Abstracts

using data on the risk of pneumococcal disease, the serotype-adjusted vaccine efficacy, the vaccine price, decrease in the frequency of adverse outcomes and quality of life for patients with sequelae from pneumococcal disease. Due to uncertainty with respect to herd immunity, results are presented both with and without potential effects of herd immunity. RESULTS: Disregarding indirect costs, the incremental cost per QALY using 4 Prevenar doses was €96,000 when herd immunity was included and €140,000 when it was not (€57,000 and €83,000 if 3 doses offer the same effectiveness as 4). Also accounting for indirect costs, the numbers with 4 doses would be €37,000 and €56,000, respectively. With the most optimistic assumptions, vaccination would be cost saving. The vaccine price and efficacy, and otitis incidence were crucial factors in sensitivity analyses. Monte Carlo simulations indicate that the results were robust to uncertainty in other parameters. CONCLUSION: The cost-effectiveness of pneumococcal vaccination will in particular depend on the price of the vaccine, the efficacy of the vaccine, the efficacy of three versus four vaccine shots, and the extent of herd immunity. In Norway, €62,500 per QALY is the official cost-effectiveness threshold. Vaccination can therefore be considered cost-effective. In November 2005 the Norwegian Government included Prevenar in the public vaccination program.

PIN6

COST-EFFECTIVENESS OF VORICONAZOLE VERSUS AMPHOTERICIN B DEOXICOLATE FOR THE PRIMARY TREATMENT OF INVASIVE ASPERGILLOSIS

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OBJECTIVE: Invasive mycoses are associated with high mortality, therefore consuming important health care resources. Cost-effectiveness of voriconazole vs. amphotericin B deoxycholate (CAB) for the primary treatment of invasive aspergillosis (IA) was evaluated using data from a randomized comparative trial (Herbrecht, NEJM 2002), that showed the superiority of voriconazole in terms of clinical response, survival and safety when used as primary therapy for IA. METHODS: A model for analytical decision was designed based on the information provided by this clinical study. Changes in the antifungal treatment due to lack of response, as well as renal or hepatic toxicity with the initial treatment were assessed, considering direct medical costs only, reported in Argentine pesos. RESULTS: Average total treatment cost in the voriconazole arm was $44,040 vs. $45,428 in the CAB arm. Using the model assumptions (efficacy: 52.8% for voriconazole, 31.6% for CAB) voriconazole was the dominant treatment vs. CAB as primary therapy, with a cost per successfully treated patient of $83,444.96 vs. $143,858.26 respectively. One-way sensitivity analysis was performed in order to assess the impact of relevant key variables (cost of antifungals, cost of hospitalization, etc.) Even after changing these variables in a wide range, voriconazole was still cost-saving. CONCLUSIONS: Incremental cost-effectiveness analysis indicated that voriconazole was the dominant therapy due to both lower costs and higher efficacy.

PIN8

COST-EFFECTIVENESS OF LINEZOLID VERSUS VANCOMYCIN IN THE TREATMENT OF NOSOCOMIAL PNEUMONIA IN ARGENTINA

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OBJECTIVES: Linezolid, the first available oxazolidinone, has shown efficacy in the treatment of methicillin-resistant Staphylococcus aureus (MRSA) infections, including nosocomial pneumonia. In patients with MRSA nosocomial pneumonia, survival rate was higher for those treated with linezolid than patients treated with vancomycin (80% versus 63.5%). Moreover, clinical cure rate was superior for linezolid (59% vs 35.5%) (Chest 2003;124:1789–97). We analyzed the economic impact of these clinical outcomes in an Argentinean setting using a decision-analytic model. METHODS: A decision-analytic model was developed to estimate the costs and consequences of using linezolid versus vancomycin in hospitalized patients with nosocomial pneumonia in an Argentinean setting. Clinical and other parameters were taken from published trials. Three Argentinean infectologists provided data on resource utilization. For costing purposes (tests, hospitalization, adverse events and drugs) ALFA-BETA and IACS unit costs database were used (both are published). Outcomes consisted of total costs per patient, cost per death avoided, cost per life-year gained, and cost per cure. RESULTS: According to the model results, an additional 14.3%
of patients treated with linezolid versus vancomycin were cured (69.6% versus 55.4%). Average total treatment cost was $14,268 for linezolid-treated patients versus $13,065 for vancomycin-treated patients, with an incremental ratio of $8429 per additional patient cured. Death rates were 20.4% for linezolid versus 35% for vancomycin, with an average 2.49 life-years gained per linezolid patient in a 65-year-old cohort (13.7 versus 11.2 years). The incremental cost per death avoided and per life year gained were $7299 and $482, respectively. To evaluate the robustness of findings sensitivity analyses were carried out modifying the value of several key variables. As a result of changing them suitably, the overall conclusions remained the same. CONCLUSION: From the Argentinian perspective, linezolid is cost-effective versus vancomycin in the treatment of nosocomial pneumonia due to suspected MRSA.

