EE211

Cost-Effectiveness of lebrikizumab compared with other systemic biologics for moderate to severe atopic dermatitis in the UK

Vanessa Buchanan[1], Warda Tahir[1], Bülent Akmaz[2], Laia Solé-Feu[2], Michael Ardern-Jones[3], Anthony Bewley[4]

[1]Cogentia, Cambridge, Cambridgeshire, United Kingdom. [2]Almirall, Barcelona, Spain. [3]University Hospital Southampton, Southampton, United Kingdom. [4]Barts Health NHS Trust & Queen Mary University, London, United Kingdom.

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 (USA) and the rest of the world outside of Europe.

BACKGROUND & OBJECTIVE

- Atopic dermatitis (AD) is a chronic, episodic inflammatory skin disease characterised by pruritic, dry skin and eczematous lesions[1-2].
- In 2024, lebrikizumab was approved by Medicines and Healthcare products Regulatory Agency (MHRA) as a new systemic treatment for AD and recommended by NICE for reimbursement recently. There has been no published evaluation of the cost-effectiveness of lebrikizumab against other available treatment options in the UK to date.
- To evaluate the cost-effectiveness of lebrikizumab monotherapy versus dupilumab and tralokinumab for moderate-to-severe (AD) patients who are unsuitable for, or have not responded to, systemic immunosuppressants from the UK National Health Service (NHS) perspective.

CONCLUSION

- The cost-effectiveness evaluation (CEA) demonstrated lebrikizumab monotherapy is a clinically and economically viable treatment option within the biologics class, adding clear value in the clinically relevant subgroup in the UK setting where ciclosporin is inadequate or unsuitable. Confidential commercial arrangements may further influence net costs for all biologics.

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Results

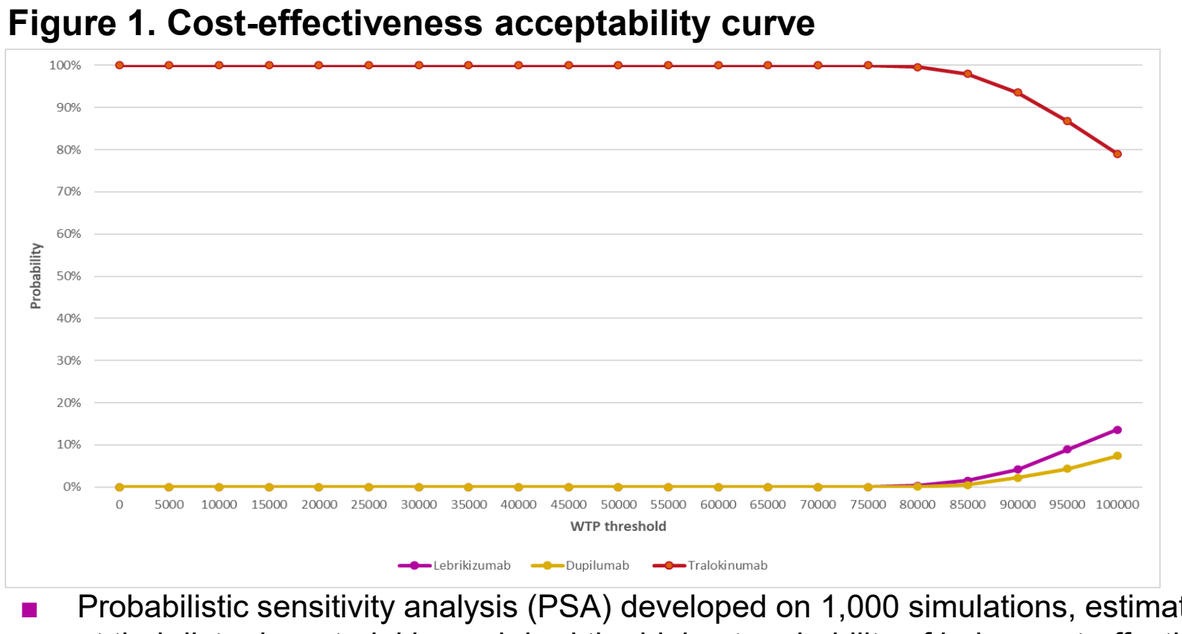
Table 1. Base-case results

	Total costs (£)	Total QALYs	ICER (Lebrikizumab vs. comparator)	NMB* at WTP** of £20,000
Lebrikizumab	£144,018	14.80	-	£152,015
Dupilumab	£147,408	14.83	£120,989	£149,185
Tralokinumab	£119,610	14.60	£123,558	£172,472

