length of stay in the hospital is about 3.5 days. CONCLUSIONS: After the logistic and linear regressions, the results showed a small correlation with cellullitis. The likelihood of having a bacterial infection or having infections with microorganisms increases with cellullitis. The likelihood of having a venous catheterization, having the skin drained, or having the tendon sheath of the hand explored increases with cellullitis.

INFECTION – Cost Studies

THE ECONOMIC IMPACT OF TRANSITIONING VALACYLOCVIR TO THE OTC STATUS FOR THE TREATMENT OF GENITAL HERPES

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OBJECTIVES: More resources will be needed to face the increasing demand for antiviral agents if valacyclovir (Varivose®) in 2009, this study examines the implications of transitioning valacyclovir to an over the counter (OTC) status. METHODS: A decision analysis model was used to examine the current prescription based requirement for valacyclovir compared to the OTC status for the product. The analysis was constructed from a societal perspec- tive and a disease model impact. A simulation model conducted in a hypothetical cohort of 10,000 individuals with primary genital herpases in the United States with direct medical cost as the principal outcome. Cost estimations are based on literature review and national health care databases. A sensitivity analysis through a Monte Carlo simulation examines the validity of the cost estimates. RESULTS: The transition of valacyclovir to OTC status will amount to an average annual savings of $707 ($544–$868) per newly infected individual in the form of direct medical expenditures. The annual average cost for the OTC transition is $108 per newly infected, compared to the annual average cost of the prescription based requirement of $815 per newly infected. Aggregate annual savings to the United States from newly infected individuals is $228 million per year. CONCLUSIONS: Transitioning valacyclovir to OTC status is a cost saving measure for society, largely due to the decrease in physician office visits for valacyclovir prescriptions. Further studies will need to address specific population needs in regards to herpes education, feasibility of self-diagnosis, viral resistance and indirect cost.

INCREASING THE AVAILABILITY OF ATAZANAVIR IN THE MINISTRY OF HEALTH (MOH) PUBLIC INSTITUTIONS IN MEXICO: A BUDGET IMPACT ANALYSIS

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OBJECTIVES: Studies in Mexico have shown that the health expenditure attributed to antiretroviral treatments for naive and experienced patients is high. This has an impact on the national budget of the public health institutions, especially for units from the Ministry of Health which deal with the largest number of HIV/AIDS cases in the country. Therefore the objective of this analysis was to estimate the financial impact of increasing the availability of atazanavir for the treatment of patients with HIV/AIDS in the MOH institutions. METHODS: A budgetary impact model based on epidemiological data, treatment costs and market uptake for four protease inhibitors (PI) in a time horizon of 5 years was developed. A baseline scenario, where the current PI’s market distribution remains the same, was compared with a scenario where atazanavir availability is increased. RESULTS: The estimated numbers of infected HIV/AIDS subjects will grow around 53.4% in the next five years. As a result, more resources will be needed to face the increasing burden of the disease. The comparison between the two scenarios show that the estimated budget impact related to the acquisition of PI is cost-saving. The estimated savings in 2009 are US$1,618 million increasing 3.4 times during the five years period. Savings from the treatment of main side effects such as, diarrhea and cholesterol lowering intervention are also observed (US$ 12,777 and US$7,861 in 2009 respectively). CONCLUSIONS: An increase in the utilization of atazanavir represents a good clinical and economic option for Mexican MOH in the short and long run. The highest impact in the budget is produced mainly by the pharmacological costs. However, budget savings are also derived from the reduction of treatment costs side effects such as diarrhea and hypercholesterolemia.