ECONOMIC EVALUATION FOR THE ANTIMICROBIAL EMPIRIC TREATMENT OF HOSPITALIZED PATIENTS WITH VENTILATOR-ASSOCIATED PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS IN MEXICO
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OBJECTIVES: Ventilator-associated pneumonia (VAP) remains a significant cause of morbidity and mortality in Mexico. Development of VAP increases both the duration of intensive care unit (ICU) stay and hospitalization. The purpose of this study was to compare the cost—effectiveness ratios between four antimicrobial treatments for hospitalized adult patients with suspected or proven Gram-positive VAP due to Staphylococcus aureus in two ICUs of the Social Security Mexican Institute. METHODS: A decision tree model was developed using a Bayesian approach. The model simulated treatment of a hypothetical cohort of 1000 patients diagnosed with VAP during a time horizon of 12 weeks. Patients initiate treatment with one of four antimicrobial agents: linezolid, vancomycin, teicoplanin and imipenem. Conditional probabilities of the model were obtained from published clinical trials. Effectiveness measure was the clinical cure rate for patients with suspected or proven Staphylococcus aureus VAP. The analysis was conducted from the healthcare payer’s perspective (only direct medical costs were used). Resource use and costs were obtained from hospital records and Mexican official databases. Probabilistic sensitivity analysis was performed and acceptability and health net benefits curves were constructed. RESULTS: Linezolid was associated with a shorter ICU stay and a higher clinical cure in comparison with vancomycin, teicoplanin and imipenem (p < 0.005). Linezolid showed on the 12-weeks period the lowest expected average costs per patient treated (US$38,182.9) followed by vancomycin (US$39,345.5) and imipenem (US$42,235). Linezolid showed on the 12-weeks period the lowest expected average costs per patient treated (US$38,182.9) followed by vancomycin (US$39,345.5) and imipenem (US$42,235). Linezolid also showed the highest clinical cure rate (57.4%) followed by vancomycin (37.2%) and teicoplanin (32.1%). Results were robust to Monte Carlo first order sensitivity analysis. CONCLUSIONS: Despite its higher cost in the Mexican market, linezolid was cost-effective for treatment of VAP. These results should be taken into account by Mexican decision makers and clinicians in the management of patients with suspected or proven Gram-positive VAP due to Staphylococcus aureus.

THE IMPACT OF MECHANICAL VENTILATION ON OUTCOMES AND COSTS IN NOSOCOMIAL PNEUMONIA
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OBJECTIVES: Nosocomial pneumonia (NP) is costly in terms of resource utilization and mortality. Patients with ventilator-associated pneumonia (VAP) have a higher risk of death than those with NP from other sources. The differences in risk and costs are attributable in part, to differences in the underlying pathogens. The purpose of this study is to characterize the outcomes and costs associated with NP, specifically examining the impact of mechanical ventilation. METHODS: We used Premier’s 2003 hospital dataset for this study. These data originate from 1500 hospitals in the United States. Records with a non-missing admission code and a diagnosis of pneumonia sometime during the stay were retained. To restrict the sample to those with NP, records with a diagnosis of pneumonia at admission as well as those with an antibiotic on day one were deleted. CPT-codes were used to identify mechanical ventilation and text strings were searched to identify antibiotic therapy. Length of stay and costs were calculated by ward type. RESULTS: The final