EPH240

The Health Impact of Pembrolizumab Plus Chemotherapy in The First Line Treatment for Metastatic Triple Negative Breast Cancer (TNBC) in Türkiye

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Background

- Breast cancer (BC) is the most common cancer among women worldwide, accounting for approximately 25% of all female cancer diagnoses.[1]
- In Türkiye in 2022, BC represented the most frequently diagnosed and deadliest cancer for women with 25,249 new cases and 7,360 attributable deaths.[2] Among those, 1,022 cases were associated with locally recurrent inoperable or metastatic triple negative breast cancer (TNBC) expressing PD-L1 (CPS≥10).[3,4,5]

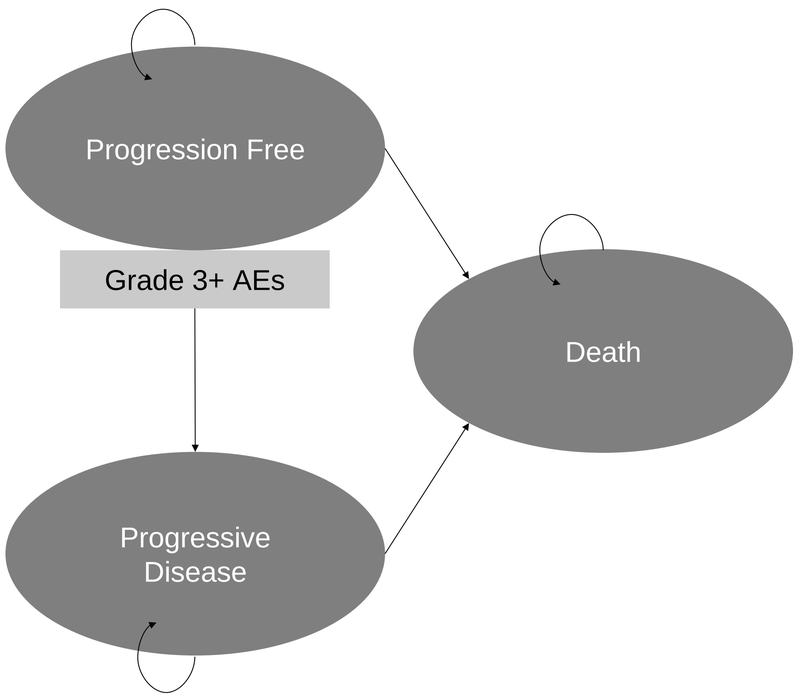
Aims

- To quantify and evaluate the estimated health impact of pembrolizumab in combination with chemotherapy as a first-line treatment for patients with locally recurrent inoperable or metastatic TNBC whose tumors express PD-L1 (CPS≥10).

Methods

- A partitioned survival model was used and adapted to the Turkish payer perspective to assess the potential health outcomes associated with pembrolizumab in combination with chemotherapy versus chemotherapy alone. Outcomes include: life years (LYs), quality-adjusted life years (QALYs).
- Data on clinical effectiveness, treatment utilization, health utilities, and safety were derived from the KEYNOTE-355 trial (data cut-off date of June 15, 2021) and projected over a 20-year horizon.
- Health state utility inputs were derived from the EuroQoL-five dimension questionnaire (EQ-5D-3L) data collected in the KEYNOTE-355 trial
- A 3% annual discount rate was applied to health outcomes.
- Scenario, deterministic (DSA) and probabilistic sensitivity analyses (PSA) were conducted to test the robustness of the model results.

Figure 1. Model structure



Key: AE, adverse evet.

Table 1. General base-case setting and model assumptions

	Category	Input
	Perspective	Turkish Payer Perspective
	Time horizon	20 years
	Discounting	3 % for health outcomes
	Population	Adult patients with locally recurrent inoperable or metastatic TNBC whose tumors expressed PD-L1 (CPS ≥ 10) and who have not received chemotherapy for recurrent inoperable or metastatic TNBC, based on KEYNOTE-355
	Treatment duration	• A maximum treatment duration of 2 years (104 weeks) was applied to pembrolizumab based on the KEYNOTE-355 trial protocol and product label. • No maximum treatment duration is applied to the chemotherapy treatment components.

Key: PD-L1, programmed cell death 1/programmed death-ligand 1.

Table 2. Characteristics of model cohort

Parameter	Base-case Input
PFS – Pembrolizumab + chemotherapy	KM9+ log-logistic onwards
PFS - Chemotherapy	KM9+ log-logistic onwards
OS - Pembrolizumab + chemotherapy	Log-normal model
OS - Chemotherapy	Log-logistic model
ToT - Pembrolizumab + chemotherapy	Gamma model
ToT - Chemotherapy	Log-logistic model
Utilities – By Time to Death (Pooled)	0.833 (≥360 days)
	0.778 (180-359 days)
	0.712 (90-179 days)
	0.634 (30-89 days)
	0.540 (<30 days)

Key: PFS, Progression-free survival; ToT, Time on treatment; OS, overall survival; KM, Kaplan Meier.

Results

- Total QALYs were estimated to be 2.38 for pembrolizumab plus chemotherapy versus 1.70 for chemotherapy alone, yielding an incremental gain of 0.68 QALYs (**Table 3**).
- Total LYs were estimated to be 2.97 for pembrolizumab plus chemotherapy versus 2.16 for chemotherapy alone, an incremental gain of 0.81 LYs (**Table 3**).
- Results from the DSA, PSA (**Table 4**) and scenario analyses generally supported the base-case findings, with the most impactful parameters being related to OS extrapolations.

Table 3. Total impact on health outcomes for pembrolizumab + chemotherapy vs. chemotherapy

	Pembrolizumab + Chemotherapy	Chemotherapy	Incremental Pembrolizumab + chemotherapy vs. Chemotherapy
Total QALYs (Time to Death-Based)	2.38	1.70	0.68
Total LYs	2.97	2.16	0.81
Progression-free	2.04	1.00	1.04
Progressive disease	0.93	1.15	-0.23

Table 4: PSA results for pembrolizumab + chemotherapy vs. chemotherapy

	Total QALYs	Incremental QALYs
Pembrolizumab + chemotherapy	2.39	
Chemotherapy	1.72	0.67

Conclusions

- The results indicate that pembrolizumab plus chemotherapy for patients with locally recurrent inoperable or metastatic TNBC whose tumors express PD-L1 (CPS≥10) is estimated to improve life expectancy and quality of life over standard of care and expected to generate considerable benefits for patients, the healthcare system, payers, and public health in Türkiye.

References

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https://bit.ly/4ns9CSE

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