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Cost-effectiveness model of lebrikizumab compared to dupilumab in the treatment of Austrian patients with moderate-to-severe atopic dermatitis

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Almirall, S.A. has licensed the rights to develop and commercialize lebrikizumab for the treatment of dermatology indications, including atopic dermatitis, in Europe. Lilly has exclusive rights for the development and commercialization of lebrikizumab in the United States and the rest of the world outside of Europe.

BACKGROUND & OBJECTIVE

- Atopic dermatitis (AD) is a chronic, relapsing, inflammatory skin disease that affects 20% of children and 2–7% of the adult population worldwide.[1-5]
- Lebrikizumab and dupilumab are monoclonal antibodies approved for treating moderate-to-severe AD. Both agents have demonstrated statistically similar efficacy and safety over the SOLO and ADvocate phase 3 trials.[6,7]
- The objective of this analysis was to carry out an economic analysis comparing lebrikizumab versus dupilumab in Austrian patients with moderate-to-severe AD from the perspective of local social health insurance funds.

CONCLUSION

- Lebrikizumab proved to be economically recommendable compared to dupilumab in a cost saving over dupilumab in lifelong observation in Austrian healthcare setting.

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RESULTS

Lebrikizumab had a cost saving of €2,409 compared to dupilumab in the base-case scenario.

Table 1. Base-case analysis (cost per patient lifelong)

Cost category	Lebrikizumab	Dupilumab	Difference
Drug	€ 83,184	€ 86,576	€ -3,392
Healthcare resources	€ 40,636	€ 40,061	€ 576
Adverse drug reactions	€ 309	€ 362	€ -53
Rescue medication for flares	€ 160	€ 155	€ 5
Concomitant medication	€ 700	€ 244	€ 455
Total costs	**€ 124,989**	**€ 127,397**	**€ -2,409**

- In the base-case, over lifetime horizon, 3% discount rate and combination therapy with topical corticosteroids if needed, lebrikizumab had a cost saving of € 2,409 compared to dupilumab (**Table 1**).

Table 2. Sensitivity analyses (costs and rates within Austrian healthcare system)

		Cost savings with lebrikizumab	Difference to the base-case
Base-case	**+/- %**	**€ 2,409**	**---**
Healthcare costs:	+ 50%	€ 2,262	-6.1%
	- 50%	€ 2,555	+6.1%
Other costs:	+ 50%	€ 2,432	+1.0%
	- 50%	€ 2,385	-1.0%
Discount rate:	+ 5%	€ 985	-59.1%
	0%	€ 5,583	+131.8%

- The cost saving remained in all sensitivity analyses performed. The model had the greatest sensitivity to discounting. With 5% and 0% discount rate, respectively, the cost saving was € 985 and € 5,583 (**Table 2**).

METHODS

- The Austrian model was based on the cost-effectiveness models in AD by NICE appraisal TA814.[8]
- Lebrikizumab proved to be assessed in indirect clinical comparisons as similarly effective and with comparable safety profile to dupilumab.[9,10]
- Since lebrikizumab was found, per indirect comparison, to be as effective as dupilumab in treatment alternatives, a pure cost analysis is carried out in the Austrian model calculation based on the developed cost-effectiveness model.
- Austrian tariffs and prices from January 1, 2024, were used.
  - The health insurance price of lebrikizumab in the model was assumed to be € 2,279.30 per pack of two 250 mg prefilled syringes (€ 1,139.65 per prefilled syringe).
  - For dupilumab, the health insurance price according to the EKO was € 1,152.00 per pack of two 300 mg prefilled syringes (€ 576.00 per prefilled syringe).

