INFECTIONS

INFECTIONS—Cost Studies

PIN12

COST-EFFECTIVENESS OF INTRAVENOUS IMMUNOGLOBULIN MANUFACTURED FROM CHROMOTOGRAPHY-CAPRYLATE VS. SOLVENT-DETERGENT METHODS IN PERSONS WITH PRIMARY IMMUNODEFICIENCY DISEASE

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OBJECTIVES: Intravenous immunoglobulin (IGIV) made from chromatography-caprylate methods (IGIV-C, 10%) was associated with a reduction in validated infections (pneumonia, sinusitis and acute exacerbation of chronic sinusitis) when compared to IGIV made from solvent-detergent methods (IGIV-SD, 10%) in patients with primary immunodeficiency disease. Our objective was to determine the cost-effectiveness of IGIV-C. **METHODS:** We performed a retrospective economic analysis of a double-blind, randomized, clinical trial. Participants were randomly assigned to IGIV-C (n = 87) or IGIV-SD (n = 85) and monitored for the development of validated infections over the course of 9 months. Consumed resources were enumerated including cost of physician and emergency room visits, medications (prescription and over-the-counter), work productivity losses and hospitalizations. Resource data was obtained from case report forms, patient diaries and the trial medication database. Unit costs were obtained from national costing sources (Thomson's Redbook, Health Care Utilization Project database), etc. Pricing of both IGIV products was the same therefore IGIV acquisition costs were not included in the analyses. We used a societal perspective with indirect costs, measured in 2003 U.S. dollars. **RESULTS:** In a multivariate analysis, mean per participant costs were significantly lower between those receiving IGIV-C compared to IGIV-SD for prescription medications (–$302, 95% CI: –$598, –$6), hospitalization (–$1454, 95% CI: –$1828, –$1080) and total costs (–$1304, 95% CI: –$1867, –$742). Participant costs associated with lost work productivity and physician visits were similar for both groups ($p > 0.10$). In sensitivity analyses, using 80% of average wholesale price for costing prescription medications instead of 95%, the mean per participant costs remained statistically lower for the IGIV-C group. **CONCLUSIONS:** IGIV-C is cost-saving and provides incremental health benefits therefore it is a dominant strategy compared to IGIV-SD. Differences in the process of immunoglobulin manufacturing can lead to meaningful clinical and economic outcome differences in the care.

PIN13

AN ECONOMIC AND CLINICAL ASSESSMENT OF FIRST-LINE MONOTHERAPY IN THE TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA WITHIN MANAGED CARE

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OBJECTIVE: The objective of this study was to evaluate the resource consumption and outcomes associated with first-line monotherapy for community-acquired pneumonia (CAP), focusing specifically on the use of erythromycin, azithromycin, clarithromycin, and levofloxacin. **METHODS:** A retrospective database analysis was conducted of patients diagnosed with pneumonia from managed care organizations from January 1995 to April 2002. Linear and logistic regression models were used to examine associations with treatment success rates and direct medical costs between antibiotic treatments after controlling for patient demographics and pneumonia risk factors. **RESULTS:** Overall, treatment success rates were high (95.8%), the use of second antibiotics was uncommon (2.3%), and hospitalizations were infrequent (2.0%) among the 1952 patients studied. After controlling for patient characteristics and risk factors, statistically lower total costs were associated with erythromycin (92.7% lower), azithromycin (48.7% lower), and clarithromycin (21.3% lower) relative to levofloxacin, with no difference in treatment success between groups. Post-hoc analyses assessing subsets as 1) >50 years of age; 2) presentation of a comorbid disease state; or 3) a chronic disease score (CDS) above the sample's mean indicated that both erythromycin and azithromycin were associated with statistically lower total costs than levofloxacin, while clarithromycin was not significantly different. When limiting the assessment to only newer agents, azithromycin (49.2% lower) and clarithromycin (21.7% lower) were associated with lower total costs relative to levofloxacin. Additionally, in subjects with a CDS above the sample's mean, only azithromycin was associated with lower total costs (49.2% lower) relative to levofloxacin, with no differences observed concerning treatment success. **CONCLUSIONS:** This real-world analysis of managed care patients found that erythromycin, azithromycin, and clarithromycin were associated with significantly lower total costs than levofloxacin, without differences in treatment success rates. Following stratification based upon various subset criteria, erythromycin and azithromycin were observed to have significantly lower total costs than levofloxacin.

PIN14

ECONOMIC COST STRUCTURE OF SEVERE SEPSIS MANAGEMENT

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OBJECTIVES: International studies have reported the overall cost per patient associated with severe sepsis. However, there is a lack of understanding about how the treatment cost and resource utilization varies with failure of one or more organs. This study was conducted to: 1) identify cost element flow and frequency of resource use to estimate aggregated cost for typical ICU medical and surgical severe sepsis patients with various organ dysfunctions, and 2) determine the prevalence of type of organ failures and cost associated with the management in severe sepsis patients with failure in two organs. **METHODS:** Retrospective review of the GSH administrative database from 1999 to 2002 of ICU severe sepsis patients (n = 889). Sepsis and organ failure classification was based on reported ICD-9-CM codes. Resource utilization and cost data, through day 28, were obtained from both ICU and non-ICU cost centers. **RESULTS:** A matrix of the frequency of resource utilization and average cost per resource associated with the severe sepsis treatment was generated. Resource categories included: room & board, nursing, medications, operating room, laboratories, diagnostics, physical therapy, and organ related treatment. The mean LOS was 16.6 ± 15 days for all severe sepsis patients. Survivors had an average 6 days greater LOS than non-survivors. The mean total cost per severe sepsis patient abstracted was $29,390 ± $24,673 ($1,594/day) for survivors, $27,837 ± $29,445 ($2,268/day) for non-survivors, and $27,548 ± $22,824 ($1,620/day) for sepsis patients with 2 acute organ failures. Highest prevalence among patients with two organ dysfunctions was Respiratory + (Cardiovascular or Renal) organ failures. Average hospital mortality of severe sepsis patient was 30.2%.