Calcipotriene plus betamethasone dipropionate (0.005%/0.064%) foam vs halobetasol propionate and tazarotene (0.01%/0.045%) lotion: matching-adjusted indirect comparison & US cost-per-responder analysis

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Introduction

- Fixed-combination topical treatments for plaque psoriasis provide treatment advantages via a dual mechanism of action. The combination of active pharmacological ingredients (API), skin penetration, bioavailability of APIs, and formulation can impact clinical efficacy.
- Additionally, adherence is impacted by length of therapy and vehicle acceptability. In the absence of head-to-head trials, a comparison of relative effectiveness between fixed-combination topical treatments is pertinent.
- Calcipotriene and betamethasone dipropionate (0.005%/0.064%, Cal/BD foam) is a fixed-combination, once-daily topical treatment of plaque psoriasis in patients 12 years of age and older.1
- Halobetasol propionate and tazarotene (0.01%/0.045%, HP/TAZ) lotion is a fixed-combination, once-daily topical treatment of plaque psoriasis in adults.2

Objective

Conduct an anchored matching-adjusted indirect comparison (MAIC) and incremental cost per responder (ICPR) analysis using individual patient data from Cal/BD foam studies and aggregate patient characteristics and outcomes from published efficacy assessments of HP/TAZ lotion in adult patients with moderate-to-severe plaque psoriasis.

Methods

Study Selection

- Published clinical trials with sufficiently similar populations and outcomes to support indirect comparisons were identified for Cal/BD foam and HP/TAZ lotion (Figure 1).
- Comparative studies were excluded for the following reasons: the sample size included fewer than 40 patients (this exclusion was stipulated to preserve adequate statistical power); treatment efficacy was not measured, or time points of efficacy measurements were not specified; baseline characteristics were not reported; and the mean baseline Psoriasis Area and Severity Index (PASI) or body surface area (BSA) were greater than 15.

Study Design

- MAIC use individual patient data (IPD) from trials of one treatment to match baseline summary statistics reported from trials of another treatment to compare treatment outcomes across a balanced patient population.3
- Baseline characteristics for matching were selected based on clinical input and by forward selection using a logistic model, with the relevant end point (ie, treatment success) as the dependent variable and selection entry criteria, p<0.2.
- Available baseline variables for matching included disease severity (PGA, BSA), quality of life, demographics, duration of psoriasis, body mass index, and history of topical treatment (Table 1).
- MAIC analysis was conducted between Cal/BD foam and HP/TAZ lotion, number-needed-to-treat (NNT) was conducted between active treatment and respective vehicle, and associated pharmacoeconomic evaluation through US incremental cost per responder analysis (ICPR).

Results

- After reweighting of patients and anchoring to vehicle effect, significantly more Cal/BD foam patients demonstrated greater difference in treatment success relative to vehicle after 4 weeks than did HP/TAZ lotion patients after 8 weeks (51.4% vs 30.7%; treatment difference=20.7%; P<0.001) (Table 2).
- The number needed to treat (NNT) relative to vehicle with Cal/BD foam was also less than HP/TAZ lotion (19 vs 3.3).

- Incremental cost per responder analysis was based on the FDA Prescribing Information1,2 and anchored MAIC analysis using US Wholesale Acquisition Cost (MAC) drug pricing from June 2019 (Analysource®).
- Cost per treatment period was calculated by multiplying the per gram drug MAC with the average consumption of study drug over treatment period of 4 weeks and 8 weeks, respectively, assuming equal weekly consumption rates.
- The estimated incremental cost per responder (ICPR) was calculated by multiplying the NNT by the overall drug costs throughout the treatment period and corresponds to the additional cost to achieve 1 additional responder for each of the treatments vs vehicle (Table 3).
- The incremental cost per PGA 0/1 responder relative to vehicle for Cal/BD foam was $3988 and is 37% lower compared with HP/TAZ lotion ($6294) (Figure 2).

Limitations

- Observed (e.g. patient randomization) and unobserved (e.g. vehicle) cross-trial differences may not be accounted for in the analysis.
- Comparative safety analyses and associated economic impact were not conducted.
- WAC prices do not reflect manufacturer rebates, are not reflective of actual spend, and are dated June 2019.
- Time to response difference between Cal/BD foam (4 weeks) and HP/TAZ lotion (8 weeks).
- Imbalance in sample size exists due to applicable publications on comparator, and may not be fully addressed by methodology.
- Analyses based on clinical trials may not be generalizable to the real world.
- Additional head-to-head research should be conducted to confirm these comparative effectiveness findings.

Conclusions

- This analysis used an anchored MAIC to balance baseline characteristics of study populations in an indirect, comparative effectiveness evaluation of two fixed-combination topical treatments for plaque psoriasis.
- Evaluation demonstrates that Cal/BD foam treatment has statistically greater difference in PGA 0/1 response rates, a lower cost per PGA 0/1 responder, and quicker treatment response than HP/TAZ lotion in adult patients with moderate-to-severe plaque psoriasis.

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References

8. Analysource®, DMID America; accessed June 2019

Disclosures

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