*NMB: net monetary benefit; WTP: willingness to pay

- Over a lifetime horizon, the deterministic results show lebrikizumab was associated with total costs of £144,018 and 14.80 QALYs (quality adjusted life years).
- Compared with dupilumab, lebrikizumab resulted in cost savings of £3,390 but a QALY loss of 0.03, yielding an ICER (Incremental Cost-Effectiveness Ratio) of £120,989 per QALY lost. Compared with tralokinumab, lebrikizumab provided a QALY gain of 0.20 at an additional cost of £24,408, resulting in an ICER of £123,558 per QALY gained.
- The differences in QALYs were small and thus even small cost differences have substantial impact on the ICER which should be interpreted cautiously.

Figure 1. Cost-effectiveness acceptability curve



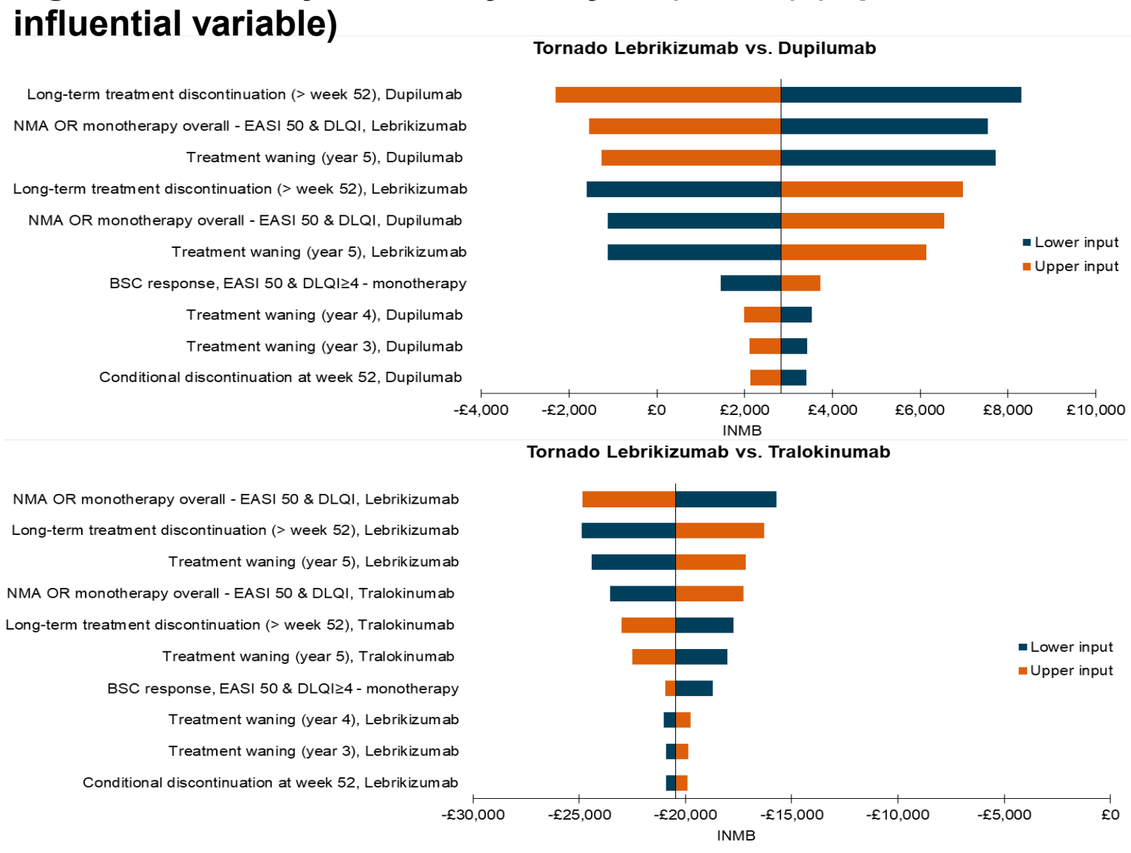
- Probabilistic sensitivity analysis (PSA) developed on 1,000 simulations, estimated at their list prices, tralokinumab had the highest probability of being cost-effective at the generally accepted NICE threshold of £20,000 to £30,000 per QALY.
- Pricing-threshold analysis (Table 2) indicates with plausible commercial arrangements, lebrikizumab can be cost-effective versus tralokinumab in the NHS practice.

