USE OF PEGINTERFERON ALFA-2b IN CHRONIC HEPATITIS C PATIENTS FAILING PRIOR THERAPY: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: This study evaluated the cost-effectiveness of peginterferon alfa-2b (1.5 mcg/kg/wk) plus 800–1400 mg/day ribavirin (PEG2b 1.5/R) in patients with refractory chronic hepatitis C (HCV) whose previous combination therapy with pegylated or standard interferon alfa and ribavirin failed.

METHODS: A Markov model was developed based on an open-label trial (EPIC) in which patients received PEG2b 1.5/R or no further drug therapy. Patients with genotypes 1/4 (G1/4) HCV with undetectable HCV RNA at week 12 were treated for 48 weeks; patients with detectable HCV RNA were discontinued at 18 weeks. G2/3 HCV patients were treated for 24 weeks. Data on the natural history of disease, drug and medical resource costs (2007 euros), and utility values were estimated from published literature. Using a Spanish perspective, the model estimated the incremental cost-effectiveness ratio (ICER) for PEG2b 1.5/R vs. no further treatment based on cost per quality-adjusted life year (QAL Y) gained over a patient's lifetime. A second-order probabilistic Monte Carlo sensitivity analysis was conducted to assess the effects of parameter uncertainty (efficacy) on the study findings.

RESULTS: In G1 and G4 patients, PEG2b 1.5/R led to higher costs (€19,300 vs. €10,100) and increased QALYs (10.62 vs. 10.15) compared with no drug therapy (ICER: €19,600 per QALY gained). In G2/3 patients, treatment costs were twice as high for the PEG2b 1.5/R regimen compared with no therapy (€22,200 vs. €10,100); the incremental gain in QALYs was greater than it was for the G1 and G4 groups (11.99 vs. 10.15) (ICER: €6,600 per QALY gained). The probabilistic sensitivity analysis suggests a 99% probability that the ICER for PEG2b 1.5/R among refractory patients is at or below a €30,000 per QALY gained threshold for both genotype groups. CONCLUSIONS: PEG2b 1.5/R is in the range of the widely accepted cost-effectiveness threshold for medical interventions in Spain.

REFERENCES

HCV co-infection is a cost-saving (dominant) alternative in the Pharmerit Europe, Rotterdam, The Netherlands, 2Merck Sharp & Dohme BV, Haarlem, The Netherlands.

RESULTS: In the combined analysis, considering the expected genotypic distribution for the Portuguese population, treatment with PEGIFN+RIB was estimated to increase discounted life expectancy by 1.61 years (23.30 vs 21.69) and quality-adjusted life expectancy by 1.17 QALYs compared to no treatment. Direct costs were projected to be €29,410 with PEGIFN+RIB and €33,788 with no treatment. These results corresponded to ICERs of €2.19 and €3742 per life year gained and per QALY gained, respectively.

CONCLUSIONS: The use of PEGIFN+RIB (PEGASYS/COPEGUS) vs no treatment in patients with HIV/HCV co-infection is a cost-saving (dominant) alternative in the Portuguese setting for all genotypes.

COST-EFFECTIVENESS ANALYSIS OF CASPOFUNGIN VERSUS AMPHOTERICIN B, VORICONAZOLE, AND ANIDULAFUNGIN IN THE TREATMENT OF INVASIVE CANDIDIASIS

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OBJECTIVES: To estimate the cost-effectiveness of caspofungin versus amphotericin B, voriconazole, and anidulafungin in the treatment of invasive candidiasis in a subgroup of patients who are infected with fluconazole-resistant Candida species and in patients who cannot be treated with fluconazole due to other reasons. METHODS: For this analysis a lifetime Markov model was used with following health states: success, failure, and death over two treatment lines. A randomized clinical trial comparing caspofungin and amphotericin B was used to estimate daily transition probabilities. The corresponding probabilities for voriconazole and anidulafungin were estimated based on indirect comparisons using amphotericin B as the common comparator. The analysis was conducted from a societal perspective. Direct costs inside the health care system were included. Outcomes were reported as cost per life-year gained. To determine the robustness of the model and the impact of uncertainty, univariate and multivariate sensitivity analyses were carried out. RESULTS: In the base case analysis the 95% confidence intervals of the incremental life years were estimated at 0.23 (−0.29, 0.83), 0.21 (−0.31, 0.88), and 0.11 (−0.37, 0.71) compared to amphotericin B, voriconazole, and anidulafungin respectively. Corresponding intervals for incremental costs were €1825 (−€3958, €5381), €40 (−€5245, €3354), and −€415 (−€4938, €2570). Cost per life year gained was €7942 and €189 compared to amphotericin B and voriconazole. Caspofungin was dominant compared to anidulafungin. Probabilistic sensitivity analyses showed that at a willingness to pay threshold of €20,000/QALY, caspofungin has a 62%, 72%, and 68% probability to be cost-effective relative to respectively amphotericin B, voriconazole and anidulafungin. Univariate sensitivity analyses showed that results were sensitive to changes in efficacy parameters and infection-related mortality. CONCLUSIONS: The present model suggests that caspofungin is cost-effective in the treatment of invasive candidiasis in this specific subgroup of patients. Potential limitation of the model is that efficacy and failure estimates are partly based on indirect comparisons.