Pharmacoeconomic analysis for K-Ras status based decisions for first line therapy of metastatic colorectal cancer (mCRC)

Cristóbal Belda-Iniesta1, J. de Castro2, E. Grande3, J.M. Amate4, Z. Saz-Parkinson4

1 Unidad de Biomarcadores y Terapias Experimentales del Cáncer, IdiPAZ; 2 Servicio de Oncología Médica, Hospital Universitario La Paz de Madrid; 3 Servicio de Oncología Médica, Hospital Universitario Ramón y Cajal; 4 Agencia de Evaluación de Tecnologías Sanitarias, Instituto de Salud Carlos III

ABSTRACT

Background: K-Ras is a Ras protein that plays a crucial role as a tumour suppressor and as an oncogenic driver in colorectal cancer. This protein is involved in the control of cellular proliferation and apoptosis. Different studies have shown that the K-Ras mutation status has a considerable impact on the clinical efficacy of first-line chemotherapy and targeted agents. The aim of this analysis is to perform a pharmacoeconomic evaluation of five different therapeutic strategies for first-line mCRC administration.

Methods: A Markov model was constructed to simulate the progression of mCRC patients from diagnosis to death. Five therapeutic strategies were compared to each other. Costs were assigned to the five therapeutic strategies. The model was run with 100,000 patients for 3 years, and 200,000 for the long-term analysis. Two cost-utility analyses were performed with different discount rates: one with a 3% discount rate and another with a 0% discount rate. All costs were in Euros and were discounted at 3%.

Data collection: The model was run with 100,000 patients for 3 years, and 200,000 for the long-term analysis. Two cost-utility analyses were performed with different discount rates: one with a 3% discount rate and another with a 0% discount rate. All costs were in Euros and were discounted at 3%.

RESULTS

The results showed that the therapeutic strategy with the highest cost-utility ratio was the one with a combination of chemotherapy and anti-EGFR therapy. The analysis also revealed that the cost-utility ratio was higher for strategies that included anti-EGFR therapy.

CONCLUSION

The results show that K-Ras status is an important factor for choosing the most cost-effective therapy for mCRC patients. The integration of K-Ras status into clinical decision-making is crucial for optimizing treatment outcomes and resource utilization.