Efficacy comparison of targeted systemic monotherapies including lebrikizumab for moderate-to-severe atopic dermatitis: a network meta-analysis

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Introduction: Atopic dermatitis (AD) is a chronic inflammatory skin disease affecting 2–7% of adults globally, with 30% experiencing moderate-to-severe disease. Although several treatments for moderate-to-severe AD are available, the efficacy of many treatments has not been compared in head-to-head trials.
**Objectives:** Using a network meta-analysis (NMA), we evaluated the relative efficacy between lebrikizumab, an emerging biologic, and approved targeted systemic treatments for AD.

**Methods:** Double-blind, randomized, placebo-controlled clinical trials (systemic monotherapy-only) for moderate-to-severe AD in adults (≥18 years) and adolescents (≥12 years to ≤18 years) published before April 2023 were identified in a systematic literature review. Data were extracted for short-term (12–16 weeks) efficacy outcomes (Investigator's Global Assessment [IGA] 0/1 with ≥2-point improvement from baseline and the Eczema Area and Severity Index [EASI]) and patient-reported outcomes (Pruritus Numeric Rating Scale [NRS] with ≥4-point improvement from baseline). Bayesian NMAs were performed using random-effects models, with baseline-risk adjustment. Key estimates from the NMAs included pairwise differences between all treatments and absolute response rates for each treatment.

**Results:** Twenty-two clinical trials were included. For % achieving IGA 0/1, at 12–16 weeks, the estimated response rates (posterior median and 95% credible interval) for each of the treatments were: upadacitinib 30 mg 55.8% (43.7–64.2%), upadacitinib 15 mg 41.3% (30.1–50.0%), abrocitinib 200 mg 39.0% (29.8–47.8%), dupilumab 300 mg 31.8% (23.1–38.7%), lebrikizumab 250 mg 31.4% (24.1–39.2%), abrocitinib 100 mg 24.5% (17.5–32.0%), tralokinumab 300 mg 17.3% (12.8–22.2%), baricitinib 4 mg 16.7% (9.8–25.5%), baricitinib 2 mg 15.5% (9.6–22.0%), and placebo 6.0% (4.3–7.3%). Similar trends were observed for the EASI and pruritus NRS responses at 12–16 weeks.
Conclusions: This 16-week NMA shows that lebrikizumab had a similar response rate to dupilumab, the most widely used targeted systemic therapy for AD, and may represent a valuable treatment option for moderate-to-severe AD.

Keywords: Atopic dermatitis, Lebrikizumab, Network meta-analysis, Targeted systemic therapy.

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