INPLASY

Comparative effectiveness of Dupilumab, Baricitinib, Upadacitinib, and Abrocitinib in treating pediatric atopic dermatitis: A network meta-analysis of randomized controlled trials

INPLASY202440109

doi: 10.37766/inplasy2024.4.0109

Received: 27 April 2024

Published: 27 April 2024

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ADMINISTRATIVE INFORMATION

Support - This study is partially supported by National Science and Technology Council, Taiwan,R.O.C.(NSTC112-2314-B-039-029); China Medical University Hospital (DMR113-043, DMR-113-188).

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202440109

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 April 2024 and was last updated on 27 April 2024.

INTRODUCTION

Review question / Objective The study aims to evaluate systemic therapies' comparative effectiveness and safety, specifically dupilumab, baricitinib, upadacitinib, and abrocitinib, in managing pediatric atopic dermatitis (AD). The analysis is conducted through a network meta-analysis of randomized controlled trials focusing on children and adolescents. This systematic approach seeks to identify the most effective treatment to improve Eczema Area and Severity Index (EASI) scores while assessing the safety profiles of these treatments in the pediatric population. The goal is to inform and enhance treatment strategies for atopic dermatitis in this age group.
P- Pediatric atopic dermatitis (AD)
I- Interventions include systemic treatments for AD (dupilumab, baricitinib, upadacitinib, and abrocitinib)
C- Control or placebo group without intervention.
O- Measured through the Eczema Area and Severity Index (EASI).

Condition being studied The study investigates and contrasts several systemic therapies' effectiveness and safety profiles, including dupilumab. baricitinib, upadacitinib and abrocitinib, compared to a control or placebo. The assessment of these treatments is conducted using the EASI, aiming to address existing gaps in understanding pediatric AD management.

METHODS

Participant or population Pediatric atopic dermatitis.

Intervention Interventions include systemic treatments for AD (dupilumab, baricitinib, upadacitinib, and abrocitinib).

Comparator Control or placebo group without intervention.

Study designs to be included Randomized Controlled Trials (RCTs).

Eligibility criteria (1) Randomized Controlled Trials (RCTs); (2) In children and adolescents aged 2-18 years with moderate to severe AD, participants diagnosed with EASI <50, with the placebo control group recei.

Information sources PubMed, Embase, Web of Science, and the Cochrane Library.

Main outcome(s) The primary outcome of this study was to assess the efficacy of various treatments for eczema in children and adolescents by analyzing a specific statistical measure called the Risk Difference (RD). We concentrated on the enhancement in eczema between week 12 and week 16 after treatment initiation. For example, if we consider two medications, A and B, for eczema treatment: In the group receiving medication A, 80% of children showed improvement in their eczema within 12 to 16 weeks. Conversely, in the group receiving medication B, only 70% experienced improvement. The Risk Difference in this scenario is 10%, indicating that medication A is more effective in improving eczema compared to medication B. By employing such a straightforward metric, we can better grasp the effectiveness of different treatment approaches.

Quality assessment / Risk of bias analysis Following the guidelines outlined in the Cochrane Handbook, we examined potential publication bias in our study. We employed Comprehensive Meta-Analysis software, version 4 (Biostat, Englewood, New Jersey, USA), to generate funnel plots, facilitating comparison of study outcomes with the control group. Additionally, we utilized Egger's regression test, a statistical technique, to quantify the likelihood of publication bias.

Strategy of data synthesis Gathering diverse information, including participant demographics, study design, treatment interventions, and outcome assessments. In cases where essential data were absent from published articles, we reached out directly to the authors to request this vital information. We meticulously carried out data extraction, management, and transformation in accordance with the guidelines outlined in the Cochrane Handbook for Systematic Reviews and other pertinent medical research literature, culminating in the synthesis of the final results.

Subgroup analysis Not applicable.

Sensitivity analysis Sensitivity analysis was performed using the leave-one-out method. This involved systematically excluding one study at a time from the analysis of eczema changes between weeks 12 and 16. Through this process, we assessed the consistency of conclusions, rankings, and the significance of results, considering changes in direction and magnitude.

Country(ies) involved Taiwan.

Keywords pediatric atopic dermatitis, network meta-analysis.

Contributions of each author

Author 1 - SU BOON YONG - Author 1 drafted the manuscript, groupings discuss the context of atopic dermatitis prescriptions.
Email: yongsuboon@gmail.com
Author 2 - Berne TING - The author drafted the manuscript, groupings discussio, helped reach a consensus and complete the selection.
Author 3 - Ikbal Andrian MALAU - The author reviewed the titles and abstracts of the screened articles for relevance.
Author 4 - Suet-Kei WU - The author reviewed the titles and abstracts of the screened articles for relevance.
Author 5 - Xin-Zhi HUANG - The author discussed in the context of atopic dermatitis prescriptions.
Author 6 - Jiu-Yao WANG - The author supervised the update treatment of atopic dermatitis.
Author 7 - Chang-Ching WEI - The author supervised in classification disputes, check the manuscript.
Author 8 - Jing ling LI - The author supervised in classification disputes, check the manuscript.