Evaluating the annual cost of progression in CD30+ Cutaneous T-Cell Lymphomas following 2L+ systemic treatment in Italy

POSTER
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Question

What is the annual cost associated with disease progression of CD30+ CTCL following 2L+ treatment with either brentuximab vedotin or methotrexate/ bexarotene in Italy?

Methods

Targeted literature review → Resources and unit costs assessment → Annual cost per patient estimation → Validation and sensitivity analysis

Key take aways

The estimated average annual cost of disease progression was €164,545 for patients progressing after methotrexate/ bexarotene, compared to €75,894 for those progressing after brentuximab vedotin.

The early use of brentuximab vedotin as a 2L+ treatment may lead to cost savings as it allows to incur in lower progression costs.

Background

Cutaneous T-cell lymphomas (CTCL) are a rare form of non-Hodgkin lymphomas that primarily affect T lymphocytes and present with chronic skin lesions.[1] As CTCL are not considered curable, treatment in this setting aims to manage symptoms and slow disease progression.[2] Patients who are refractory to first-line treatments proceed to subsequent lines (2L+) with a combination of skin-directed therapies, biologic response modifiers, and systemic agents. These include brentuximab vedotin, which was reimbursed in Italy in 2019 as 2L+ treatment for CD30+ CTCL patients, based on the positive results of the phase III ALCANZA trial, which demonstrated a significant reduction in disease progression compared to methotrexate or bexarotene.[2,3] In addition to their clinical benefits, the use of effective 2L+ treatments may offer economic advantages, since progressed patients often require third line therapies and extensive disease management, which may lead to high economic costs.[4-6]

Objectives

This study estimates the annual cost associated with disease progression of CD30+ CTCL following 2L+ treatment with either brentuximab vedotin or methotrexate/ bexarotene in Italy, including direct healthcare costs and indirect costs.

Methods

To assess the cost of disease progression in CD30+ CTCL, the following multi-step approach was adopted:

1. First, a targeted literature review was conducted to identify the patient pathway following CD30+ CTCL progression and the main cost categories and cost items pertaining to direct healthcare and indirect costs;
2. Then, resource utilization, annual frequencies of utilization, proportion of patients estimated to utilize each resource and unit costs for each cost item were assessed based on public reports, literature, national tariffs and Italian gazettes. Differences in direct healthcare resource utilization between patients progressing after 2L+ brentuximab vedotin or methotrexate/ bexarotene were evaluated by mapping cost component data to the respective treatment groups, allowing for a comparative assessment of resource use between the two;
3. Lastly, the annual cost per progressed patient following 2L+ treatment with either brentuximab vedotin or methotrexate/ bexarotene was estimated by multiplying the unit cost of each item by its annual frequency and by the proportion of patients estimated to utilize each.

All findings were reviewed and validated through consultation with three Italian clinicians experienced in CTCL management. To test the robustness of estimations, one-way deterministic sensitivity analyses (DSAs) were conducted.

Results

The cost items identified within each category are summarized in Figure 1 and Table 2, while the main results of the analysis are reported in Table 1.

The estimated average annual cost of disease progression was €164,545 for patients progressing after methotrexate/ bexarotene, compared to €75,894 for those progressing after brentuximab vedotin. These results were largely driven by the cost of subsequent treatments, which accounted for 93.9% (€154,483) and 86.7% (€65,830) of total costs, respectively. This difference is primarily due to a higher proportion of patients receiving immunotherapy as subsequent treatment, after progression on methotrexate/ bexarotene.

Within the disease management category, inpatient hospitalizations and blood tests were the main cost drivers, accounting for 38.0% (€1,228) and 27.1% (€876) of total annual healthcare management costs, respectively. Finally, regarding indirect costs, the cost related to a partial or complete loss of productivity by patients accounted for 66.5% of total cost (€ 4,537), while caregivers' productivity losses contributed for the remainder 33.5%. Results from the DSAs showed that the total annual cost per patient between varied by up to -36.3% for methotrexate/ bexarotene and by up to -32.7% for brentuximab vedotin, with both variations observed when applying a 40% confidential discount on the cost of subsequent treatments (Figure 2). Across all DSAs, brentuximab vedotin consistently emerged as a cost-saving alternative, thereby reinforcing the robustness of the base-case results.

