Budget Impact Analysis of Tralokinumab in Patients with Moderate-To-Severe Atopic Dermatitis in the UK

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BACKGROUND

Tralokinumab is a first-in-class human immunoglobulin G4 monoclonal antibody, indicated for the treatment of signs and symptoms of moderate-to-severe atopic dermatitis (AD).

The license recommends an initial dose of 600mg, followed by 300mg every second week (Q2W).

After initial induction on Q2W dosing, tralokinumab patients who achieve 'clear' or 'almost clear' skin by 16 weeks can be switched to Q4W maintenance dosing at the physician's discretion. The proportion switching to Q4W dosing in clinical practice is not known.

Objective

To assess the potential net budget impact of introducing tralokinumab in the UK healthcare setting, considering the effect of different assumed rates of switching to Q4W maintenance dosing.

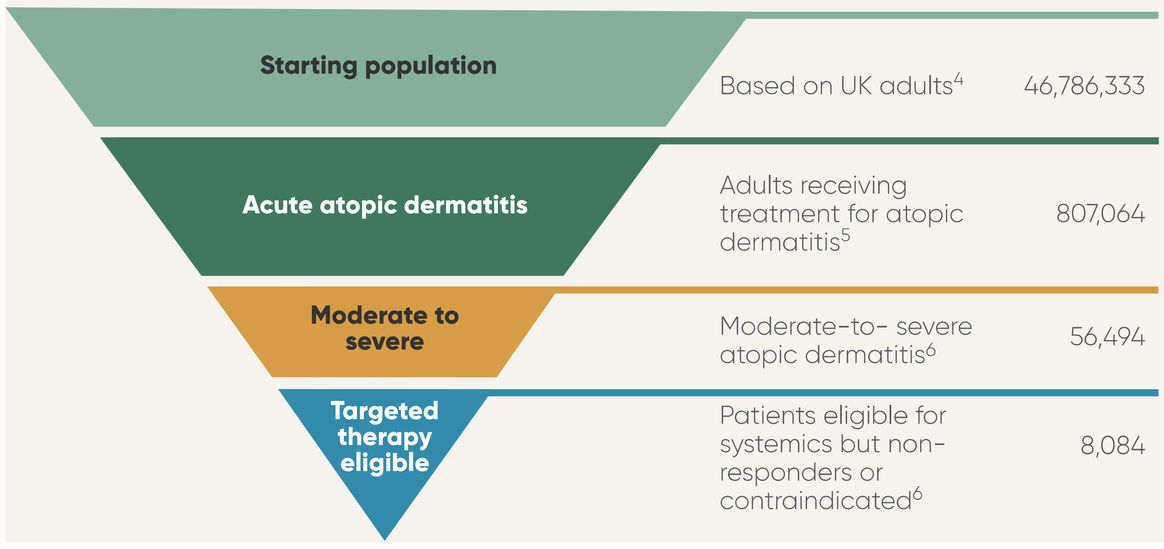
METHODS

Design and population

A five-year budget impact model was constructed in Microsoft Excel modelling the introduction of tralokinumab, compared to a control scenario with no tralokinumab. The setting was the UK National Health Service (NHS).

Target patient numbers were estimated using a mix of incidence and prevalence statistics (shown in Figure 1).[1-3] Tralokinumab is expected to take market share from dupilumab over time. Informed by LEO Pharma assumptions, the model assumed that tralokinumab market share would rise from 21.3% in 2023 to 44.6% in 2027.

Figure 1. Calculation of starting population for model



Cost and dosing inputs

Biologic stopping rules, taken from a UK technology appraisal of dupilumab[3] were applied equally in tralokinumab and control groups. Drug acquisition costs came from UK list prices and SmPCs.[4-6] Monitoring, adverse event and drug administration costs were informed by UK sources.[7,8] Topical corticosteroids (TCS) were assumed to be used equally across all scenarios and thus had no impact on budget.

Switching to Q4W maintenance

After 52 weeks' treatment with Q2W dosing, the model allowed a proportion of tralokinumab patients to switch to Q4W dosing. In a scenario it was assumed that 0% of tralokinumab patients would switch to Q4W dosing. In real clinical practice, some patients might be expected to switch earlier than 52 weeks.

Scenario analyses

We tested the following scenarios relating to tralokinumab dosing and costs:

1. Vary (from 0% through to 50%) proportion of patients switching to Q4W dosing at week 52
2. As above, but allow switching to Q4W at week 16
3. Apply 5% or 10% price discount to tralokinumab
4. Assume price parity between dupilumab and tralokinumab

