Zanubrutinib versus Ibrutinib to Treat Adults with Waldenström Macroglobulinemia: A Cost per Response Model from a Payer Perspective in the United States

Background:

Bruton tyrosine kinase (BTK) inhibition is an effective treatment approach for patients with Waldenström macroglobulinemia (WM). The phase 3 ASPEN study (NCT03053440) compared the efficacy and safety of ibrutinib, a first-generation BTK inhibitor, with zanubrutinib, a novel highly selective BTK inhibitor, in patients with WM.

Objective:

To estimate the cost per response (CPR) for zanubrutinib versus ibrutinib in treatment-naive or relapsed/refractory WM patients from a payer perspective in the United States.

Methods:

An Excel-based model was developed to estimate the CPR of zanubrutinib versus ibrutinib over a 1-year time horizon. Clinical response was based on the primary end point of investigator-assessed very good partial response rate (VGPR) from the ASPEN trial. The median time to progression was not reached for either treatment arm in the first 12 months, and so it was assumed in the model that treatment duration was 12 months for both treatment arms. Probabilities for the following Grade ≥ 3 adverse events were extracted from the ASPEN trial and included in this model: atrial fibrillation, major bleeding, hypertension, upper respiratory tract infection, and neutropenia. Costs (2020 USD) of drug acquisition and adverse events were obtained from the RED BOOK and Healthcare Cost and Utilization Project, respectively.

Results:

Among modeled ibrutinib patients, the total direct medical cost per patient was $167,924 (drug acquisition: $163,765; adverse events: $4,159; CPR: $883,808). The total direct medical cost per modeled zanubrutinib patient was $152,348 (drug acquisition: $148,077; adverse events: $4,271; CPR: $544,100). Thus, zanubrutinib was associated with lower direct medical costs (-$15,575 per patient) and lower CPR (-$339,708). A breakeven analysis indicated that the 30-day wholesale acquisition cost of ibrutinib would need to be reduced by 39% (i.e., $13,926 to $8,437) in order for the difference in CPR to be $0. Sensitivity analysis indicates the significant drivers of modeled outcomes included drug acquisition cost and the cost associated with neutropenia.

Conclusions:

In adult patients with treatment-naive or relapsed/refractory WM, zanubrutinib represents a cost-saving option to achieve clinical response, with a lower cost per response compared to ibrutinib from a payer perspective in the United States.