Limitations

This study presents some limitations. Firstly, the cost estimates are based on public sources and published literature, which may not fully capture the variability across Italian clinical settings. Nonetheless, all findings were reviewed and validated by three Italian clinicians with expertise in CTCL management, ensuring both clinical relevance and contextual accuracy.

Moreover, the analysis is restricted to an annual time horizon and does not incorporate the potential economic impact of differing efficacy profiles associated with 2L+ systemic treatments.

Despite this, we believe the study offers a meaningful contribution to the existing literature and may represent a starting point for further research.

Conclusions

This study estimates the economic burden associated with disease progression of CD30+ CTCL. Furthermore, it shows that the early use of brentuximab vedotin as a 2L+ treatment may lead to cost savings as it allows to incur in lower progression costs.

Results

Table 1: Annual cost of progression per patient, by treatment arm and cost item

Cost category	Cost item	Progression following	
		Brentuximab vedotin	Methotrexate/ bexarotene
Subsequent treatments	Drug acquisition	€ 65,193	€ 153,639
	Drug administration	€ 637	€ 844
	Category total	**€ 65,830**	**€ 154,483**
Disease management	Hospitalizations	€ 1,228	€ 1,228
	Blood exams	€ 876	€ 876
	Investigations	€ 572	€ 572
	Supplementary treatments	€ 322	€ 322
	Outpatient visits	€ 237	€ 237
	Category total	**€ 3,236**	**€ 3,236**
Productivity losses	Patient	€ 4,537	€ 4,537
	Caregiver	€ 2,290	€ 2,290
	Category total	**€ 6,826**	**€ 6,826**
Total annual cost per patient		**€ 75,894**	**€ 164,545**