BUDGET IMPACT OF ANTIMALARIA DRUG FORMULARY DECISIONS: A RETROSPECTIVE ANALYSIS FROM A NIGERIAN TEACHING HOSPITAL

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OBJECTIVES: To quantify the Budget Impact of antimalarial drug formulary decisions in a Nigerian Teaching Hospital. METHODS: A retrospective random sample of 17,000 prescriptions (2001–2008) with the wholesale prices of each prescribed drug was collected from pharmacy records. The total number of prescriptions per day, the date and the therapeutic class of the prescribed drugs were also noted. From this data, estimates of the proportion of patients that received a particular antimalaria medicine and the year of introduction or deletion of the drug from the drug formulary were made. The costs of a complete dose required for the treatment of a patient suffering from malaria when prescribed a particular antimalaria drug were calculated from the extracted wholesale prices. These variables served as input in a stochastic Monte Carlo model which was built to simulate the Budget Impact of each identified formulary decision by subtracting the total cost of drugs in the Old Drug Scenario from that of the New Drug Scenario. Negative values represent cost savings. A sensitivity analysis was conducted by varying the input parameters by ± 50%. RESULTS: Halofantrine was introduced into the hospital formulary in 2002 with a resultant significant (p < 0.0001) savings of NGN.02million with a mean of NGN.01million. The introduc- tion of artemesinin combination therapies (ACTs) in 2005 with the additional cost in artesunate in 2007 led to an increase expenditure of NGN3.02million (p < 0.0001) and NGN.07million (p = 0.171) respectively. In 2008, the number of patients that were prescribed ACTs decreased from 80.9% in 2007 to 67.9%. This strategy pro- duced a cost saving of NGN66.27million which was significant (p < 0.0001). Sensitivity analysis confirmed the robustness of the model. CONCLUSIONS: Introduction of ACTs into the hospital drug formulary significantly increased drug expenditure. We therefore suggest that a CEA of available antimalaria may prove to be a valuable tool to this budget holder.

MODELING THE INPATIENT AND OUTPATIENT COSTS OF MULTIDRUG-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) COMPLICATED SKIN AND SOFT TISSUE INFECTIONS (CSSTI): A COMPARISON OF LINEZOLID, VANCOMYCIN, DAPTOMYCIN, AND TIGECYCLINE

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OBJECTIVES: Previous economic analyses of MRSA-confirmed CSSTI have not included costs related to outpatient parenteral antibiotic therapy (OPAT). The objec- tive of this analysis was to develop an economic model to estimate medical and drug costs within both inpatient and outpatient components of care for treating MRSA CSSTI. METHODS: A 4-week decision model was developed to estimate the direct total, inpatient, and outpatient costs of treating MRSA CSSTI from a U.S. payer perspective taking into account successes, failures, and adverse events (AEs). Comparators included vancomycin, linezolid, daptomycin, and tigecycline. Published literature and database analyses, with validation by experts, provided clinical inputs and resource use data including MRSA efficacy, length of stay, and cost consequences of AEs and cSSTI failure, OPAT services, among others. Cost data was derived from literature and standard CPT coding reimbursements. The base case analysis assumed equal efficacy and equal LOS of 4 days among comparators. Univariate and probabilistic sensitivity analyses tested efficacy, complication rates, LOS, and other resource use parameters. Costs were reported in 2008US$. RESULTS: Total drug acquisition costs were $4–6 times lower for vancomycin compared to tigecycline, linezolid, and daptomycin. However, the total 4-week cost of treatment including drugs, clinical failures, complications, and OPAT were lowest for linezolid ($8,149), followed by vancomycin ($8,974), daptomycin ($10,313), and tigecycline ($11,362). Oral linezolid reduced the outpatient medical costs by 10-fold versus IV comparators. The most sensitive model variables for total cost were the MRSA efficacy, hospital LOS, OPAT days, and line placement complication costs. CONCLUSIONS: Although total drug acquisition costs were lowest for vancomycin, our model suggests linezolid provides total cost savings in cSSTI versus IV therapies, particularly in the outpatient arena. The budget impact of antimalarials for cSSTI should consider total medical cost offsets from both inpatient and outpatient perspectives.

COST-EFFECTIVENESS ANALYSIS OF DAPTOMYCIN VERSUS VANCOMYCIN IN COMPLICATED SKIN AND SOFT TISSUE INFECTION (CSSI): USING A DECISION ANALYTIC MODEL

