This analysis was funded by Roche, Italy

AdRes

Pradelli L[1], **Bellone M**[1], Heaton E[2], Celik H[3], Caputo A[4], Belfiore M[4]

A BUDGET IMPACT ANALYSIS OF ATEZOLIZUMAB MONOTHERAPY FOR FIRST LINE TREATMENT OF PATIENTS WITH PD-L1 HIGH METASTATIC NSCLC IN ITALY

[1] AdRes HE&OR, Turin, Italy, [2] Genentech Inc, South San Francisco, CA, USA, [3] F-Hoffmann La Roche Ag, Basel, Switzerland, [4] Roche, Monza, Italy

Objective

- Lung cancer is the second most common cancer and the leading cause of cancer death worldwide
- Atezolizumab as monotherapy was approved by EMA in April 2021 for the first line treatment of adult patients with metastatic non-small cell lung cancer (mNSCLC) whose tumors have PD-L1 expression ≥ 50% and who do not have EGFR mutant or ALK-positive NSCLC
- The objective of this analysis is to estimate the potential budget impact of atezolizumab over a three-year time horizon from the National Healthcare Service (NHS) perspective in Italy

Figure 1. Model structure

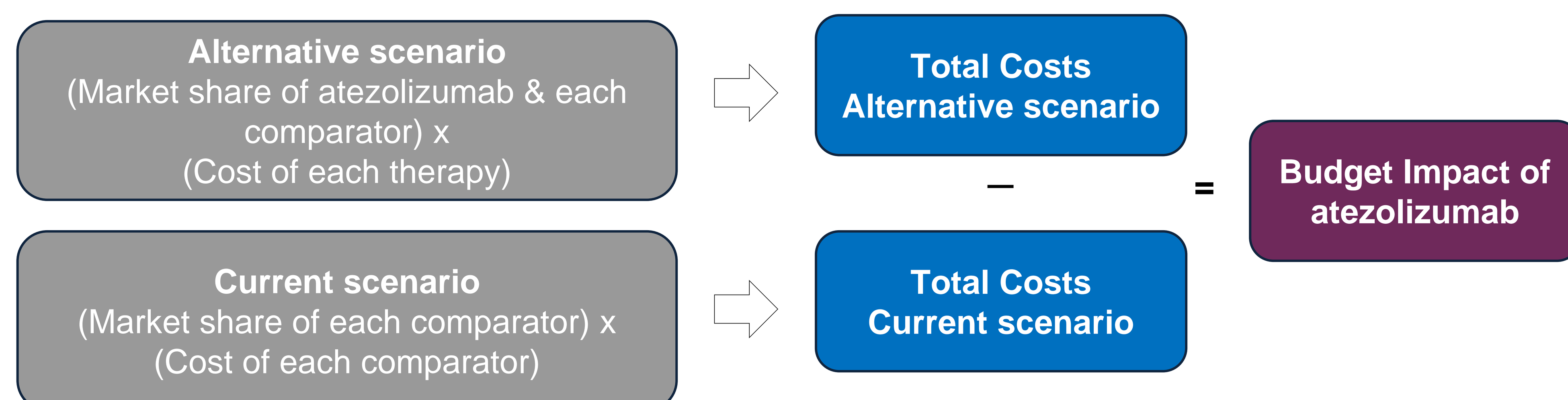


Table 1. Market shares in current and alternative scenario

Treatment	Current scenario			Alternative scenario		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Atezolizumab	-	-	-	**15.0%**	**22.0%**	**25.0%**
Pemetrexed / Gemcitabine + platinum	9.0%	8.5%	8.0%	9.0%	8.0%	7.0%
Pembrolizumab	91.0%	81.9%	77.3%	76.0%	62.5%	57.0%
Cemiplimab	0.0%	9.6%	14.7%	0.0%	7.5%	11.0%

Pemetrexed + platinum is indicated only for patients with non-squamous carcinoma while gemcitabine + platinum for the squamous variant. The percentage of patients with non-squamous (~ 75%) and squamous NSCLC was derived from the population enrolled in the IMpower110 trial

