

Cost-Minimization Analysis (CMA) of Bruton Tyrosine Kinase Inhibitors (BTKis) in Adults with Relapsed/Refractory (R/R) Chronic Lymphocytic Leukemia (CLL)

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Objectives: Zanubrutinib, a second-generation BTKi, demonstrated clinical superiority against ibrutinib, a first-generation BTKi, in the ALPINE trial (NCT03734016) for the treatment of adults with R/R CLL (progression-free survival [PFS] hazard ratio, 0.65; 95% CI, 0.49-0.86; $P=$.002). A CMA was conducted to characterize the costs associated with BTKi monotherapies (zanubrutinib, acalabrutinib, and ibrutinib) for the treatment of adults with R/R CLL.

Methods: The CMA was performed using a 3-health-state (progression free, progressive disease, death) partitioned survival model with a United Kingdom National Health Service payer perspective. In line with the CMA assumptions, PFS and overall survival were conservatively equalized across all treatments, and it was assumed that all treatments were given until progression. Adverse event (AE) incidence was informed by the ALPINE (zanubrutinib and ibrutinib) and ASCEND (NCT02970318, acalabrutinib) trials. Only drug acquisition and AE costs (first 28-day cycle only) were considered, with all other costs assumed equal between treatments. Inputs were inflated to a 2022 cost year, and costs were discounted at 3.0% per annum.

Results: Over a lifetime horizon, treatment with zanubrutinib in adults with R/R CLL was associated with cost savings of £7,802 per person versus acalabrutinib and an incremental cost of £19,677 per person versus ibrutinib. Treatment with acalabrutinib was associated with an incremental cost of £27,478 per person versus ibrutinib. Difference in treatment acquisition costs was the key reason for the cost differential between treatments. Zanubrutinib was associated with fewer AE management costs compared with acalabrutinib and ibrutinib, due to an improved safety profile.

Conclusion: Under this CMA approach, zanubrutinib was less costly than another second-generation BTKi, acalabrutinib. Zanubrutinib was slightly more costly than the first-generation BTKi, ibrutinib. Further exploration into the cost-effectiveness of zanubrutinib versus ibrutinib may be warranted to reflect the improved efficacy and safety of second-generation BTKis.