BUDGET IMPACT ANALYSIS OF INTRAVENOUS (IV) ZOLEDRONIC ACID VS. ORAL IBANDRONATE OR IV GENERIC PAMIDRONATE IN THE PREVENTION OF BONE COMPLICATIONS IN BREAST CANCER PATIENTS WITH BONE METASTASES: A UK NHS PERSPECTIVE

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OBJECTIVE: Bisphosphonates inhibit bone resorption, reducing skeletal-related events (SREs) and bone pain in breast cancer patients with bone metastases. These agents are characterized by different efficacy, safety, dosage form, time of administration, compliance, and acquisition costs. We developed formal budget impact model to guide the selection of bisphosphonate therapy from the perspective of the UK NHS. METHODS: We developed a Markov model to simulate over a period of seven years the incidence of SREs and cost of care for a hypothetical cohort of 1000 patients receiving no treatment (NT), daily oral ibandronate (OI), or monthly injections of generic pamidronate (PA) or zoledronic acid (ZA). This literature-based model included assumptions about skeletal morbidity rates (SMR, directly obtained or extrapolated from placebo-controlled clinical trials), mortality, costs of drug (including infusion cost), cost of SRE, and compliance with therapy. Survival was assumed to be identical across all groups (25 months). RESULTS: Based on relative reductions of risk of SREs (ratio of SMR of bisphosphonate therapy vs. no therapy) and compliance with therapy, the cumulative number of SREs over the lifetime of a patient was projected to be lowest for ZA (3820 events), followed by PA (4430), OI (4910), and NT (6020). Total discounted costs (including drug, infusion administration costs, SRE treatment costs) for the cohorts of 1000 patients were ≤1,949,000 lower for ZA than OI, ≤1,160,000 lower than PA, and ≤556,000 lower than NT. Fifty and 75% of these savings, respectively, occurred within the first 12 and 24 months of the simulation. These findings were robust across various sensitivity analyses. CONCLUSIONS: For breast cancer patients with bone metastasis, zoledronic acid appears to be the most cost-effective and least costly bisphosphonate therapy, even compared to no therapy.

THE COST-EFFECTIVENESS OF CAPECITABINE AS ADJUVANT ORAL CHEMOTHERAPY FOR DUKE’S C COLON CANCER

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OBJECTIVES: Capecitabine (Xeloda®), an oral chemotherapeutic agent, is effective to treat both adjuvant and metastatic colorectal cancer (CRC) patients. In the recent X-ACT trial, capecitabine compared with intravenous 5-FU/LV adjuvant therapy demonstrated superior relapse-free survival (65.3% vs. 61.9% at three years follow-up (p = 0.0407) in patients with Duke’s C colon cancer and improved covariate-adjusted overall survival (p = 0.0208). Based on results from X-ACT, this study assesses the cost-effectiveness of capecitabine from both US payer and societal perspectives. METHODS: Trial-based data were collected on treatment period medical resource use. Unit costs for drug administration, hospitalizations, consultations, concomitant medications, and patient time were imputed using published sources. A health-state transition model was used to estimate incremental cost impact and effectiveness in terms of the gains in relapse-free months (RFMs) (mean trial follow-up: 3.8 years) and life years (LYs). Future outcomes were discounted at 3% annually. RESULTS: Mean duration of treatment was approximately 24 weeks in both arms. Administration of capecitabine required fewer clinic visits per patient (7.4 vs. 28.0 with 5-FU/LV). Mean acquisition costs of capecitabine were $8700 higher than with 5-FU/LV, but these costs were partially offset by 5-FU/LV’s administration cost of $5700. Total hospital days for treatment-related adverse events (AEs), medication costs for treating AEs, and patient time costs were higher for 5-FU/LV. The cost of physician consultations for treating AEs did not differ. Compared to 5-FU/LV, capecitabine increases RFMs by 1.3 months at four years yielding a cost-effectiveness ratio of $2,500 per RFM gained (payer perspective); from a societal, lifetime perspective, capecitabine increases LYs by 11.3 months with a cost per LY gained of $500. This finding was not sensitive to plausible variations in key parameters. CONCLUSIONS: Based on our model, capecitabine, an oral chemotherapeutic agent, is cost-effective in the US compared with intravenous 5-FU/LV in treating patients with adjuvant CRC.