Cost-Utility Analysis (CUA) in Chronic Lymphocytic Leukemia (CLL): Is COVID-19's Impact on National Life Tables Important to Consider?

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OBJECTIVES: The economic value of novel oncology therapies is commonly quantified through CUAs, requiring extrapolation of life years (LYs) and quality-adjusted LYs (QALYs) over patients' lifetime. To guide lifetime extrapolation, general population survival estimates, stated within national life tables (NLTs), are commonly used, with shorter life expectancy associated with less benefit captured for a novel therapy. This was the case during the COVID-19 pandemic, which led to >6.9 million deaths globally, decreasing general population life expectancy in 2020-2021 compared with other years. Given that health authorities require the latest available NLTs for CUAs, it is essential to quantify the impact of using 2020-2021 NLTs compared with years with limited or no COVID-19 burden on CUA outcomes.

METHODS: A CLL CUA study was developed (partitioned survival approach) to estimate incremental life years (LYs)/quality-adjusted LYs (QALYs) between the current standard of care (SOC) and a hypothetical novel product (HNP) (PFS/OS HR, 0.4/0.75) across EU-4 (Italy, France, Germany, Spain) and the UK. Cohort mean age (66.9 years), pre-/post-progression utilities (0.748/0.600), country-specific discounting, and NLTs (2016-2021) were based on published literature. Incremental LYs/QALYs were compared using NLTs from each year vs 2019. Scenario analyses testing alternative HRs or country-specific utility adjustments were conducted.

RESULTS: Using 2020 NLTs vs 2019 led to a 0.008-0.056 reduction in incremental QALYs (0.010-0.066 LYs) between SOC and the HNP, with the largest impact driven by Spain, followed by Italy, UK, France, and Germany. This translated to a decrement in the HNP economic value of €320-€1681 vs SOC, only partially compensated when 2021 NLTs were considered (€443-€602). Results were robust across sensitivity analyses, with HNP HRs having a larger impact than country-specific utility adjustments.

CONCLUSION: Using 2020 NLTs for CUA vs 2019 leads to incremental benefit underestimation of novel CLL therapies due to 2020 COVID-19 mortality.