THE COST EFFECTIVENESS ANALYSIS OF TREATMENT WITH PEGINTERFERON ALFA-2A (40KD) IN PATIENTS WITH HBEAG-NEGATIVE CHRONIC HEPATITIS B
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OBJECTIVE: The aim of the study was to evaluate the cost-effectiveness of peginterferon alfa-2a (40KD) for the treatment of patients with HBeAg-negative chronic hepatitis B in Poland. The analysis compared two strategies: peginterferon alfa-2a (40KD) vs. lamivudine for 48 weeks (short-term analysis) or peginterferon alfa-2a (40KD) for 48 weeks vs. lamivudine for 4 years (long-term analysis).

METHODS: The analysis was performed from the Polish payer perspective using a state-transition Markov model. Quality-adjusted life years (QALYs) was adopted as a measure of effectiveness. Efficacy with peginterferon alfa-2a (40KD) and lamivudine after 48 weeks of treatment was obtained from a randomized controlled trial (Marcellin et al. NEJM 2004;351(12):32–43). Long-term lamivudine efficacy, health state transition probabilities and utility estimates were obtained from the published literature. Direct medical costs, i.e. cost of drugs and procedures in the treatment of hepatitis B and its complications (cirrhosis, hepatocellular carcinoma, liver transplantation) were obtained from Polish sources. Costs and benefits were discounted at a 3% annual rate.

RESULTS: Peginterferon alfa-2a (40KD) vs. lamivudine for 48 weeks (short-term analysis) increased QALYs by 0.89. The mean treatment cost in the short-term analysis was 17,743 € (1€ = 4.035 PLN) and 12,522 € per patients for peginterferon alfa-2a and lamivudine, respectively. The incremental cost-effectiveness ratio (ICER) was 9316 €/QALY gained. In the long-term analysis, peginterferon alfa-2a (40KD) increased QALYs by 0.75. The mean cost of treatment was 17 €398 for peginterferon alfa-2a (40KD) and €13,890 for lamivudine per patient. The incremental cost-effectiveness ratio (ICER) was €7643 per QALY gained.

CONCLUSIONS: The ICER for peginterferon alfa-2a evaluated in the short-term analysis as well as in the long-term analysis did not exceed €14,870 (cost of one year dialysis in Poland). Thus, the procedure appears to be cost-effective in Poland.

THE COST-EFFECTIVENESS OF ENTECAVIR IN THE LONGTERM TREATMENT OF NUCLEOSIDE-NAIVE AND LAMIVUDINE-REFRACTORY CHRONIC HEPATITIS B PATIENTS IN SWEDEN
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OBJECTIVE: To model the cost-effectiveness entecavir (ETV) in treating chronic hepatitis B (CHB) in Sweden. METHODS: Design: A modified decision tree model was developed to compare two hypothetical cohorts of CHB patients undergoing therapy with antiviral agents. Based on patient viral load, the model estimates the progression to compensated cirrhosis (CC), decompensated cirrhosis (DC) and hepatocellular carcinoma (HCC). The multivariate-adjusted risk-predicting models were developed based on the R.E.V.E.A.L.-HBV Study cohort with 42,115 person-years of follow-up. Perspective: Health care payer. Patient populations: 1. Nucleoside-naive patients: 0.5 mg ETV vs. 100 mg lamivudine (LVD) with adefovir (ADV) administered as salvage therapy in case of resistance to LVD. 2. LVD-refractory patients: 1.0 mg ETV vs. 100 mg lamivudine (LVD) with adefovir (ADV) administered as salvage therapy in case of resistance to LVD. Life expectancy was estimated by the DEA method, using Swedish life tables. Utility values were obtained by standard gamble in a CHB health-utility study. Costs: 10-year treatment costs were estimated using drug acquisition costs published by the LFN. Costs of CC, DC, and HCC are from a Swedish costing study. Discounting: Both costs and outcomes were discounted at 3% annually. Sensitivity analyses were performed to various parameters. RESULTS: ETV therapy in nucleoside-naive patients is a dominant treatment strategy compared to LVD therapy with ADV salvage. Cost savings of SEK 8,121,199/SEK 1,1902,137, QALYs gained 85.70/19.17 for HBcAg-positive HBcAg-negative patients, respectively. Treatment with ETV is a dominant treatment strategy compared to ADV in LVD-refractory patients. Cost savings: SEK 3,612,483, QALYs gained 38.67. Across patient populations and comparators, ETV was associated with lower projections of liver-related events, a lower mortality rate with moderate to high FN risk in Germany. METHODS: We constructed a decision-analytic model from a health care payer's perspective. Costs included drugs, drug administration, FN-related hospitalizations and subsequent costs, and were based on Rote Liste (list price) and DRG Tariff. Effectiveness was measured as FN avoided and life-year-gained (LYG). FN risk (varied by days of filgrastim), FN case-fatality, relative dose intensity (RDI), and the impact of RDI on survival were based on a comprehensive literature review and expert panel validation. Breast cancer mortality and all-cause mortality were from official statistics. Sensitivity analyses were conducted on key variables. RESULTS: Pegfilgrastim use avoided more FN events, produced greater LYG and was less expensive than 11-day filgrastim. Compared with 6-day filgrastim, pegfilgrastim avoided 10.5 absolute percentage point of FN (17.5% vs. 7%) at a modest cost increase (€1306); the incremental cost-effectiveness ratio (ICER) was €12,429 per FN avoided. The average life expectancy was 15.99 years with pegfilgrastim and 13.88 years with filgrastim, yielding an ICER of €11,972/LYG. Age of diagnosis and cancer stage had minimal impact on the results. Drug costs and FN risk has moderate influence on model results. CONCLUSIONS: In Germany, pegfilgrastim appeared to dominate 11-day filgrastim and to be cost-effective within normal thresholds compared with 6-days filgrastim per cycle.