Cost-effectiveness analysis of Capecitabine Plus Oxaliplatin Versus Gemcitabine Plus Oxaliplatin as First-Line Therapy for Advanced Biliary Tract Cancers

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Abstract

Background: In the first-line treatment of BTCs, XELOX has shown comparable clinical efficacy and safety to GEMOX, with fewer visits and better treatment management. Our study aims to investigate the cost-effectiveness of XELOX and GEMOX as the first-line therapy for BTCs from the perspective of the United States healthcare systems and provides valuable suggestions for clinical drug treatment decisions. Methods: A Markov model was developed using the Phase 3 randomized clinical trial (ClinicalTrials.gov number, NCT01470443) to evaluate the cost-effectiveness of XELOX and GEMOX. Quality-adjusted life-years (QALYs) and incremental cost-effectiveness ratios (ICERs) were used as the primary outcomes of the model. Using univariate and probabilistic sensitivity analyses to assess the uncertainty. Results: The QALYs for the XELOX and GEMOX groups were 0.66 and 0.54, respectively. The additional cost of XELOX treatment was US$493.30 in the United States and ICER was US $4333.28/QALY, which was far below the threshold of willingness to pay (US$50,000 /QALY). The XELOX therapy was confirmed as a stable economic advantage by sensitivity analysis in the United States. Conclusions: XELOX, compared with GEMOX, is a more cost-effective treatment as the first-line treatment for advanced BTCs from the perspective of the United States health service system.

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