Cost-effectiveness analysis of tafasitamab in combination with lenalidomide for the treatment of adult patients with relapsed or refractory diffuse large B-Cell lymphoma in Greece

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Introduction

Diffuse large B-cell lymphoma (DLBCL) is a cancer of the lymphatic system and constitutes 30% to 58% of non-Hodgkin's lymphoma (NHL).[1-4] In the European Union (EU), the estimated prevalence is 4.6 per 10,000 persons and the incidence is 0.92 per 10,000 persons per year.[5]

Relapsed/refractory (R/R) DLBCL, which accounts for approximately one-third of all patients with DLBCL, remains a major cause of morbidity and mortality. Managing R/R DLBCL is a continuous challenge to the hematologist-oncologists.[6]

Tafasitamab is indicated in combination with lenalidomide followed by tafasitamab monotherapy for the treatment of adult patients with R/R DLBCL who are not eligible for autologous stem cell transplant (ASCT).

The efficacy and safety of tafasitamab in patients with R/R DLBCL were evaluated in a Phase II, single-arm, multicentre, open-label study (L-MIND).[7]

Objective

To evaluate the cost-effectiveness of tafasitamab and lenalidomide combination followed by tafasitamab monotherapy versus polatuzumab, bendamustine and rituximab (Pola-BR), tisagenlecleucel, and rituximab, gemcitabine and oxaliplatin (R-GemOx) from a Greek third-party payer perspective.

Methods

An economic model was developed in Microsoft Excel® to assess the cost effectiveness of tafasitamab vs. relevant comparators for the treatment of patients with DLBCL who are ineligible for transplantation.

The analysis was conducted from the Greek third-party payer perspective (Greek acronymic EOPYY), assuming a lifetime horizon and a 3.5% annual discount rate (costs and benefits).

The cost-effectiveness model (CEM) was designed in accordance with clinical and treatment pathways for patients with R/R DLBCL. A partitioned-survival model was used to assess patient evolution among with three health states: progression-free survival (PFS), progressive disease, and death (Figure 1).

The efficacy inputs for tafasitamab and lenalidomide - including PFS, overall survival (OS), and treatment discontinuation - were taken from the L-MIND study with efficacy data for comparators generated from the Re-MIND 2 study.[7-9] The parametric models adopted in the Greek setting were in consistency with those used in the NICE submission.

Cost was divided in two categories, drug acquisition and drug administration cost. All relevant prices were derived from public sources.[10,11] Utilities were applied to each health state to capture the quality of life (QoL) associated with treatment and disease outcomes. Utility values for PFS, cure and post-progression survival (PPS) were derived from international literature.[12]

The primary outcome of the analysis was the incremental cost-effectiveness ratio (ICER) measured as cost (€) per quality-adjusted life year (QALY) gained. Secondary outcomes were life years (LYs), QALYs gained, incremental costs, and incremental cost per LY gained.

Deterministic and probabilistic sensitivity analyses were conducted to assess the robustness of the results. The probabilistic sensitivity analysis (PSA) for the base case was run for 500 replications.

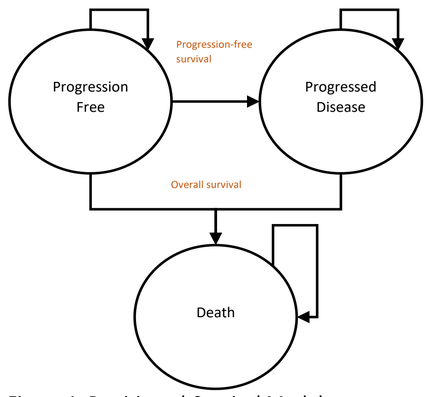

Figure 1. Partitioned-Survival Model structure

Results

Patients receiving the tafasitamab and lenalidomide combination followed by tafasitamab monotherapy gained more QALYs and LYs.

Tafasitamab and lenalidomide combination was associated with a mean increase of 5.02 discounted LYs (6.27 LYs for tafasitamab and lenalidomide vs. 1.25 LYs for Pola-BR) and 3.59 additional discounted QALYs (4.44 QALYs for tafasitamab and lenalidomide vs. 0.85 QALYs for Pola-BR) per patient when compared to treatment with Pola-BR. The ICER of tafasitamab and lenalidomide combination vs. Pola-BR is expected to be € 17,527 per QALY gained.

Tafasitamab and lenalidomide combination was associated with a mean increase of 4.33 discounted LYs (6.27 LYs for tafasitamab and lenalidomide vs. 1.94 LYs for R GemOx) and 3.10 additional discounted QALYs (4.44 QALYs for tafasitamab and lenalidomide vs. 1.34 QALYs for R-GemOx) per patient when compared to treatment with R-GemOx. The ICER of tafasitamab and lenalidomide combination vs. R-GemOx is expected to be € 38,637 per QALY gained.

Tafasitamab and lenalidomide combination is more effective and saves money compared with the tisagenlecleucel (dominant). Treatment with tafasitamab and lenalidomide combination was associated with a mean increase of 3.08 discounted LYs (6.27 LYs for tafasitamab and lenalidomide vs. 3.20 LYs for tisagenlecleucel) and 2.27 additional discounted QALYs (4.44 QALYs for tafasitamab and lenalidomide vs. 2.17 QALYs for tisagenlecleucel) per patient when compared to treatment with tisagenlecleucel.

