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The Role of Adjuvant Atezolizumab in Reducing Recurrence-Related Treatment Costs in Resected Early-Stage PD-L1 High Non-Small Cell Lung Cancer across Europe

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BACKGROUND

- Recurrences of non-small cell lung cancer (NSCLC) post-resection are common, with 45% of patients experiencing a recurrence within 5 years.[1]
- NSCLC recurrences are associated with significant morbidity and mortality. The 5-year survival of patients with recurrence post resection and adjuvant chemotherapy is only 35.6%.[1]
- Tecentriq® (atezolizumab [ATZ]) was EMA approved in June 2022 for use as adjuvant treatment following resection and platinum-based chemotherapy for adult patients with stage II to IIIA NSCLC whose tumors have PD-L1 expression on ≥50% of tumor cells.
- ATZ demonstrated significant reduction compared to best supportive care (BSC) in the rate of recurrence among patients enrolled in the phase 3 clinical trial IMpower010 (NCT02486718).[2]
- NSCLC recurrences are associated with a substantial economic burden; in the US alone adjuvant ATZ treatment was estimated to be associated with over $800 million savings in cumulative direct costs over a 5-year horizon.[3]

OBJECTIVE

- To estimate the recurrence-related **reduction in treatment costs** in patients with resected early stage PD-L1 high NSCLC following the introduction of ATZ in Germany, Spain, France, Italy and the UK (referred to as EU5), over the next decade (2024-2034).

METHODS

- A previously developed epidemiological model[4] was used to estimate population-based reductions in the number of operable stage II-IIIA PD-L1 high NSCLC patients experiencing recurrence following the introduction of ATZ.
- Inputs included age-specific lung cancer incidence rates and their projections as well as data on staging distribution, biomarker status, tumor histology and adjuvant treatment rates and were obtained from cancer registries and published literature.
- Adjuvant treatment rates and disease-free survival (DFS) of patients on adjuvant ATZ were obtained from the IMpower010 (NCT02486718) clinical trial and were applied to quantify the projected decline in the number of eNSCLC patients relapsing over a 10-year period post-ATZ launch relative to best supportive care (BSC).
- Reductions in **treatment costs** were estimated as the per patient cost of treating advanced stage NSCLC, using clinical evidence and expert opinion on the treatments that patients would receive after experiencing recurrence in every country. Country-specific costs of treating recurrences were estimated separately for patients who received adjuvant ATZ and can re-challenge with cancer immunotherapy (recurrence ≥12 months after initiation of adjuvant treatment) and those who cannot re-challenge with cancer immunotherapy (recurrence <12 months after initiation of adjuvant treatment) (**Table 1**).
- Sensitivity analyses were conducted to assess the expected uptake of ATZ after launch.

