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Cost-effectiveness analysis of fruquintinib for metastatic colorectal cancer third-line treatment in China

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Metastatic colorectal cancer, Cost-effectiveness analysis, Fruquintinib.

Abstract

Background : In this study, we analyze the cost-effectiveness of fruquintinib as third-line treatment for patients with metastatic colorectal cancer in China, especially after a recent price drop suggested by the National Healthcare Security Administration. Methods : A Markov model was developed to investigate the cost-effectiveness of fruquintinib compared to placebo among patients with metastatic colorectal cancer. Effectiveness was measured in quality-adjusted life year (QALY). The Chinese healthcare payer’s perspective was considered with a lifetime horizon, including direct medical cost (2019 US dollars [USD]). A willing-to-pay threshold was set USD 27,130/QALY, which is 3 times gross domestic product (GDP) per capita. We examined the robustness of the model in one-way and probabilistic sensitivity analysis. Results : Fruquintinib was associated with better health outcomes than placebo (0.640 vs 0.478 QALYs) with a higher cost (USD 20750.9 vs USD 12042.2), resulting an incremental results effectiveness ratio (ICER) of USD 53508.7 per QALY. This ICER is 25% lower than the one calculated before the price drop (USD 70952.6 per QALY). Conclusion : After the price negotiation, the drug becomes cheaper and the ICER is lower, but the drug is still not cost effective under the standard of 3 times GDP willing-to-pay threshold. For patients with metastatic colorectal cancer in China, fruquintinib is not a cost-effective option under the current circumstances in China.

Full-text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Figures

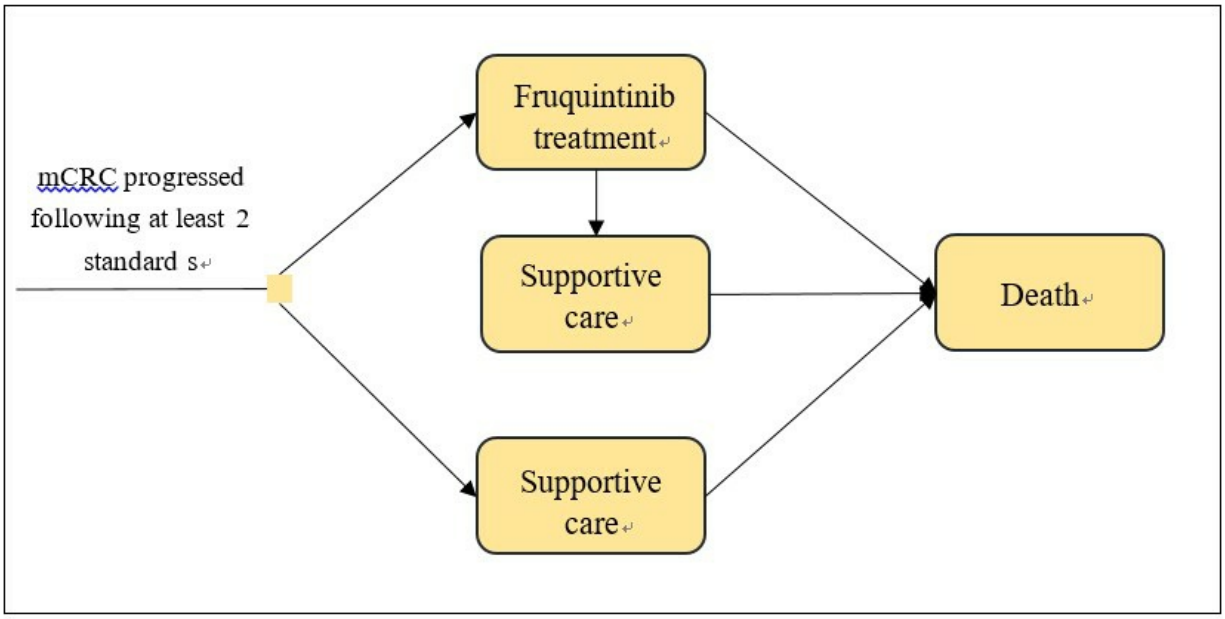

Figure 1

Markov model. mCRC, metastatic colorectal cancer.