Figure 1: Cost items identified

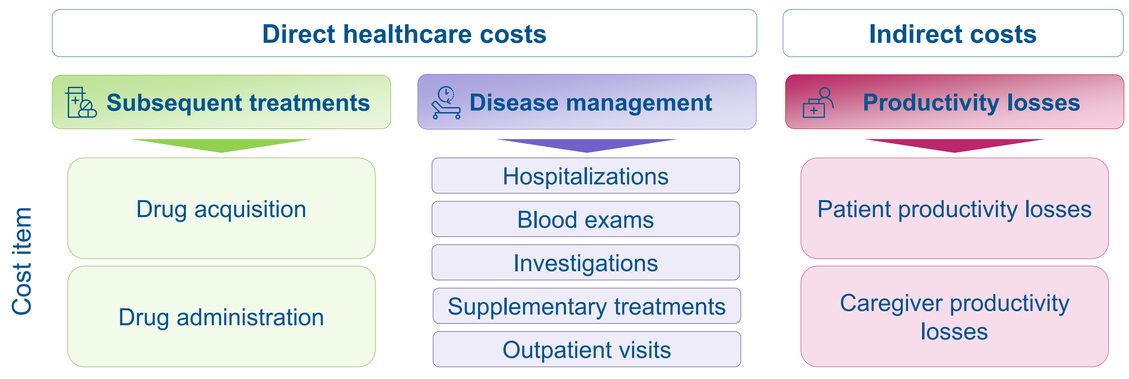
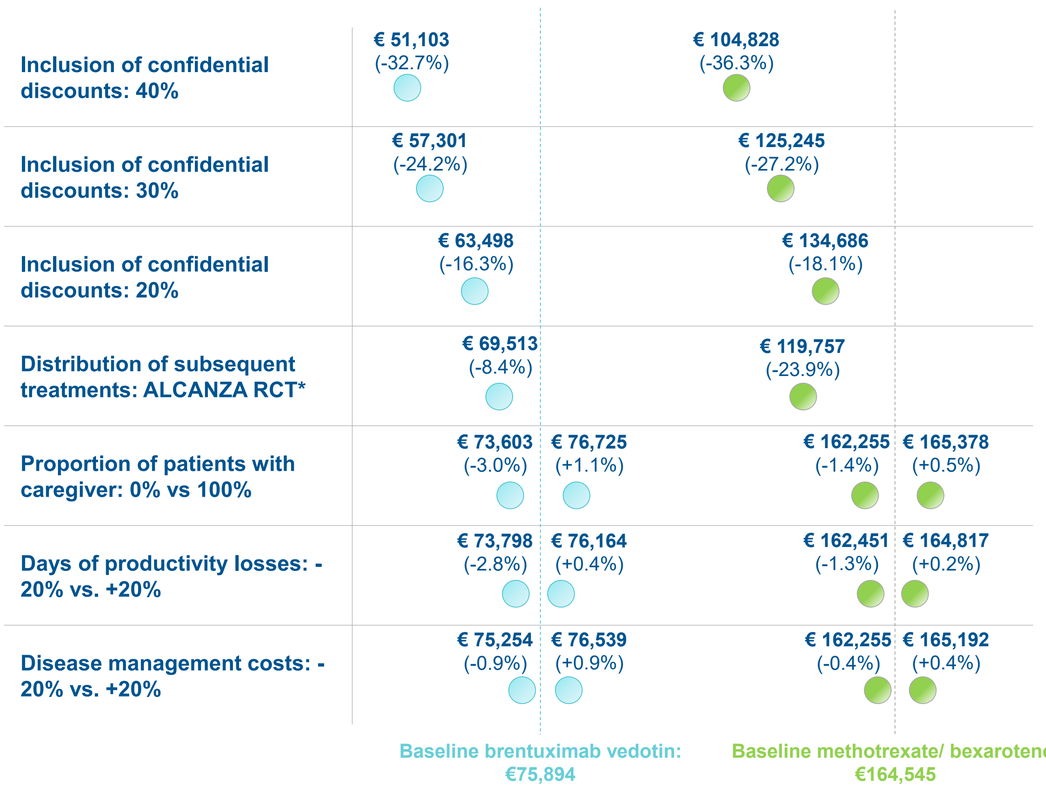


Table 2: Distribution of subsequent treatments per progressed patient

Treatment class	Treatment	Progression following	
		Brentuximab vedotin	Methotrexate/ bexarotene
Skin-directed therapies	Radiotherapy	6.4%	7.6%
	Total skin electron beam irradiation	4.3%	5.1%
	Phototherapy	6.1%	6.0%
	Clobetastol propionate	1.8%	3.3%
	Methylprednisolone aceponate	0.6%	1.2%
	Chlormethine gel	6.1%	6.0%
Systemic therapies	Methotrexate	14.0%	5.8%
	Bexarotene	6.0%	3.5%
	Brentuximab vedotin	12.0%	42.7%
	Mogamulizumab	13.0%	4.2%
	Pegylated interferon alfa-2a	3.3%	1.1%
	Gemcitabine	15.3%	8.9%
	Pegylated liposomal doxorubicine	5.3%	3.1%
	CHOP	3.0%	1.7%
	Acitretine	3.0%	0.0%
Average n. of subsequent treatments per patient		**2.5**	**2.8**

Figure 2: Results of deterministic sensitivity analysis



**In baseline scenarios, distribution of subsequent treatments from ALCANZA RCT has been adjusted based on the feedback of the three Italian clinicians experienced in CTCL management*

References

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Acronyms

2L+ = Second line and beyond; CTCL = Cutaneous T-Cell.Lymphoma; DSA = Discrete Sensitivity Analysis; RCT = Randomizaed Clinical Trial

Disclosures

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