COST-EFFECTIVENESS STUDY OF AN ASPIRIN CHEMOPREVENTION ASSOCIATED OR NOT WITH A COLONOSCOPIC SURVEILLANCE IN THE COLORECTAL CANCER

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OBJECTIVES: To compare the medical and economical impact of four strategies in the prevention of colorectal cancer (CRC) in France: (1) no treatment and no surveillance (reference strategy); (2) chemoprevention with 325 mg daily aspirin; (3) colonoscopic surveillance with a 3, 5 or 10-year periodicity; and (4) the combination of the two latter strategies. METHODS: A Markov decision model was built, following a fictive 50-year-old cohort during 30 years. Effectiveness was assessed by CRC incidence and life expectancy. Transition probabilities were defined after an extensive review of literature. Only direct costs were considered. The various strategies were compared calculating incremental cost-effectiveness ratios. Determinist and probabilistic sensitivity analyses were carried out. RESULTS: Given an effectiveness of chemoprevention of 25%, the most effective strategy was the association chemoprevention and colonoscopic surveillance. While 4248 CRC for 100,000 persons were expected in a population without treatment or surveillance, 3228 CRC could be avoided with this association, 2798 with a colonoscopic surveillance and 1339 with the chemoprevention only. The more effective the strategy was, the more expensive it was. Compared with the reference strategy, the incremental cost-effectiveness ratio of the chemoprevention was €3279 per life-year gained. Compared with chemoprevention, colonoscopic surveillance involved an incremental cost of €6611 per life-year gained. The addition of a chemoprevention by aspirin among a screened population would result in an incremental cost-effectiveness ratio of €22,000 per life-year saved. Moreover, in the 5000 Monte Carlo simulations, the combination strategy was dominated by colonoscopic surveillance in 16% of cases. CONCLUSIONS: The 3 strategies of prevention or screening has acceptable incremental cost-effectiveness ratios according to the international standards. Contrary to common opinion, primary prevention through colonoscopic surveillance is cost-effective. Moreover, chemoprevention by aspirin appears to be an efficient strategy when it is associated to a colonoscopic surveillance.

CAPECITABINE VS. BOLUS 5-FU/LV AS ADJUVANT THERAPY FOR PATIENTS WITH DUKES’ C COLON CANCER: PHARMACOECONOMIC EVALUATION OF X-ACT TRIAL—DATA FROM CZECH PERSPECTIVE

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OBJECTIVES: Oral capecitabine is highly active drug with favourable safety in adjuvant and metastatic colorectal cancer. Adjuvant capecitabine is at least as effective as 5-fluorouracil/leucovorin (5-FU/LV), with significant superiority in relapse-free survival and a trend towards improved disease-free and overall survival. METHODS: We assessed the cost-effectiveness of adjuvant capecitabine from payer (health insurance companies in Czech Republic) and societal perspectives (including indirect costs). We used clinical trial data and published sources to estimate incremental direct and societal costs and gains in quality-adjusted life months (QALMs). Acquisition costs were higher for capecitabine (99,601 CZK) than 5-FU/LV (8586 CZK), but higher 5-FU/LV administration costs, cost of adverse events and hospitalisation costs resulted in comparable direct costs for capecitabine and 5-FU/LV. RESULTS: Administration costs were significantly higher for 5-FU/LV (by 59,500 CZK), as well as a cost of therapy for adverse effects (by 11,467 CZK). Societal costs, including patient travel/time costs, were lower for capecitabine group vs 5-FU/LV (cost savings 19,307 CZK), with lifetime gain in QALMs of 9 months. Medical resource utilisation (direct costs) are slightly higher with capecitabine vs 5-FU/LV in Czech Republic (by 18,687). The use of a societal perspective to measure the time and travel costs associated with the treatments illustrates the advantage of oral over infusion treatment. Counting together (direct and indirect costs) capecitabine is slightly less costly alternative (by 624 CZK) in comparison with 5-FU/LV. Capecitabine is also projected to increase life expectancy vs 5-FU/LV. And from the point of view of incremental cost-utility analysis capecitabine vs. 5-FU/LV can be considered to be dominant (cost-saving and more-effective) therapy. CONCLUSIONS: This pharmacoeconomic analysis supports the place of therapy of capecitabine vs. 5-FU/LV in the adjuvant treatment of colon cancer in Czech Republic.