The value of the tafasitamab and lenalidomide combination is driven by the clinically meaningful and statistically significant improvements in PFS and OS among patients with R/R DLBCL not otherwise specified, including DLBCL arising from low-grade lymphoma, who are not eligible for ASCT.

This increase in survival is achieved while maintaining HRQoL. Discounted results of the base-case deterministic analysis in Greece showed that the tafasitamab and lenalidomide combination yielded longer PFS and OS and was associated with the highest QALYs.

Table 1. Base-case effectiveness

Tafasitamab and lenalidomide combination vs.	Pola-BR	Tisagenlecleucel	R-GemOx
Incremental benefit in LYs	5.02 LYs	3.08 LYs	4.33 LYs
Incremental benefit in QALYs	3.59 QALYs	2.27 QALYs	3.10 QALYs
Incremental costs	€ 62,908	- € 126,471	€ 119,615
ICER (€/LY)	€ 12,524 per LY	dominant	€ 27,631 per LY
ICER (€/QALY)	**€ 17,527 per QALY**	**dominant**	**€ 38,637 per QALY**

Pola-BR: polatuzumab, bendamustine and rituximab; R-GemOx: rituximab, gemcitabine and oxaliplatin; ICER: incremental cost-effectiveness ratio; LYs: life years; QALYs: quality-adjusted life years

Deterministic sensitivity analyses showed that the results are robust in terms of parameter uncertainty. Probabilistic results were located in the North-East quadrant of the cost-effectiveness plane (more costly, more effective) compared with Pola-BR and R-GemOx. Furthermore, the treatment with tafasitamab and lenalidomide combination is more effective and saves money compared with tisagenlecleucel (dominant). The results of the PSA are presented in Table 2 and graphically in Figure 2.

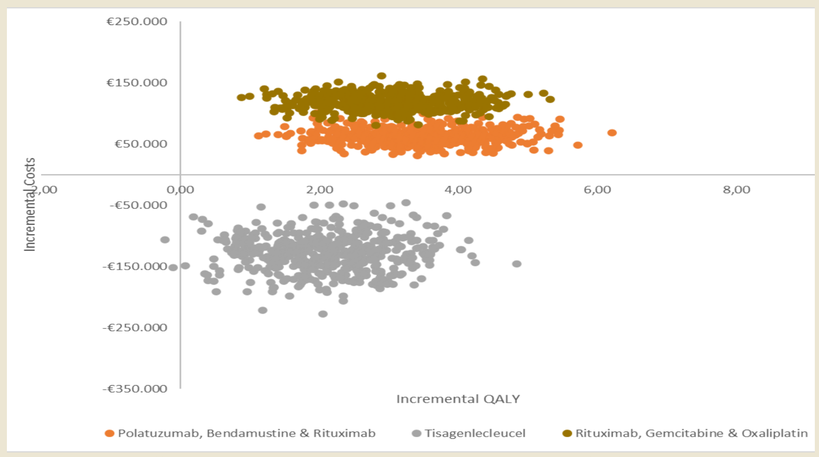

Figure 2. Cost-effectiveness plane: incremental costs and QALYs of tafasitamab and lenalidomide relative to comparators

Table 2. Results of probabilistic sensitivity analysis

Tafasitamab & lenalidomide combination vs.	Pola-BR	Tisagenlecleucel	R-GemOx
Incremental costs	€ 62,719	- € 127,755	€ 118,554
Incremental benefit in QALYs	3.46 QALYs	2.11 QALYs	2.98 QALYs
ICER (€/QALYs)	**€ 18,140 per QALY**	**dominant**	**€ 39,846 per QALY**

Pola-BR: polatuzumab, bendamustine and rituximab; R-GemOx: rituximab, gemcitabine and oxaliplatin; ICER: incremental cost-effectiveness ratio; QALYs: quality-adjusted life years

Conclusions

Tafasitamab and lenalidomide combination followed by tafasitamab monotherapy is projected to be cost-effective or dominant compared with most approved regimens for the treatment of patients with R/R DLBCL not eligible for ASCT in Greece.

Limitations

- The main limitation in the Greek model was that the relative efficacy data for comparators generated from the Re-MIND 2 study, as these data are not available from head-to-head clinical trials. The Re-MIND2 analyses are based on quite a small sample of patients, thus limiting the Pola-BR data and tisagenlecleucel data.[8,9]
- To provide an estimate of the economic value of this combination therapy, it was necessary to extrapolate PFS, OS and time to treatment discontinuation (TTD) to a lifetime time horizon by fitting the observed data with selected parametric models. This choice was validated by clinical experts interviewed in the UK ad board and we assumed it to be similar in Greece.
- There are no country specific utilities. The utilities value was derived from the international literature[12]. These utility data were derived from a trial for tisagenlecleucel therapy - and the patient population in that trial might not be comparable to the L-MIND study.

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