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OBJECTIVES: To evaluate the cost-effectiveness of daptomycin versus vancomycin in complicated skin and soft structure infections (cSSSI). MEHTODS: A decision analytic (DA) model was developed to evaluate the cost-effectiveness of daptomycin versus vancomycin in cSSSI. The payer perspective was adopted and total direct costs related to cSSSI were measured. Efficacy (cure) was defined as a patient who was treated empirically with the study drug, had a positive culture of Methicillin-resistant Staphy- lococcus aureus did not relapse at the test of cure. Previous literature was used to determine the parameters of the model. Costs were determined from 2008 Drug Book and Decision Support System database. Primary outcome was the incremental cost-effectiveness ratio (ICER) of daptomycin over vancomycin. One-way sensitivity analyses were performed for all parameters and presented in a tornado diagram. Probabilistic sensitivity analysis was performed on all parameters using 10,000 trial simulations. RESULTS: In the base-case analysis, daptomycin and vancomycin arms had total direct costs of $11,162.88 and $16,307.74, respectively. Cure probabilities for patients in the daptomycin and vancomycin arms were 51.6% and 40.2%, respec- tively. Cost-effectiveness ratio for daptomycin and vancomycin were $21,619.78/cur-
and 40,573.33/cure, respectively. ICER was -$44,974.88/cure favoring daptomycin. Results from the one-way sensitivity analysis showed that duration of vancomycin intravenous treatment, cost of hospital night stay, and duration of daptomycin intravenous treatment were influential on the ICER; however, no break-even points were established and the model remained robust. Probabilistic sensitivity analysis displayed 77.9% of the ICER distribution in the dominant quadrant. Acceptability curve showed that daptomycin was 288.8% cost-effective compared to vancomycin at all ICER ranges. CONCLUSIONS: Daptomycin was cost-effective compared to vancomycin due to decreased total direct cost and reduction in inpatient stay. As a result, the proportion of ICER in the probabilistic sensitivity analysis favored daptomycin 77.9% which was reflected in the acceptability curve.

COMPARATIVE COST-EFFECTIVENESS ANALYSIS OF DARUNAVIR/ R FOR FIRST-LINE TREATMENT OF HIV INFECTION IN THE UNITED STATES

OBJECTIVES: The ritonavir-boosted protease inhibitor (PI) darunavir (darunavir/r) 800/100 mg QD has recently been licensed in the US for use in treatment-naive HIV-infected adults. The objective of this study was to compare the cost and efficacy of darunavir/r-based triple therapy with other combination therapies using PIs currently licensed for this patient population in the US. METHODS: Virologic efficacy was measured by the percentage of individuals with plasma HIV RNA < 50 copies/mL. (the current goal of antiretroviral therapy) at 48 weeks, based on a systematic review of published reports. A model-based scenario analysis including PI-based regimens in treatment-naive populations was conducted. Antiretroviral therapy costs were calculated in 2008 US dollars. The base-case analysis considered PIs with a tenofovir-based backbone regimen; an abacavir-based backbone was considered in scenario analysis. RESULTS: The base-case analysis showed that darunavir/r was the most efficacious PI/r with an incremental cost-effectiveness ratio (ICER) of $31,524 per additional individual with virologic response, when compared with fosamprenavir/r, the other only option on the efficiency frontier of PI-based initial therapy. All other PIs were less efficacious and more costly than darunavir/r, including two most commonly prescribed: atazanavir/ rtv and lopinavir/rtv. Before the introduction of darunavir/r, atazanavir/ rtv was most efficacious but with a higher ICER of $46,612 compared with fosamprenavir/r. Darunavir/r has an average cost of $25,059 per individual with virologic response, compared with $25,880 and $26,526 for atazanavir/rtv and lopinavir/rtv, respectively. Given a fixed budget of $10 million, darunavir/r successfully treats 399 individuals, compared with 386 and 377 for atazanavir/rtv and lopinavir/rtv, respectively. Similar results were obtained in scenario analysis using an abacavir-based backbone. CONCLUSIONS: Darunavir/r has an incremental cost-effectiveness of $18,684 compared to atazanavir/rtv. A second-order probabilistic Monte Carlo sensitivity analysis was conducted to assess the effects of parameter uncertainty on the study findings. RESULTS: The model projects an accumulated discounted cost to the Mexican health care system per patient receiving the Truvada regimen of US$28,776 compared to US$24,653 for the Kivexa regimen and US$22,999 for the Comibir regimen. The accumulated discounted cost is 3.85 QALYs per patient receiving Truvada compared to 4.89 QALYs for Kivexa and 4.81 QALYs for Comibir. This results in an incremental cost for Truvada and Kivexa vs. Comibir of US$5,803 per QALY and US$9,436 per QALY respectively. Considering a willingness to pay (WTP) threshold of US$10,000 per QALY there is a 90% probability that treatment with Truvada is cost-effective relative to Comibir. CONCLUSIONS: Results from these analyses suggest that in the Mexican setting, use of Truvada regimens of standard Comibir or Kivexa for treatment of HIV naive patients for treatment of HIV-naive patients to be cost effective. These conclusions are supported by conservative assumptions and sensitivity analyses.