COST-EFFECTIVENESS OF SORAFENIB VERSUS BEST SUPPORTIVE CARE IN ADVANCED RENAL CELL CARCINOMA IN SPAIN

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OBJECTIVES: To evaluate the cost-effectiveness of sorafenib plus best supportive care (BSC) versus BSC alone in advanced renal cell carcinoma (RCC) from the perspective of the Spanish National Health Service. METHODS: A Markov model was developed to project the lifetime survival and costs associated with sorafenib plus BSC and BSC alone. The model tracked patients with advanced RCC through three disease states—progression free survival (PFS), progression, and death. Transition probabilities between disease states varied for each 3-month period and were obtained from a clinical trial. Quality-Adjusted-Life-Years (QALY) gained were used as a measure of treatment effectiveness. Resource utilization included drug, administration, physician visits, monitoring, and adverse events. Costs and survival benefits were discounted annually at 3%. All costs were adjusted to 2005 Euros. Scenario sensitivity analyses were conducted. RESULTS: The lifetime per patient costs were €64,904 and €10,502 for sorafenib plus BSC and BSC alone, respectively. The incremental cost-effectiveness ratio (ICER) of sorafenib plus BSC versus BSC alone was €37,667 per QALY gained. The key drivers of the model results were survival after progression and PFS probabilities for both treatment groups. Sensitivity analyses showed that the model results were robust to variance in sorafenib and BSC treatment costs. CONCLUSIONS: Sorafenib is a cost effective therapy in the management of advanced RCC. Sorafenib offers a unique opportunity to prolong PFS and overall survival in those patients, and has the potential of offer considerable value to patients with minimal budget impact to the NHS in Spain.

COST EFFECTIVENESS OF PRIMARY PROPHYLAXIS WITH PEGIFLGRASTIM OR FILGRASTIM IN THE MEDICAL TREATMENT OF BREAST CANCER IN ITALY

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OBJECTIVES: To evaluate the cost-effectiveness of sorafenib plus best supportive care (BSC) versus BSC alone in advanced renal cell carcinoma (RCC) from the perspective of the Spanish National Health Service. METHODS: A Markov model was developed to project the lifetime survival and costs associated with sorafenib plus BSC and BSC alone. The model tracked patients with advanced RCC through three disease states—progression free survival (PFS), progression, and death. Transition probabilities between disease states varied for each 3-month period and were obtained from a clinical trial. Quality-Adjusted-Life-Years (QALY) gained were used as a measure of treatment effectiveness. Resource utilization included drug, administration, physician visits, monitoring, and adverse events. Costs and survival benefits were discounted annually at 3%. All costs were adjusted to 2005 Euros. Scenario sensitivity analyses were conducted. RESULTS: The lifetime per patient costs were €64,904 and €10,502 for sorafenib plus BSC and BSC alone, respectively. The incremental cost-effectiveness ratio (ICER) of sorafenib plus BSC versus BSC alone was €37,667 per QALY gained. The key drivers of the model results were survival after progression and PFS probabilities for both treatment groups. Sensitivity analyses showed that the model results were robust to variance in sorafenib and BSC treatment costs. CONCLUSIONS: Sorafenib is a cost effective therapy in the management of advanced RCC. Sorafenib offers a unique opportunity to prolong PFS and overall survival in those patients, and has the potential of offer considerable value to patients with minimal budget impact to the NHS in Spain.
OBJECTIVES: Primary (first and subsequent cycles) prophylaxis with colony stimulating factors is recommended in the 2006 ASCO and EORTC clinical guidelines when the risk of febrile neutropenia (FN) is ≥20%. In clinical practice filgrastim has often been used for fewer than the recommended 11 days, which has been shown to compromise clinical outcomes. This study has evaluated, from an Italian perspective the cost-effectiveness of pegfilgrastim vs. filgrastim (11- or 6-days) primary prophylaxis in breast cancer patients receiving chemotherapy with ≥20% FN risk. METHODS: We constructed a decision-analytic model from a payer's perspective. Direct costs were taken from official price lists or literature data; they included: drugs, drug administration, FN-related hospitalizations and subsequent medical charges. FN risk (varied by days of filgrastim), FN case-fatality, relative dose intensity (RDI) of chemotherapy, its impact on survival, and utility scores were based on a comprehensive literature review and expert panel validation. Breast cancer mortality and all-cause deaths were obtained from official statistics. Model robustness was tested using multi-way sensitivity analyses. RESULTS: Pegfilgrastim appeared to be more effective and less expensive than 11- and 6-day filgrastim. The average cost, risk of FN (%), life expectancy and quality-adjusted life year (QALY) per person for pegfilgrastim, 11-day filgrastim, and 6-day filgrastim were £3316, 7%, 16.47 years, and 15.32 QALY; £2420, 12.5%, 16.41 years, and 15.27 QALY; and £3630, 17.5%, 16.35 years, and 15.22 QALY, respectively. The results were sensitive to the relative costs of drugs and FN risk. Age and cancer stage had minimal impact. CONCLUSIONS: These preliminary data confirm that primary prophylaxis with pegfilgrastim may improve health outcomes and suggest that, in Italy, it could be cost-saving when compared with filgrastim (also for less than 11 days). A larger application of the sensitivity analyses will be necessary to further validate the model.

