

Evaluation of biologic therapies for the treatment of moderate-to-severe plaque psoriasis in the brazilian private healthcare system: a Cost Per Responder (CPR) and Treatment Cost Analysis

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Introduction: Psoriasis is a chronic, immune-mediated inflammatory skin disease presenting with localized or generalized erythematous, sharply demarcated plaques covered with whitish or silvery scales in a symmetrical distribution. Moderate-to-severe plaque psoriasis in Brazil are usually treated with synthetic systemic drugs, and only patients who do not respond to these therapies or are intolerant to them may be eligible for treatment with biologic agents. These agents are significantly more costly than most synthetic alternatives and, therefore rational resource allocation is necessary to guarantee coverage across the country. Comparative efficacy assessments are usually obtained from network meta-analyses (NMA) and are useful in clinical decision-making. These NMA allow the calculation of the number needed to treat (NNT) which is an easier-to-understand concept for clinicians and decision makers and is the number of patients needed to be treated with a specific therapy to achieve one particular outcome.

Objectives: The objective of this study is to determine the efficacy of different biological therapies available in Brazil for the treatment of moderate-to-severe plaque psoriasis in terms of cost per responder (CPR) for the different levels of Psoriasis Area Severity Index (PASI) response. The treatment cost for 1 and 2 years of therapy were also calculated.

Methods: A NMA by Núñez et al (2018) presented the data that was used to estimate the CPR of adalimumab, etanercept, infliximab, ixekizumab, secukinumab and ustekinumab. NNT was calculated relative to the placebo response for the outcomes of PASI score reduction of $\geq 75\%$, $\geq 90\%$ or 100% (Table 1). In order to estimate treatment costs for year 1 and 2, the number of doses and unit prices were considered. Since the time horizon of this analysis was 1 year, only treatment costs in the first year (R\$, Brazilian currency) were considered for CPR estimation (Table 2), using as reference the Brasíndice pharmaceutical guide (wholesale prices plus 18% taxes (Table 3)). The number of doses used in the analyses for each of the products was based on the current product labels in Brazil.

Results: Ixekizumab had the lowest NNT (1.18 for PASI-75, 1.41 for PASI-90 and 2.46 for PASI-100) and the lowest CPR for PASI-90 and PASI-100 (R\$ 126.364 and R\$ 220.464, respectively).

Conclusion: For PASI-90 and PASI-100 responses, ixekizumab is the most cost-efficient therapy for moderate-to-severe plaque psoriasis in the first year in the Brazilian private healthcare system, presenting the lowest NNT and CPR.