Faster cognitive decline is associated with decreasing survival in patients with Alzheimer’s disease

EVALUATION FOR ALPHA (α) POLYMORPH RIFAXIMIN FOR THE TREATMENT OF ACUTE HEPATIC ENCEPHALOPATHY

Cytochrome P450 3A4 (CYP3A4) is a major hepatic enzyme system responsible for the metabolism of a large number of drugs, including rifaximin. The inhibition of CYP3A4 by rifaximin can lead to drug-drug interactions, as rifaximin may increase the plasma levels of other CYP3A4 substrates. Rifaximin is a non-absorbable antibiotic that is used to treat hepatic encephalopathy, a complication of liver disease characterized by mental status changes, including confusion, disorientation, and memory impairment. Rifaximin is known to bind to the gut to reduce the levels of endotoxins, which are pro-inflammatory molecules that can contribute to the development of hepatic encephalopathy. Rifaximin is generally well tolerated, but its side effects are mostly gastrointestinal in nature. Rifaximin is available as a generic medication, which makes it affordable for patients who need it. Rifaximin is not effective in the treatment of other forms of encephalopathy, such as alcoholic encephalopathy or hepatic encephalopathy due to other causes.

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time horizon and resources usage from a previous cost-effectiveness study for medications used to treat hepatic encephalopathy from the Mexican Institute of Social Security (IMSS) perspective and to complement it with a budget impact analysis.

METHODOLOGY: CE analysis of treatments used for acute HE, based in a decision tree model, and considering a horizon of 10 days. Alternatives available at the IMSS are: lactulose, l-ornithine-L-aspartate (LOLA), neomycin and alpha (allop)roporphyrin (the new alternative). Percentage of patients with improvement in signs and symptoms of HE was the effectiveness measure and s based on available published studies (Huang 2007 and Qian 2009). Only direct medical costs were considered and obtained from IMSS. Unvaried sensitivity analysis, using pricing discussed during the meeting, was performed and budget impact simulations were developed.

RESULTS: Lopez US$4024, lactulose US$4032, neomycin US$4060 and rifaximin US$4039 final costs. In relation to effectiveness, the percentage of patients who presented improved signs and symptoms for each alternative is as follows: lactulose and LOLA 55%, neomycin 64% and rifaximin 90%. Cost effectiveness ratios are: lactulose US$7331, LOLA US$7316, neomycin US$6344 and rifaximin US$4488. The incremental cost effectiveness analysis indicates that LOLA and neomycin are surmounted by lactulose and rifaximin, which are located on the efficiency line. For the sensitivity analysis with one hospitalization day reduced due to the improved efficacy, rifaximin was the dominating alternative. If lactulose and neomycin are substituted by rifaximin in the estimated population (6,194 to 21,680 potential of patients with HE in the Mexican Health System), the budget impact shows savings equivalent to 77.74 y 72.36, respectively.

CONCLUSIONS: Alpha (a) polymorph rifaximin is a highly cost effective alternative for treating improved efficacy, rifaximin was the dominating alternative. If lactulose and neomycin were substituted by rifaximin in the estimated population, the budget impact shows savings equivalent to 77.74 ± 72.36, respectively.