Table 2. Threshold analysis results

Technology	ICER at % of lebrikizumab list price		
	90%	80%	70%
Dupilumab	£372,481	£623,973	£875,465
Tralokinumab	£87,882	£52,205	£16,529

- Compared with dupilumab, lebrikizumab was associated with lower costs and slightly fewer QALYs and accordingly, price-threshold analyses show higher ICERs for dupilumab across the evaluated lebrikizumab price scenarios.

Figure 2. One-way sensitivity analysis (OWSA) (top 10 most influential variable)



- OWSA suggested that the relative effects against lebrikizumab, long-term discontinuation rate (>52 weeks), and treatment waning effects had the biggest impact on the INMB against both comparator biologics.
- We tested alternative assumptions for response definition, discontinuation rates, health-state utilities, and prespecified subpopulations. In the clinically relevant subgroup where ciclosporin is inadequate or unsuitable, lebrikizumab achieved the largest QALY gains versus other biologics.

Method

Figure 1: Model structure: decision tree (a); Markov (b)

Model structure

- The model consisted of a decision tree with a one-year horizon (Figure 1a), followed by a Markov model with a life-time horizon (Figure 1b).
- In the decision tree, patients entered the model on initiation. Response and discontinuation rates were evaluated at 16 and 52 weeks. After 52 weeks, patients transitioned to the Markov model, comprising of two phases: 'initial treatment' and 'subsequent treatment', with four health states: response, partial response, non-response and death.
- Response to treatment and discontinuation were based on achieving at least 50% reduction in baseline Eczema Area and Severity Index Score (EASI 50) and a reduction of at least 4 points on the Dermatology Life Quality Index (DLQI ≥ 4).

Base-case Analysis

- The analysis adopted a lifetime time horizon, from the perspective of the NHS in England, with costs and outcomes discounted at 3.5 % per annum.
- Due to a lack of data to inform the proportion of partial responders for all comparators, the partial response health state is not included in the model.
- Patients who maintained response at the end of week 52 remained in the response state of the Markov model until a loss of efficacy or discontinuation for any other reasons. Afterwards, patients transitioned to the non-response state and were assumed to receive best supportive care (BSC) in the base-case.

Model inputs

- Relative efficacy versus comparators was informed by a network meta-analysis (NMA) of EASI 75[3] as a proxy endpoint. Other clinical parameters of interest were informed by Phase 3 trial data for each respective treatment. Health state utility values were informed by EQ-5D data from the Phase 3 lebrikizumab ADvocate 1&2 trials. Resource use was informed by previously published NICE appraisals.

References

1. Brown, S.J., Atopic eczema. Clinical Medicine, 2016. 16(1): p. 66-69.
2. Weidinger, S., et al., Atopic dermatitis. Nat Rev Dis Primers, 2018. 4(1): p. 1.
3. Silverberg, J.I., et al., Lebrikizumab vs Other Systemic Monotherapies for Moderate-to-Severe Atopic Dermatitis: Network Meta-analysis of Efficacy. Dermatol Ther (Heidelb), 2025. 15(3): p. 615-633

Abbreviations: AD=atopic dermatitis; BSC=best supportive care; CEA=cost effectiveness evaluation; ICER=incremental cost-effectiveness ratio; INMB=incremental net monetary benefit; MHRA=Medicines and Healthcare products Regulatory Agency; NHS=National Health Service; NMA=network meta-analysis; NMB=net monetary benefit; ORs=odds ratios; OWSA=one-way sensitivity analysis; PSA=probabilistic sensitivity analysis; QALYs=quality adjusted life years; USA= United States.

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