survival of patients who received first-line pembrolizumab therapy was 30 months, compared to 14.2 months for patients who received platinum-based treatment. In addition, the progression-free survival time (PFS) of patients who received pembrolizumab was found to be longer, the objective treatment response was found to be better, and overall health and quality of life were found to be improved.
	Safety	Fewer adverse effects occurred among patients given pembrolizumab than among patients given chemotherapy. They also had fewer serious adverse effects and less discontinuation of treatment. On the other hand, considerably more immunological adverse effects occurred among patients in the pembrolizumab group. Adverse effects may occur only months after the end of treatment.
	Costs and impact on the budget	The cost of one year of treatment with pembrolizumab per patient is estimated at EUR 162,000. If 130 patients were given a course of treatment lasting 12 months, the total cost would be about EUR 21 million per year. In practice, the budgetary impact is lower and depends on the duration of the treatments given and how patients are distributed between different treatment options. For a considerable share of patients, the duration of treatment will probably be less than one year.
	Ethical and financial aspects as a whole	The likelihood of benefit from treatments with PD-1/PD-L1 inhibitors increases with the tumour's PD-L1 expression. The optimal administration frequency or duration of treatment is not known. From the perspective of medical evidence and the resources available to the healthcare system, it is justified to target the use of PD-1/PD-L1 inhibitors at patients who, with adequate certainty, will benefit from the treatment.
Collection of further evidence		It is recommended that data on the number of patients treated, characteristics, duration and outcomes, as well as data on other cancer treatments given, be collected and reported routinely.
Diagnosis (ICD-10) codes		C34 Lung cancer
Background information and references		COHERE memorandum (in Finnish), Assessment report by Fimea (in Finnish with English Summary)