A SENSITIVITY ANALYSIS OF THE COST PER QUALITY ADJUSTED LIFE YEAR (QALY) OF TRASTUZUMAB IN THE TREATMENT OF EARLY BREAST CANCER (EBC)

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OBJECTIVES: To evaluate the sensitivity of the cost per QALY of trastuzumab for the treatment of EBC using one-way and probabilistic sensitivity analyses (PSA). METHODS: A 5-state Markov model with annual transition cycles was constructed to estimate the long-term health outcomes of EBC patients based on results from the HERA clinical trial. Population-based utilities were used for the health states in the model. NHS resource use and costs were estimated from a consensus panel of experts and published unit costs respectively. Costs and benefits were discounted at 3.5% per annum. Using the base case Markov model, key assumptions and model parameters were varied through plausible ranges identified in the literature to evaluate the stability of the base case cost per QALY. Key assumptions modified in the sensitivity analysis included: 1) proportion of patients receiving trastuzumab in the metastatic setting in both the Adjuvant trastuzumab and No adjuvant trastuzumab arms when they develop metastatic disease; 2) baseline patient age; 3) the duration of the treatment effect of trastuzumab; 4) the baseline risk of disease progression. Five thousand iterations were applied in the PSA with beta pert and beta distributions applied to the ranges of each parameter. RESULTS: The estimated base case cost per QALY for adjuvant trastuzumab was low at £2387. Trastuzumab remained cost effective in all evaluated scenarios with the cost per QALY always falling below the cost effectiveness threshold of £30,000. The parameters with the largest impact upon the cost per QALY were the re-treatment rate in the metastatic setting and the duration of the treatment effect. 100% of all iterations were below £30,000 per QALY in the PSA. CONCLUSION: The cost per QALY of trastuzumab for the treatment of EBC has been demonstrated to be robust and remain below commonly accepted thresholds despite wide variations in model assumptions.

COST-EFFECTIVENESS OF CETUXIMAB IN COMBINATION WITH RADIOThERAPY VERSUS RADIOThERAPY ALONE IN THE TREATMENT OF LOCALLY ADVANCED HEAD AND NECK CANCER IN SPAIN

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Definitive radiotherapy is the current standard of care for patients with locally advanced squamous cell carcinoma of the head and neck (SCCHN) who are contraindicated and/or not able to tolerate the severe acute and late toxicities associated with concomitant chemoradiotherapy. Erbitux (cetuximab) in combination with radiotherapy has been shown to significantly improve patient outcomes when compared to radiotherapy alone without aggravating the side effects of radiotherapy. OBJECTIVE: To estimate the cost-effectiveness of Erbitux in combination with radiotherapy (ERT) compared to radiotherapy alone (RT), for the treatment of locally advanced head and neck cancer in patients for whom chemoradiotherapy is inappropriate or intolerable in Spain. METHODS: A decision-analytic model was used to estimate the clinical and economic consequences of locally advanced SCCHN. Model parameters and health resources use were derived from an international phase III clinical trial. Costs were obtained from local data and validated by local clinical experts. Effectiveness was measured as progression-free survival (PFS) and QALYs gained and extrapolated beyond trial follow-up. Costs and outcomes were discounted at an annual rate of 3%. RESULTS: ERT was associated with an incremental effectiveness of 1.17 years free of disease progression and 0.97 QALYs, and with additional cost per patient of €8777, resulting in incremental cost-effectiveness ratios of €7532 per progression-free life years and €9091 per QALY gained. The probabilistic sensitivity analysis showed that the probability of ERT being cost-effective at the accepted cost-effectiveness threshold in Spain of €30,000 per QALY is over 99%. CONCLUSIONS: Cetuximab added to radiotherapy is a cost-effective option compared to radiotherapy alone, with better outcomes at a reasonable additional cost. Its clinical and pharmacoeconomic profile makes Cetuximab + radiotherapy the optimal treatment for a significant proportion of patients with locally advanced SCCHN who are unable to tolerate or are contra-indicated to Chemo-Radiotherapy.

COST-EFFECTIVENESS ANALYSIS OF LETROZOLE COMPARED TO TAMOXIFEN FOR TREATMENT OF EARLY BREAST CANCER IN THE HUNGARIAN HEALTH CARE SETTING

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OBJECTIVE: A comprehensive decision model has been developed and adopted to the Hungarian health care settings to evaluate the cost-effectiveness of letrozole as adjuvant therapy for breast cancer compared to tamoxifen. METHODS: The analy-