

Regional disparities in cost-effectiveness of biologics for CRSwNP warrant tailored treatment strategies*

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We read with great interest the recent study by Fieux et al. ⁽¹⁾, which developed an evaluation model based on clinical practices, public health insurance, and private insurance systems in France. Through rigorous cost-effectiveness analysis, the authors concluded that initiating biologic therapy in patients with chronic rhinosinusitis with nasal polyps (CRSwNP) without previous endoscopic sinus surgery (ESS) imposes excessive economic burdens. This finding aligns with the current guideline regarding the indications for biological treatment in CRSwNP, which reserves biologics primarily for patients with prior ESS history. However, this conclusion may not be generalizable to regions with markedly different drug pricing and healthcare policies. Recent Chinese position paper recommends biologics for eligible CRSwNP patients based on nasal polyp score (NPS), symptom scores, and type 2 inflammation characteristics, irrespective of prior ESS ⁽²⁾. A key rationale for this recommendation is the substantial pricing advantage of biologics in the market of China. Dupilumab is currently approved in China for atopic dermatitis (AD), prurigo nodularis, asthma, and chronic obstructive pulmonary disease, though not yet for CRSwNP. The monthly treatment cost of dupilumab in China (€371) is substantially lower than in France (€1333), reflecting a 72% reduction. Mepolizumab, approved in China for eosinophilic granulomatosis with polyangiitis, asthma, and CRSwNP, costs approximately €354 per month in China versus €947 in France, representing a 63% reduction. Stapokibart, a newly approved anti-IL-4Rα monoclonal antibody for CRSwNP, AD, and seasonal allergic rhinitis in China, is priced at €446 per month. These substantial cost differences fundamentally reshape the cost-effectiveness landscape and suggest that biologics may be a more affordable treatment option in China. Fieux et al. proposed that a 50% price reduction in biologics would still retain surgery's cost advantage in France ⁽¹⁾, the decision-making may differ in China. Notably, while the price of biologics in China is 60 - 70% lower than in France, the direct surgical costs remain comparable between the

two countries (€1856 in China vs. €1916 in France). Efficacy comparisons also provide crucial evidence for clinical use of biologics. In the SINUS 24 and SINUS 52 studies, dupilumab achieved a response rate of 65% and 62% for an NPS improvement of ≥ 1 at week 24 ⁽³⁾. In the SYNAPSE study, this response rate for mepolizumab was 50% at week 52 ⁽⁴⁾. While, in the CROWNS-1 study, stapokibart demonstrated a high NPS response rate of 79% at week 16 in patients with eosinophilic CRSwNP ⁽⁵⁾. Furthermore, meta-analysis of real-world studies suggests that biologics outperform results from randomised controlled trials ⁽⁶⁾. Biologics not only alleviated key symptoms like smell loss but also markedly improved quality of life. Meta-analytic evidence further supports their superior efficacy in restoring olfaction ⁽⁷⁾. Despite providing rapid symptom relief via polyp resection, ESS remains limited in restoring olfactory function and achieving long-term disease control in type 2 CRSwNP. In contrast to the high recurrence rate after surgery in patients with type 2 CRSwNP, biologics might offer superior efficacy in this setting. Biomarkers, such as tissue eosinophil counts ≥ 55 /high-power field or $\geq 27\%$ by percentage, and peripheral blood eosinophil percentages $\geq 6.9\%$ (non-asthmatic) or $\geq 3.7\%$ (asthmatic), could accurately predict post-surgical recurrence ^(8,9). In patients meeting these high-risk criteria (indicating type 2 inflammation), biologics have demonstrated favorable outcomes. Given the significantly lower prices of biologics in China, initiating biologics as a first-line treatment for such high-risk patients may be both clinically justified and economically advantageous, potentially avoiding costly surgical interventions. A multidimensional comparison between surgical and biologic treatments for CRSwNP represents a compelling topic. Substantial regional variations in biologic pricing necessitate region-specific treatment strategies to guide clinical decision-making.

List of abbreviations

CRSwNP: chronic rhinosinusitis with nasal polyps; ESS: endosco-

pic sinus surgery; NPS: nasal polyp score; AD: atopic dermatitis.

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MX: Conception, drafting, and critical revision. CW: Conception, drafting, and critical revision. LZ: Conception, supervision, validation, and final approval

Conflict of interest

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