Cost per Responder in Brazil (EASI-75, EASI90 and ΔNRS ≥4) of biologics and JAK inhibitors Based on a Network-Meta-Analysis of Therapies for Atopic Dermatitis

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Abstract

Background:
Atopic dermatitis (AD) poses a significant global health burden, affecting a substantial percentage of both pediatric and adult populations. Conventional systemic therapies exhibit limited efficacy and undesirable side effects, emphasizing the urgent need for more effective and economically viable treatment options.

Objective:
This study aims to provide an updated analysis of the cost per response ratio for different systemic medications in monotherapy for moderate-to-severe AD, considering the unique Brazilian healthcare context. Additionally, it explores the number of successfully treated patients across various clinically meaningful endpoints.

Methods:
The study includes biological therapies and JAK inhibitors approved by ANVISA up to January 2024. Efficacy was assessed using EASI and pruritus-NRS scores, aligning with HOME’s Core Outcome Set for clinical trials. Costs were calculated based on each specific outcome, considering the factory price with an 18% increment for ICMS. Dosages and costs were derived from prescribing information and network meta-analyses.

Results:
Upadacitinib 15 mg emerged as the most cost-effective therapy for achieving EASI-90, providing a substantial cost reduction compared to other medications (Table 1). All JAK inhibitors demonstrated superior cost per response values for pruritus ΔNRS ≥ 4 compared to dupilumab.

Study limitations:
This analysis was limited to the endpoints presented in the meta-analyses and other endpoints might offer different perspectives results.

Conclusion:
This research contributes valuable insights into the cost-effectiveness of systemic therapies for AD in the Brazilian context. Despite not being obligatory, JAK inhibitors showcase notable cost-efficacy, providing an alternative to biological treatments. Decision-makers should leverage cost-effectiveness analyses for informed resource management and prioritize treatments that maximize clinical benefits and minimize costs.

Table 1
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Cost per unit (R$)</th>
<th>Cost at week 16 (R$)</th>
<th>Cost per response EASI-90 at week 16 (R$)</th>
<th>Cost per response EASI-75 at week 2 (R$)</th>
<th>Cost per response pruritus △NRS ≥ 4 at week 2 (R$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upadacitinib 30 mg daily</td>
<td>R$ 11.468,38</td>
<td>R$ 45.873,52</td>
<td>R$ 78.685,28</td>
<td>R$ 15.862,21</td>
<td>R$ 20.442,75</td>
</tr>
<tr>
<td>Abrocitinib 200 mg daily</td>
<td>R$ 8.283,09</td>
<td>R$ 33.132,36</td>
<td>R$ 73.301,68</td>
<td>R$ 12.842,00</td>
<td>R$ 18.244,69</td>
</tr>
<tr>
<td>Upadacitinib 15 mg daily</td>
<td>R$ 5.734,19</td>
<td>R$ 22.936,76</td>
<td>R$ 52.486,86</td>
<td>R$ 9.588,95</td>
<td>R$ 13.366,41</td>
</tr>
<tr>
<td>Induction, Dupilumab 600 mg, Maintenence 300 mg every 2 weeks</td>
<td>R$ 9.427,57</td>
<td>R$ 47.137,85</td>
<td>R$ 172.666,12</td>
<td>R$ 20.857,46</td>
<td>R$ 27.809,94</td>
</tr>
<tr>
<td>Abrocitinib 100 mg daily</td>
<td>R$ 5.734,19</td>
<td>R$ 22.936,76</td>
<td>R$ 85.584,93</td>
<td>R$ 12.799,53</td>
<td>R$ 18.203,78</td>
</tr>
<tr>
<td>Baricitinib 4 mg daily</td>
<td>R$ 5.734,22</td>
<td>R$ 22.936,88</td>
<td>R$ 91.747,52</td>
<td>R$ 16.017,37</td>
<td>R$ 18.557,35</td>
</tr>
</tbody>
</table>

Costs per response. EASI eczema area and severity index, EASI-75 EASI improvement of 75% from baseline, EASI-90 EASI improvement of 90% from baseline. Pruritus △NRS ≥ 4 (at least 4 points of improvement on the pruritus numeric rating scale from baseline).

References:


Disclosures:

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Author’s contribution: Guilherme Muzy - Approval of the final version of the manuscript, critical literature review, data collection, analysis and interpretation, effective participation in research orientation, intellectual participation in propaedeutic and/or therapeutic management of studied cases, manuscript critical review, preparation and writing of the manuscript, statistical analysis and study conception and planning.

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