Methods

- A budget impact model was developed to evaluate the financial consequences of the adoption in the Italian context of atezolizumab for first line treatment of mNSCLC expressing PD-L1 ≥ 50%
- The model compared a scenario that considers atezolizumab as a treatment option reimbursed by the Italian NHS (alternative scenario) with a scenario in which atezolizumab is not available yet (current scenario), as represented in Figure 1
- Market shares in the two scenarios derived from an internal forecast, as shown in Table 1. For atezolizumab uptake rates were estimated at 15% in year 1, 22% in year 2, and 25% in year 3
- Cost categories included were: drugs, administration, adverse events management and supportive care. Unit costs were collected from published literature [2] and institutional Italian data [3, 4]. For drugs, ex-factory price net of mandatory discounts was considered [5] (Table 2)
- Median treatment duration was derived from latest IMpower110 trial data cut for atezolizumab (8.05 months) and chemotherapy (2.99 months for pemetrexed + platinum and 2.30 months for gemcitabine + platinum). For pembrolizumab and cemiplimab it was assumed the same as atezolizumab

Results

- **3,883, 3,881** and **3,879** patients with mNSCLC with a PD-L1 ≥ 50% are expected to be **eligible to receive atezolizumab as first line treatment** in the 1st, 2nd and 3rd year of the analysis, respectively
- The results show an **incremental savings for the Italian NHS**, mainly due to the **reduction of the market share of pembrolizumab in favor of atezolizumab** (Table 3)
- Following launch, the annual **budget impact** is estimated to be **- € 10.5 million**, **- € 18.4 million**, and **- € 20.7 million** in the 1st, 2nd and 3rd year, respectively (Figure 2)

Conclusions

- The use of **atezolizumab monotherapy** for first-line treatment of patients with mNSCLC and PD-L1 expression ≥ 50% is a **cost saving alternative** from the NHS perspective in Italy whilst providing an efficacious treatment option for patients.

Table 3. Estimated costs in the scenarios compared – *results in € / 000*

Treatment	Current scenario			Alternative scenario		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Atezolizumab	**NA**	**NA**	**NA**	**22,899**	**43,610**	**53,637**
Pembrolizumab	3,590	4,392	5,146	3,590	4,256	4,817
Chemotherapy	288,999	274,296	260,090	255,579	216,754	195,476
Cemiplimab	-	19,703	38,544	-	15,368	29,164
Total costs	**292,589**	**298,391**	**303,780**	**282,068**	**279,989**	**283,094**

