EE166

Cost Effectiveness and Budget Impact Analysis of Benralizumab for Treating Severe Uncontrolled Eosinophilic Asthma in Egypt

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Objective

Assesses the cost-effectiveness and budget impact of introducing Benralizumab, a humanized monoclonal antibody targeting eosinophils, in the treatment of adult patients with severe eosinophilic asthma from the Egyptian national payer perspective.

Methods

A validated Markov state-transition model was adapted to evaluate the cost and clinical outcomes of Benralizumab as an add-on to standard of care (SOC) compared to SOC alone in adults with severe eosinophilic asthma, over a lifetime horizon. Clinical inputs were sourced from three Phase III Benralizumab trials: SIROCCO [1], CALIMA [2], and ZONDA [3]. Direct medical costs were estimated from a national payer perspective, based on data from the 2025 financial year. Costs and health outcomes were discounted at an annual rate of 3.5%. Both deterministic and probabilistic sensitivity analyses were performed to assess model robustness. A Budget Impact Model (BIM) was also developed.

Results

From the Egyptian national payer perspective, Benralizumab 30 mg/mL injection was highly cost effective versus standard of care, at incremental QALY gain of 1.2 and incremental total cost of EGP 401,030 EGP ($ 8,102) with incremental cost-effectiveness ratio (ICER) of EGP 334,301 ($ 6,754)/QALY over a life-time time horizon upon applying a willingness to pay threshold of 518,027 EGP ($10,465) per QALY The budget impact of Benralizumab per patient per month (PPPM) was 6,972 EGP ($ 140.85).

Conclusion

The analyses indicates that Benralizumab is a cost-effective treatment option for patients with severe eosinophilic asthma compared to standard of care, from the perspective of the Egyptian national payer. Benralizumab was associated with improved clinical outcomes, including reductions in annual exacerbation rates and OCS-related adverse events. While the addition of Benralizumab increases treatment costs, these are partially offset by savings from reduced exacerbation and OCS-related complication costs.