

Pembrolizumab: Comparison Between Fixed Dose and Weight-Based Dose in the Treatment of Non-Small Cell Lung Cancer

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Background: Non-small cell lung cancer (NSCLC) accounts for the majority of lung cancer cases and is often associated with risk factors such as smoking, exposure to carcinogens, and genetic predisposition. Immunotherapy, particularly Pembrolizumab, has revolutionized NSCLC treatment by enhancing the immune response against tumor cells [1–3]. The doses to be administered during treatment can be fixed doses or doses based on the patient's weight [4]. **Objective:** To compare the efficacy and costs associated with fixed-dose (FD) versus weight-based dosing (WBD) of Pembrolizumab in NSCLC treatment. **Methods:** A literature review was conducted using PubMed and Elsevier databases, analyzing clinical and economic studies focusing on efficacy, safety, and cost of fixed-dose versus weight-based dosing regimens. Additionally, annual Pembrolizumab consumption at the Unidade Local de Saúde do Algarve (ULSALG) between October 2023 and October 2024 was evaluated, considering associated costs and simulating potential expenses with a WBD regimen, since the current regimen is a fixed dose. **Results:** We analyzed 6 original studies focused on clinical efficacy, safety and costs associated with the two posological regimens of Pembrolizumab. Both regimens showed similar efficacy and safety profiles. but highlight economic advantages associated with WBD, especially in patients outside the standard weight range (50-100 kg). The FD regimen, on the other hand, simplifies logistics and minimizes dosage errors, making it widely adopted. Hospital data from ULSALG indicated a higher resource utilization with the fixed-dose regimen. When simulating weight-based dosing based on an average weight of 70 kg, the analysis suggested a reduction in resource consumption. The economic analysis at ULSALG demonstrates significant cost savings with WBD. Additionally, strategies such as vial sharing could further enhance economic efficiency. **Conclusion:** The choice between FD and WBD requires careful consideration of patient characteristics and the administration context. Future studies should further explore the large-scale implementation impact of weight-based dosing.

Keywords: "Pembrolizumab", "non-small cell lung cancer", "weight-based dose".

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