Introduction: Atopic dermatitis is a chronic, relapsing inflammatory skin disease characterized by intense pruritus, excoriations and limited therapies. Dupilumab, a monoclonal antibody against interleukin-4 receptor alpha, is a promising new treatment option for atopic dermatitis.

Objective: We sought to systematically summarize the efficacy, safety, and influence on quality of life of dupilumab for the treatment of moderate-to-severe atopic dermatitis in adults.

Materials and Methods: We searched Pubmed, Embase, and the Cochrane Library for eligible trials. Only double-blinded randomized controlled trials (RCTs) investigating the efficacy and safety of dupilumab in treating moderate-to-severe atopic dermatitis were included in this analysis. We made a comparison of dupilumab with control based on the pooled relative risk (RR), weighted mean difference, and their corresponding 95% confidence intervals of different measurements.

Results: A total of 7 RCTs containing 2705 subjects were identified. Significantly more patients receiving dupilumab (611/1789) achieved Investigator’s Global Assessment response compared with the control (89/916; RR, 3.95; P < 0.001). Dupilumab was significantly more effective in reducing Eczema Area and Severity Index, peak pruritus numerical rating scale score, and body surface area. Treatment duration rather than administration frequency slightly influenced the efficacy. Dupilumab treatment also contributed to marked improvement in patients’ quality of life and psychological symptoms. Incidence of adverse events was similar in dupilumab group and control group.

Conclusions: Dupilumab is effective and safe for the treatment of moderate-to-severe atopic dermatitis in adults. This meta-analysis supports the role of dupilumab as a primary targeted biologic therapy in adult patients with moderate-to-severe atopic dermatitis.