Economic Analysis of Dupilumab and Omalizumab Use in Patients with Chronic Rhinosinusitis with Nasal Polyps in Colombia

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INTRODUCTION

Chronic rhinosinusitis with nasal polyps (CRSwNP) is a chronic inflammatory disease of the nasal cavity and paranasal associated with a high treatment and symptoms burden[1,2,3,4]. Evidence suggests that after the initial surgery, polyps tend to recur, often in severe CRSwNP. Treatment with Dupilumab significantly improves clinical and patient-reported outcomes[5].

OBJECTIVE

This study aims to estimate and compare the cost per responder using existing biologic therapies for the treatment of CRSwNP in Colombia.

METHODS

- A cost-analysis model was developed using an indirect treatment comparison between dupilumab and omalizumab.
- The outcome of interest was the cost per responder in patients with NPS>2 improvement for a 1-year time horizon (under the assumption that individuals with response at week 24, keep on treatment for a year).
- Annual drug acquisition, revision surgery, and treatment of adverse events (AE) costs were included in the analysis.
- Discontinuation rule (treatment discontinuation) was applied based on response rates for dupilumab and omalizumab at week 24.
- Costs and clinical data for AE and surgery were extracted from published literature.[6]
- The analysis was developed as a simulation for a population of 100 patients with CRSwNP with prior surgery without response, initiating biologic therapy from the healthcare system perspective.
- All costs are expressed in 2022 USD$ using an exchange rate of COP$4,700 per USD$1.

POSTER HIGHLIGHT: Patients who respond to biologic therapy with Dupilumab may show better health outcomes at a lower long-term cost per responder by controlling the disease and decreasing the risk of recurrences and future health system utilization vs. Omalizumab.

Table 1. Effectiveness Inputs Summary

Outcome	Proportion (%)	Source
Dupilumab NPS>2 Response Week 24	46.10%	Peters et al., 2021
Omalizumab NPS>2 Response Week 24	7.10%	

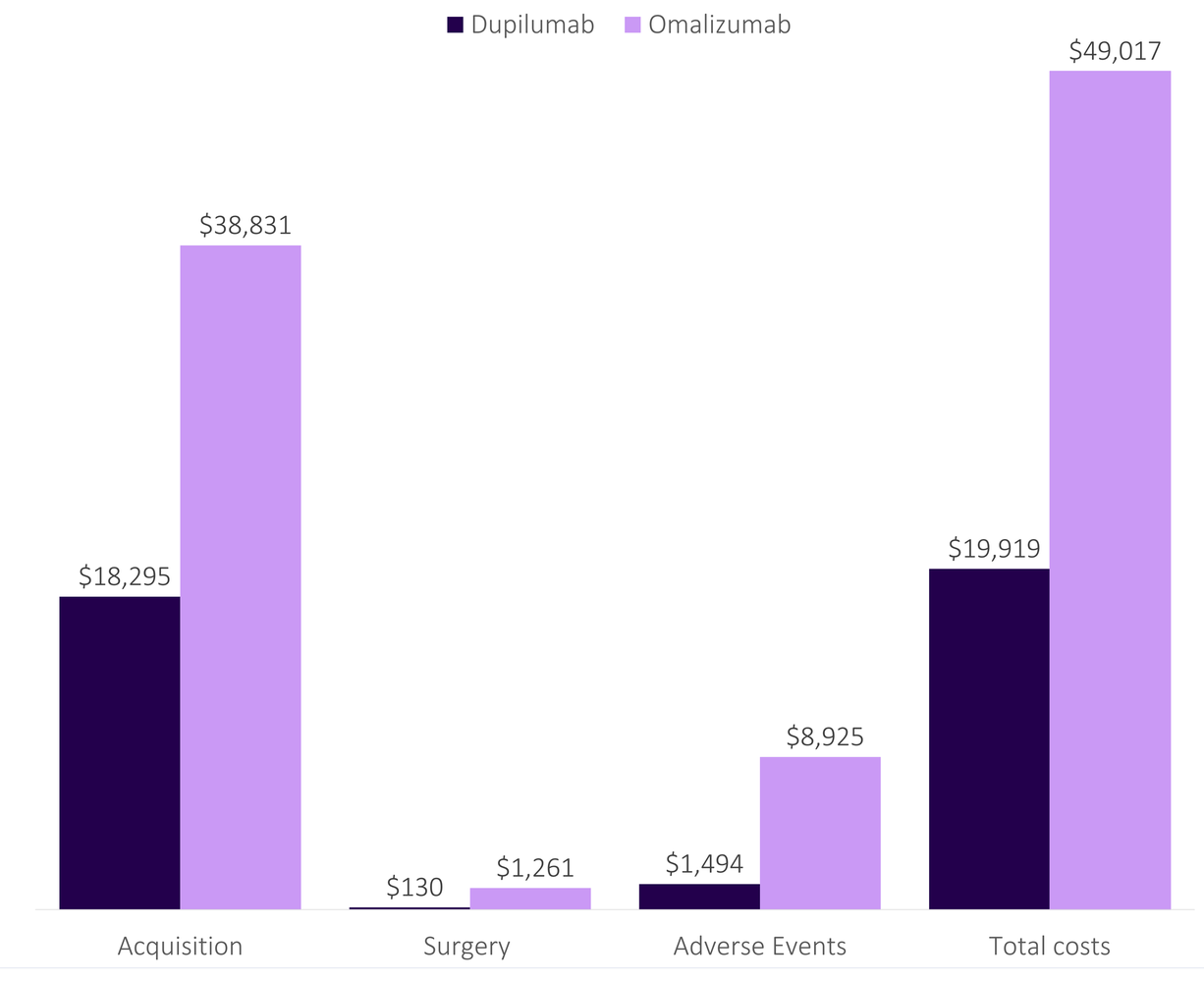
Table 2. Adverse Events

Event	Dupilumab	Omalizumab	Source
Nasopharyngitis	27.50%	23.50%	Peters et al., 2021
Headache	9.20%	15.80%	
Epistaxis	10.60%	12.60%	
Injection reaction	6.00%	5.20%	
Asthma	5.80%	7.90%	

Table 3. Total costs

Item	Dupilumab	Omalizumab	Difference
Acquisition costs	$843,387	$275,699	$567,687
Surgery costs	$6,004	$8,953	-$2,948
Adverse events	$68,888	$63,369	$5,518
Total costs	$918,280	$348,022	$570,258

Figure 1. Total costs per Responder



RESULTS

- A higher response rate was estimated with dupilumab than omalizumab (46.1% vs. 7.1%) (Table 1).
- Drug acquisition cost of dupilumab was higher than omalizumab ($843,387 vs. $272,686) (Table 3).
- Total surgery costs for dupilumab were lower than omalizumab ($6,004 vs $8,953) (Table 3).
- The cost per responder driven by the difference in effectiveness in NPS>2 between dupilumab and omalizumab results in a 59.4% lower cost for dupilumab ($19,919 vs. $49,017) (Figure 1).
- Acquisition costs per responder for dupilumab were 53% lower than Omalizumab ($18,295 vs $38,831) (Figure 1).
- The costs associated with AE per responder for dupilumab were 83% lower than omalizumab ($1,494 vs. $8,925) (Figure 1).

CONCLUSIONS

Results suggest that treating CRSwNP patients with dupilumab is a potentially less costly alternative to omalizumab, considering the cost-per-responder achieving NPS > 2 in those patients, suggesting better value for money in Colombia over a one-year time horizon.

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