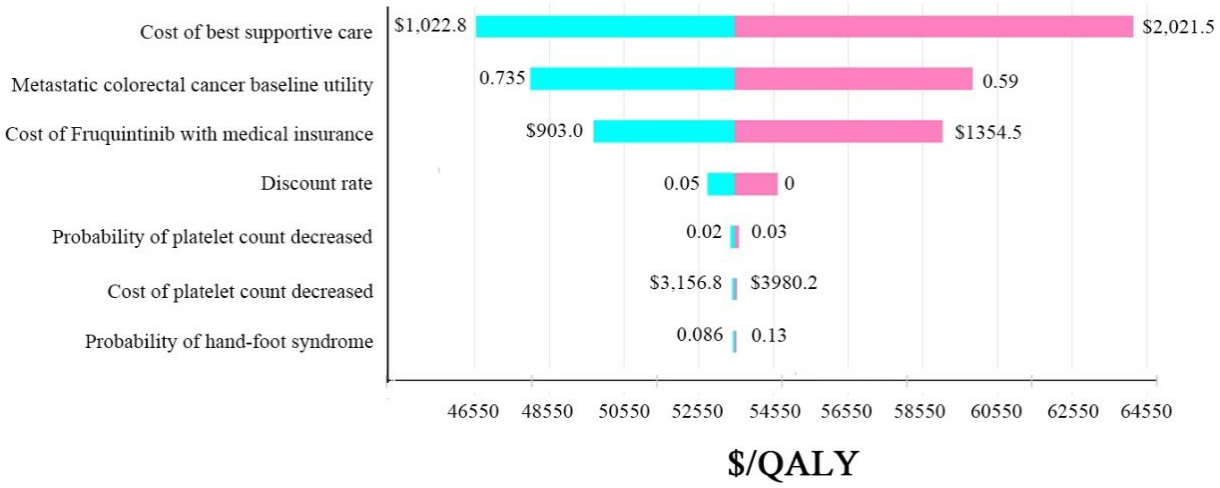

Figure 2

Invariable sensitivity analyses after price negotiation.

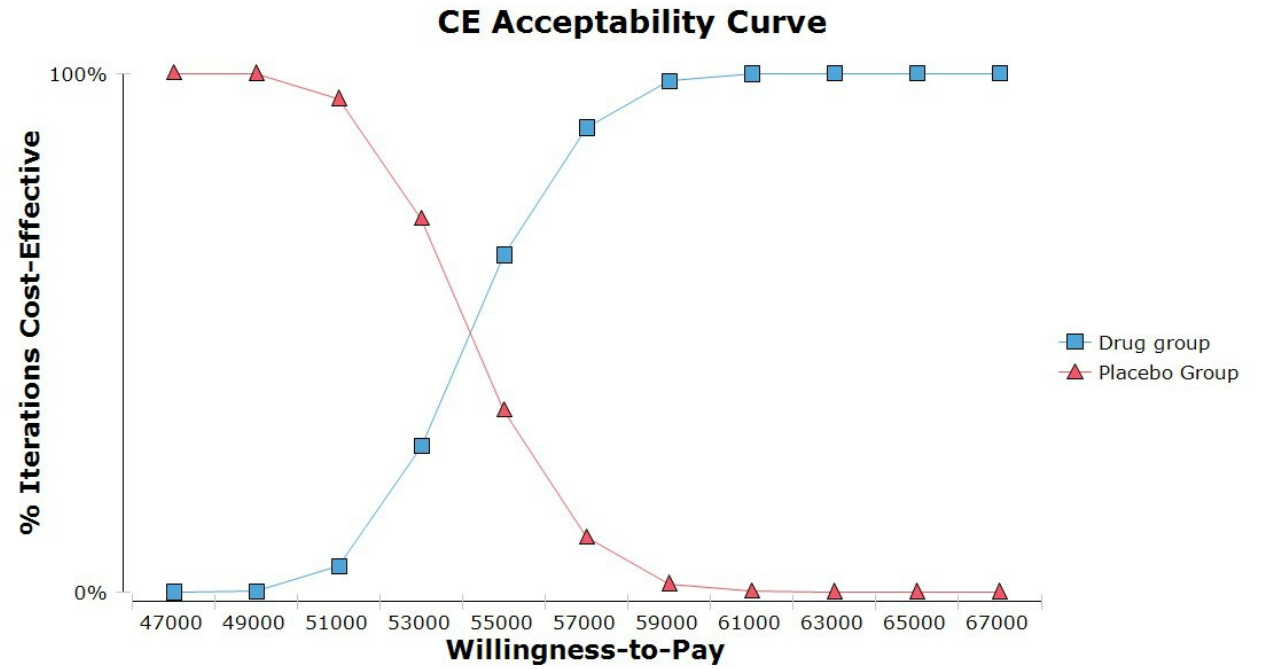

Figure 3

Cost-effectiveness Acceptability Curve after price negotiation.