Table 2. Costs

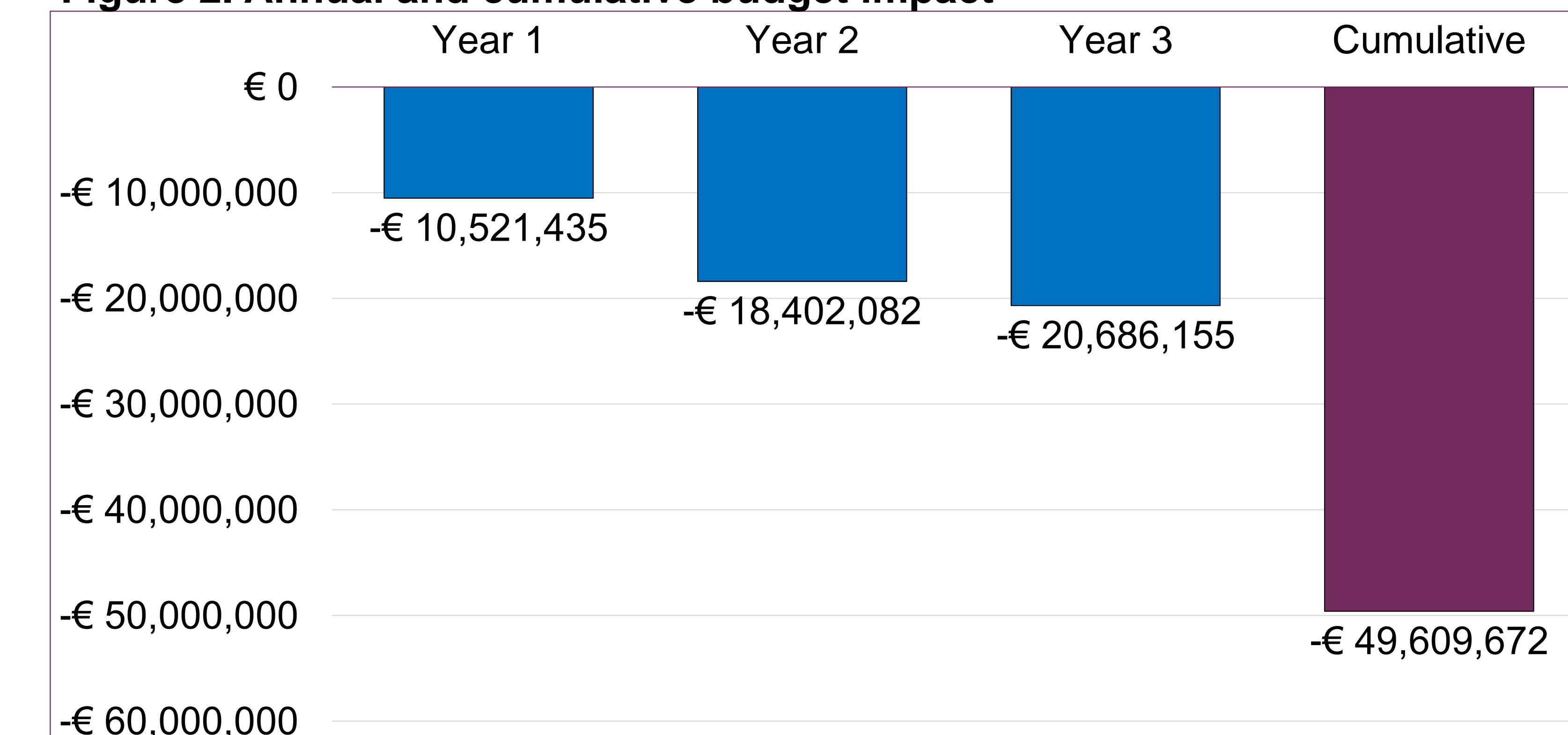
Cost item	Value
Atezolizumab (1,200 mg vial)	€ 4,602.75
Atezolizumab (840 mg vial)	€ 3,221.93
Pembrolizumab (100 mg vial)	€ 3,428.00
Cemiplimab (350 mg vial)	€ 6,295.00
Pemetrexed (500 mg vial)	€ 1,304.11
Pemetrexed (100 mg vial)	€ 260.82
Gemcitabine and platinum	-
IV administration (for "high-cost" drugs)	€ 44.00
IV administration (including drugs)	€ 425.00
AE management (monthly)	€ 23.26 (immunotherapies)
AE management (monthly)	€ 136.31 (chemotherapies)

Drug costs: The monthly cost of atezolizumab was estimated considering 3 different posology (840mg Q2W; 1,200mg Q3W; 1,680mg Q4W). The distribution of these regimens was derived from internal data. The monthly cost of pembrolizumab was estimated considering 2 different posology (200mg Q3W; 400mg Q6W). The distribution of these regimens was derived from internal data. For chemotherapy with gemcitabine and platinum it was assumed that the administration tariff includes also the cost of drugs.

Adverse event management costs: all Grade ≥3 treatment-related adverse events with an incidence of ≥2% in the atezolizumab and chemotherapy arms of the IMpower110 trial were included. For pembrolizumab and cemiplimab the same safety data were assumed. Costs per event taken from literature [2] or national tariff [3].

Supportive care: annual frequency of health resources consumption was derived from national guidelines [6] and unit costs were taken from national tariffs [3].

Figure 2. Annual and cumulative budget impact



References

1. Gobbini E, et al. Molecular profiling in Italian patients with advanced non-small-cell lung cancer: An observational prospective study. Lung Cancer. 2017 Sep;111:30-37. **2**. Lazzaro C (2013). An Italian cost-effectiveness analysis of paclitaxel albumin (nab-paclitaxel) versus conventional paclitaxel for metastatic breast cancer patients: the COSTANza study, Clinicoecon Outcomes Res, 2013 Apr 11;5:125-35 **3**. Decreto 18 ottobre 2012 Remunerazione prestazioni di assistenza ospedaliera per acuti, assistenza ospedaliera di riabilitazione e di lungodegenza post acuzie e di assistenza specialistica ambulatoriale (GU Serie Generale n,23 del 28-1-2013) **4**. Regione Lombardia. deliberazione n° IX / 2946 del 2012 della Regione Lombardia **5**. CODIFA. Informatore farmaceutico on-line. Last accessed April 2021 **6**. AIOM (2020). Linee Guida AIOM sulle neoplasia del polmone

ISPOR Copenhagen 2021

POSA108