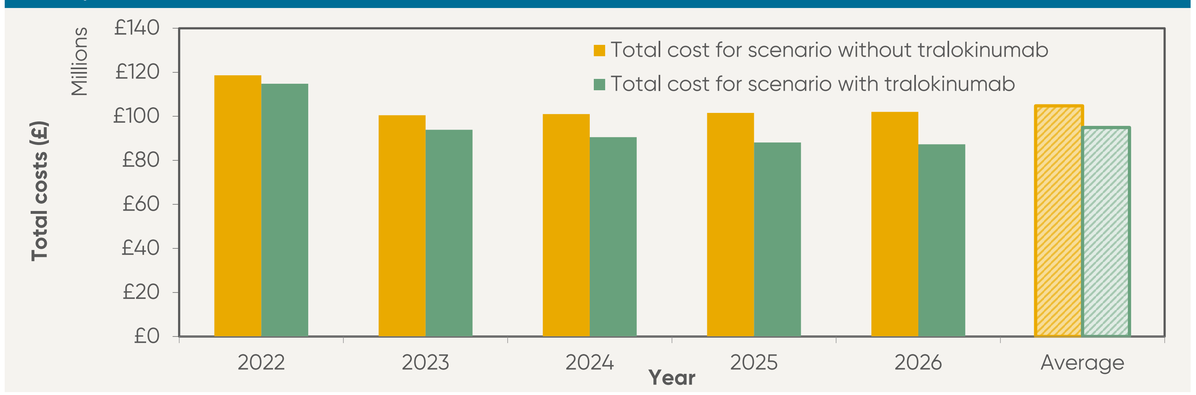
RESULTS

Net budget impact

Figure 2 illustrates that the total UK healthcare cost of managing AD in the target population is decreased following the introduction of tralokinumab, compared to the control scenario where only dupilumab is available.

Tralokinumab was found to decrease the average budget over the time horizon by 9% - a saving of £9,821,579.

Figure 2. Total annual and average budget impact of tralokinumab compared to control scenario



Scenario analyses

Switching to Q4W

Increasing the assumed proportions of patients switching to Q4W maintenance dosing at 52 weeks generated significantly greater reductions in total average budget (as seen in Figure 3).

This association was stronger if switching was allowed to occur earlier, at week 16.

Variation of tralokinumab price

Reducing the tralokinumab list price generated larger net cost savings (see Figure 4). Increasing its price to parity with the published dupilumab list price resulted in smaller savings. Greater savings were observed if higher proportions of patients switched to Q4W maintenance.

Figure 3. Impact on average savings of Q4W dosing switch proportion

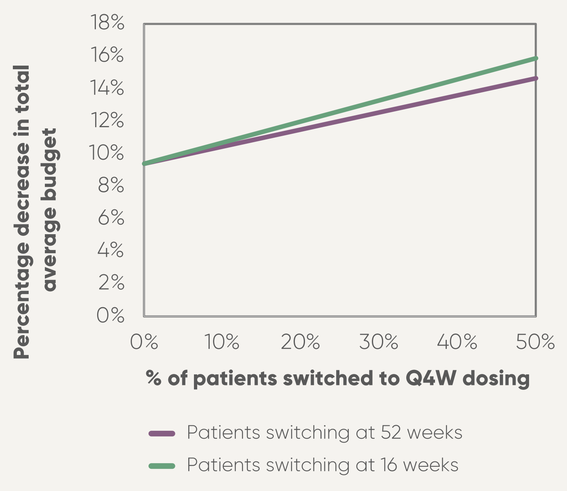
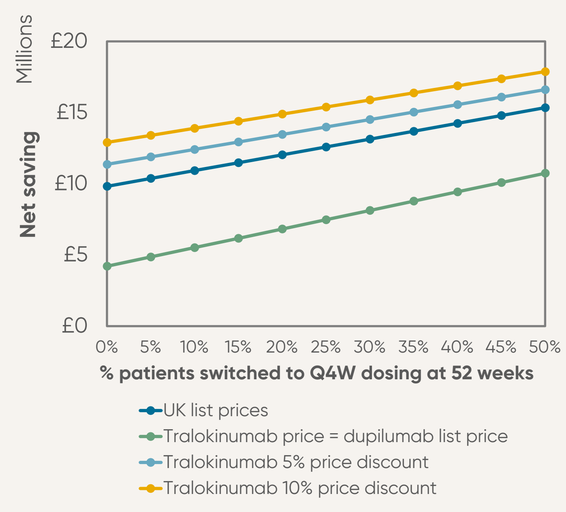


Figure 4. Impact on net savings of proportion switching to Q4W and alternative price points



DISCUSSION

Introduction of tralokinumab in the UK NHS was associated with significant projected budget savings compared to the control scenario. Savings were increased when higher proportions of patients moved, according to label, to Q4W maintenance dosing at 52 weeks or earlier.

Important limitations of the model were:

- Published list prices were used for dupilumab and tralokinumab, however both medications are supplied to the NHS with confidential discounts.
- Real-world proportions and timings of switch to Q4W maintenance for tralokinumab are not known.
- For monitoring costs, a simplifying assumption that all patients were responders was used for consistency across comparators.

CONCLUSION

Across all dosing and pricing scenarios, introducing tralokinumab as a treatment option for patients with moderate-to-severe AD is expected to generate significant annual savings for the UK NHS. Net budget savings can increase if a greater proportion of patients on tralokinumab switch to Q4W maintenance dosing, particularly if switching occurs before 52 weeks.

DISCLOSURES

Medical writing was provided by Symmetron Ltd (London, UK) in accordance with Good Publication Practice (GPP3) guidelines and was funded by LEO Pharma (Ballerup, Denmark). This study was funded by LEO Pharma. ASP, LR, SR are employees of LEO Pharma.

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