Cost-effectiveness Analysis of Panitumumab Plus mFOLFOX6 Compared With Bevacizumab plus mFOLFOX6 for First-Line Treatment of Patients With Wild-Type RAS Metastatic Colorectal Cancer

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BACKGROUND

The analysis was performed from a French health collective (i.e., no mutation in exons 2, 3, or 4 of KRAS, NRAS, or RASopathies). The model used a 2-week cycle length and lifetime time horizon.

A semi-Markov model structure was selected to assess the effectiveness and cost of first-line treatments with panitumumab plus mFOLFOX6 compared with bevacizumab plus mFOLFOX6 in patients with wild-type RAS mCRC. In 2007, panitumumab was initially approved by the European Committee for Medicinal Products for Human Use (CHMP) to treat metastatic colorectal cancer (mCRC) in patients with epidermal growth factor receptor (EGFR)–positive tumors. The current analysis compared panitumumab plus mFOLFOX6 with bevacizumab plus mFOLFOX6 in the first-line treatment of patients with wild-type RAS mCRC.3,4

Methods

The model was based on an individual patient-level analysis of the NCT00364013 study,5 a phase 2 trial, and real-world data. The model outcomes calculated for each first-line treatment regimen included patient survival (life-years), quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratios.

The one-way sensitivity analysis indicated that drug acquisition costs, costs of BSC, and costs of subsequent treatments were the most influential parameters. Results of the cost-effectiveness scatter plot showed panitumumab plus mFOLFOX6 generally to be more effective than bevacizumab plus mFOLFOX6 in a majority of the runs of the probabilistic sensitivity analysis, with more than 96% of simulations favoring panitumumab plus mFOLFOX6. Given no specified willingness-to-pay threshold in France, we examined cost-effectiveness across a range of threshold values. The model was developed using TreeAge Pro (TreeAge Software, Inc., Williamstown, MA, USA) and the software was run to generate cost-effectiveness acceptability curves. Treatment efficacy was based on recent evidence derived from meta-analyses of randomized controlled trials and real-world data.

CONCLUSION

The model was based on an individual patient-level analysis of the NCT00364013 study,5 a phase 2 trial, and real-world data. The model outcomes calculated for each first-line treatment regimen included patient survival (life-years), quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratios.

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