RESULTS

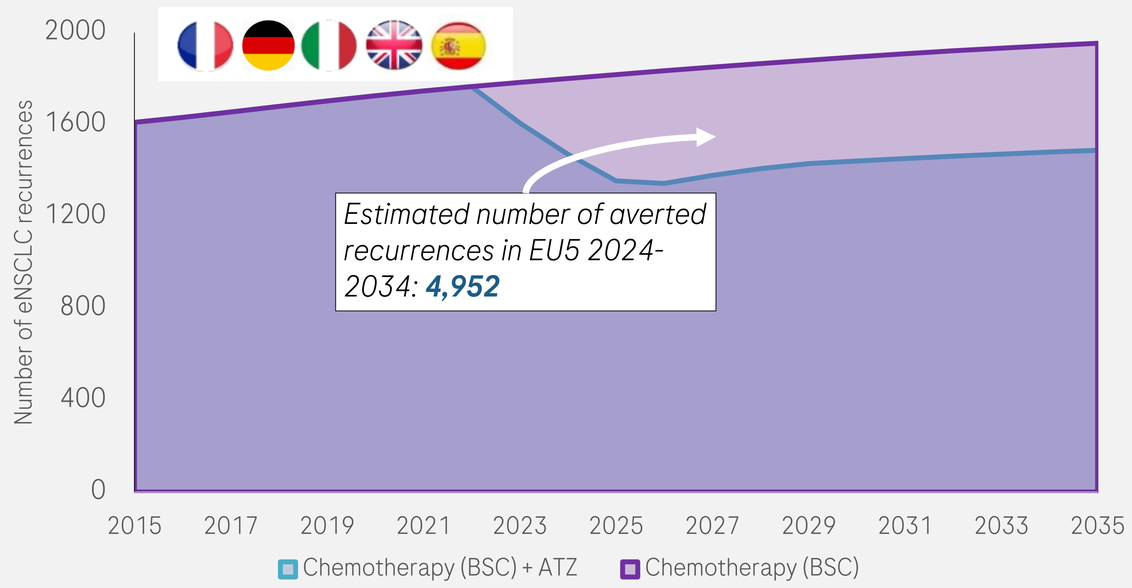

Figure 1: Estimated number of eNSCLC patients developing recurrences in EU5 (UK, Spain, Italy, France and Spain) by treatment scenario

Table 1: Estimated per patient costs of treating advanced NSCLC by country

	France	Germany	Italy	Spain	UK
CIT re-challenge	€38,525	€36,930	€42,431	€29,300	£33,600
No CIT re-challenge	€7111	€9083	€9165	€15,266	£10,873

CIT: cancer immunotherapy

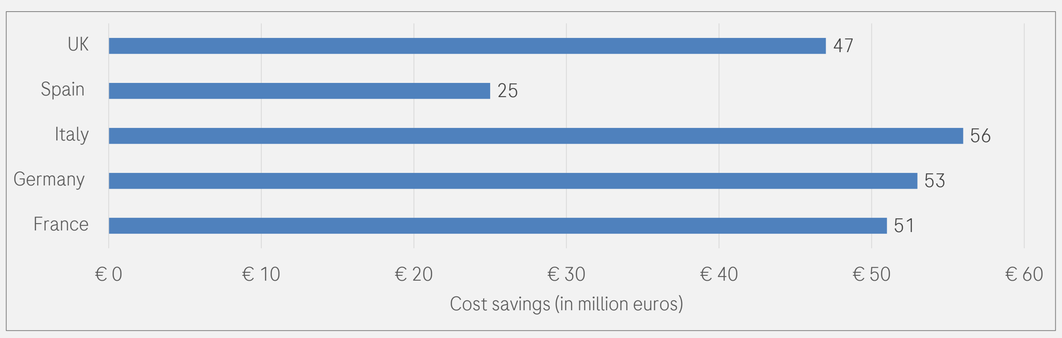

Figure 2: Cost savings (in million euros) associated with treating recurrences with vs without adjuvant ATZ (over 10 years, 2024-2034)

- A total of **4,952 avoided recurrences** (loco-regional, or distant metastases, or both) were estimated to be avoided with adjuvant ATZ in the base case analysis, over the next decade (2024-2034) (**Figure 1**).
- This corresponds to a **24% reduction in the number of NSCLC patients experiencing disease recurrence.**
- Following the estimated reductions in recurrences, an estimated **€232 million** could be saved across EU5 countries when adjuvant ATZ was available (ATZ, €548 million; BSC, €780 million).
- The cost savings associated with treating recurrences with vs without adjuvant ATZ ranged from €25 million (Spain) to €56 million (Italy) (**Figure 2**).

DISCUSSION

- Results are dependent on different input assumptions, DFS curves from clinical trials, and expected treatment utilization assumptions. Sensitivity analyses were performed to address uncertainty surrounding the uptake of ATZ post launch and the extrapolation of progression curves.
- Treatment costs were estimated using a simple approach that assumed patients could receive a limited number of treatment options for each type of recurrence and progression event. Estimated costs may thus differ from those that would be incurred in real-world practice.
- Real-world recurrence rates may be different from those observed in clinical trials given potential differences in the real-world setting .
- Validation of this model using observational data sources is needed.

CONCLUSION

- Recurrence of NSCLC incurs a substantial clinical burden in EU5.
- The introduction of ATZ in the high PD-L1 eNSCLC treatment setting can lead to **considerable patient benefits** in terms of avoided recurrences that can also translate into a **substantial cost saving** to the society.
- Further research is needed to assess the long-term impact of this clinical improvement on economic and societal burden associated with the recurrent NSCLC.
- Treatment impact models remain key for future disease management and cancer control measures, especially in view of the changing landscape of NSCLC and ongoing advances in targeted therapies for patients with key driver-mutations.

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