

Downstream Health and Economic Outcomes of Pembrolizumab in the Treatment of NSCLC and Melanoma in Italy

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BACKGROUND AND OBJECTIVES: This study aims to assess the costs, quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs) associated with pembrolizumab in combination with chemotherapy as first-line treatment for metastatic non-squamous and squamous non-small cell lung cancer (NSCLC) and with pembrolizumab as an adjuvant treatment for Stage III melanoma in Italy.

METHODS: Three cost-effectiveness models developed by MSD were investigated for each treatment indication. A unique model to assess the overall effect of Pembrolizumab versus chemotherapy in the case of lung cancer and watchful waiting in the case of melanoma was built. Theoretical cohorts of patients with metastatic squamous and non-squamous NSCLC were followed over time using a partitioned survival model with weekly cycles. A weekly cycle Markov model was employed for melanoma. The analysis was conducted from the Italian National Health Service perspective considering a time horizon of 40 years. Treatable patients were assumed equal to 400, 7000 and 900 for NSCLC squamous, non-squamous and melanoma indications respectively. Costs evaluated included those for drug adverse events, non-drug disease management, subsequent treatment and terminal care. Drug acquisition and administration costs were excluded.

RESULTS: For each treatment indication analysed, Pembrolizumab produced downstream direct cost offsets (- € 99.022.314,09, - € 9.966.476,72 and - € 615.136,52 for NSCLC squamous, non-squamous and melanoma indications respectively), increased quality of life (+2056 +5769 and +2173 QALYs for NSCLC squamous, non-squamous and melanoma indication respectively) and reduced disability (- 2512, -7631 and -2806 DALYs for NSCLC squamous, non-squamous and melanoma indications respectively). Across indications, the total cost offsets of Pembrolizumab are -€ 109.603.927, with 9.999,3 QALYs gained, and -12.951 DALYs avoided.

CONCLUSION: Pembrolizumab has previously been demonstrated to be cost-effective in Italy compared with SoC as first-line treatment in patients with metastatic squamous or non-squamous NSCLC and as adjuvant treatment in patients with Stage III melanoma. The present analysis suggests that Pembrolizumab use could lead to significant health benefits for patients while offsetting a portion of cancer care costs.

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