DUPILUMB

A Bayesian Network Meta-analysis Comparing the Efficacy of Dupilumab Versus Tralokinumab in Adults with Severe Atopic Dermatitis with Inadequate Response or Intolerance to Cyclosporin A

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BACKGROUND

- Dupilumab was approved by the US Food and Drug Administration (FDA) for the treatment of adults and pediatric patients (≥4 months) with moderate-to-severe atopic dermatitis (AD). The US FDA also approved tralokinumab for treating adults and pediatric patients (≥12 years) with moderate-to-severe AD. Both dupilumab and tralokinumab are indicated for patients with AD who have not responded adequately to topical corticosteroids.
- Both drugs, when combined with topical corticosteroids (TCS), provide sustained symptomatic relief, improve quality of life, and are generally well-tolerated in patients with moderate-to-severe AD.
- Considering the substantial burden of AD in patients, it is imperative for these biologic agents to be clinically efficacious for an effective AD management.
- As there are no head-to-head studies comparing the efficacy of dupilumab/TCS versus tralokinumab/TCS, a network meta-analysis (NMA) can provide useful evidence for judicious treatment selection and making evidence-based healthcare decisions.

METHODS

- This NMA included the following studies:
  - Pooling patients from LIBERTY AD CAFE (NCT0275649; Intention-to-treat patients) and LIBERTY AD CHRONICS (NCT02629696; only the subgroup of patients corresponding to the target population [CHRONIS-CAFE-LIKE]), comparing the efficacy of dupilumab/TCS versus placebo.
  - ECZTRA 7 (NCT03761537), comparing tralokinumab/TCS versus placebo.

Outcomes

- Continuous outcomes: Difference in mean change from baseline (CFB) for Eczema Area and Severity Index (EASI) score, Dermatology Life Quality Index (DLQI), and Itch Numeric Rating Scale (ITCH-ITRS).
- Dichotomous outcomes: Proportion of patients achieving EASI 50, EASI 75, EASI 90, ≥4 point improvement in ITCH-ITRS, and Investigator’s Global Assessment of clear/almost clear skin score (IGA 0/1).

All outcome measures were evaluated at Week 16.

RESULTS

- The number needed to treat (NNT) obtained from the response difference to achieve EASI 50, EASI 75, EASI 90, ≥4 point improvement in ITCH-ITRS, and Investigator’s Global Assessment of clear/almost clear skin score (IGA 0/1) was calculated.
- The three studies included in this NMA were placebo-controlled studies; the network is presented in Figure 1.
- Baseline characteristics were similar between the studies (Table 1).

Table 2. Baseline characteristics of the study population included in the NMA

- Continuous outcomes: Difference in mean CFB for EASI (-0.46 [95% CI: -1.37, -0.54]), ITCH-ITRS (-0.87 [95% CI: -1.67, -0.07]), and DLQI (-1.38 [95% CI: -5.20, -1.56]) were significantly higher for dupilumab/TCS than that for tralokinumab/TCS at Week 16 (Figure 1).

- Dichotomous outcomes: Proportion of patients achieving EASI 50, EASI 75, EASI 90, ≥4 point improvement in ITCH-ITRS, and Investigator’s Global Assessment of clear/almost clear skin score (IGA 0/1) were also assessed.

- All outcome measures were evaluated at Week 16.

CONCLUSIONS

- This NMA suggests that treatment with dupilumab/TCS was associated with significantly more improvements in EASI, ITCH-ITRS, DLQI, and IGA in comparison with tralokinumab/TCS in patients with inadequate response to CsA or AD with inadequate response to Cyclosporin A (CsA) or for whom CsA treatment was medically inadvisable (target patient population).
- Dupilumab/TCS was also associated with lower NNT than tralokinumab/TCS, reinforcing the value of dupilumab as the systemic treatment of choice for adult patients with severe AD.

REFERENCES

- Statistical analysis: This Bayesian NMA was performed using WinBUGS with a fixed-effect model. The analysis was conducted with three chains, 50,000 burn-ins, and 100,000 iterations. The National Institute for Health and Care Excellence (NICE) Decision Support Unit Technical Support Document 2 (DSU TSD2) guidelines were followed for the NMA.
- The effect estimates used for the NMA were odds ratio (OR) for the dichotomous outcomes and difference in mean CFB for the continuous outcomes, with the corresponding 95% credibility interval (CrI).
- The number needed to treat (NNT) obtained from the response difference to achieve EASI 50, EASI 75, EASI 90, ITCH-ITRS, and IGA 0/1 between dupilumab/TCS versus placebo and tralokinumab/TCS versus placebo was also summarized using 95% CrI.

Table 2. NNT for all dichotomous outcomes

- The number needed to treat (NNT) obtained from the response difference to achieve EASI 50, EASI 75, EASI 90, NRS 4, and IGA 0/1 was lower for dupilumab/TCS than that for tralokinumab/TCS (Table 2).

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