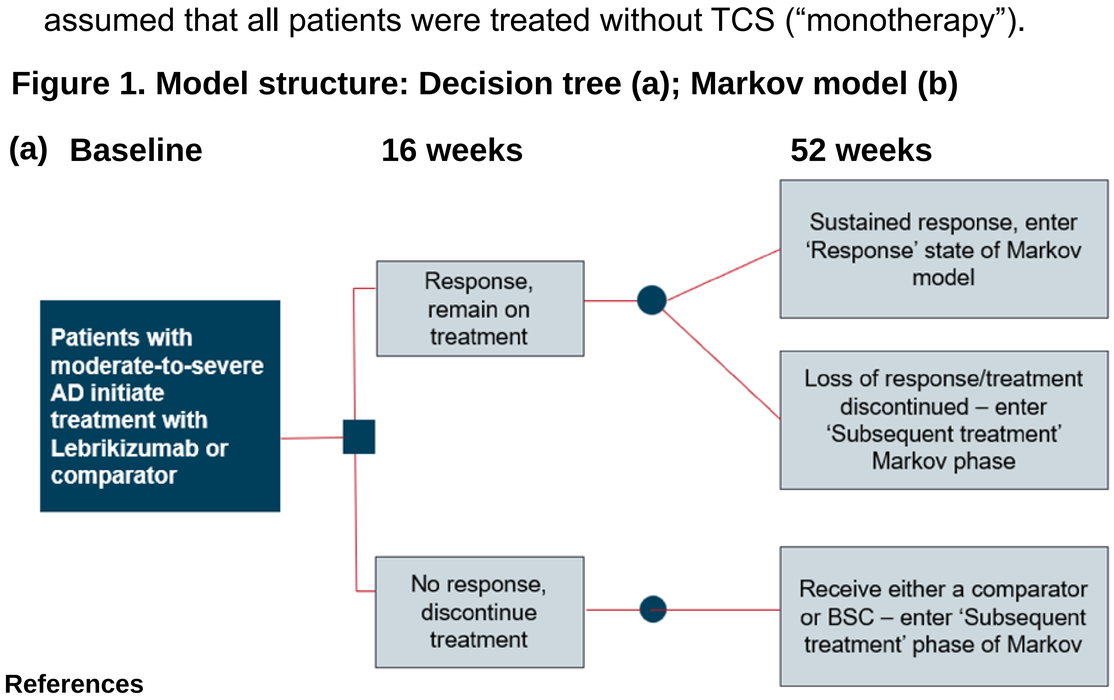
Base-case analysis

- The base-case analysis was based on lifelong modelling (i.e., an average of 25 years), 3% discount rate, and assuming that all patients are treated without topical corticosteroids (TCS).
- The treatment alternatives can be used with or without TCS. The precise proportion of TCS used in AD patients cannot be adequately determined. However, it can be assumed that it is the same for both. In the base-case, it was assumed that all patients were treated without TCS (“monotherapy”).
- The model referred to patients from the age of 12 with a body weight of at least 40 kg, with moderate-to-severe forms of AD, in whom systemic treatments were not sufficiently effective, were not tolerated or were contraindicated.
- For the first year of treatment, it contained a decision tree, with 16-week and 52-week chance nodes; from the second year, a Markov model (**Figure 1**):
  - All patients started first-line treatment with either lebrikizumab or dupilumab and remained on it for 16 weeks (**Figure 1a**).
  - At week 16, response to treatment, defined as ≥50% improvement from baseline in Eczema Area and Severity Index (EASI 50) + ≥4-point reduction in Dermatology Life Quality Index, was checked. Responders remained on treatment up to week 52 and non-responders discontinued treatment and switched to best supportive care (BSC).
  - Between week 16 and week 52, responders could experience a loss of efficacy or discontinue therapy for other reasons, after which they entered the long-term Markov model and the subsequent treatment phase with BSC.
  - From the beginning of the second year, all patients entered the Markov model (**Figure 1b**). As there were insufficient data for partial response at the time of model development, only a distinction between responders and non-responders was made. Patients whose response lasted until the beginning of the second year remained in the “responder” health state until a loss of efficacy occurred, or they discontinued therapy for other reasons (all-cause discontinuation). Patients with loss of efficacy or treatment discontinuation for other reasons switched to the group of non-responders and started therapy with BSC with the subsequent Markov cycle.
  - At any time, patients could enter the health state "death". Since AD is not associated with increased mortality, a general mortality table was used for the probability of death.

Sensitivity analysis

- Sensitivity analysis explored different scenarios of discount rates or costs.

Figure 1. Model structure: Decision tree (a); Markov model (b)



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Abbreviations

AD=atopic dermatitis; BSC=best supportive care; EKO=Local cost code of reimbursement (*Erstattungskodex*); NICE= National Institute for Health and Care Excellence; TCS= topical corticosteroids.

Disclosures

BS has no conflicts of interest to disclose; **LS-F** and **BA** are employees of Almirall.