

eP036

ePoster Viewing

Antibiotic consumption-resistance associations

DETERMINING THE CLINICAL AND ECONOMIC IMPACT OF A FORMAL INTERVENTION PROGRAM AGAINST CARBAPENEM-RESISTANT *KLEBSIELLA PNEUMONIAE* INFECTIONS

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Objective. We have developed treatment algorithms for multi-drug resistant Gram negative infections at our center, which are based on strain genetics, resistance mechanisms, and results of time-kill assays. Our Antimicrobial Management Program introduced a formal intervention strategy in which we help guide the management of carbapenem-resistant *Klebsiella pneumoniae* (CR-Kp) infections. Our objective is to present preliminary data on the clinical and economic impact of the intervention strategy.

Methods. We performed an interim analysis of clinical and economic parameters for the treatment of CR-Kp bacteremia in the pre- and post-intervention periods.

Results. Beginning 6/13, our team has responded in real-time to TheraDoc alerts for (+) CR-Kp cultures in the hospital microbiology lab. We review patient notes, and offer recommendations based on our treatment algorithm and clinical expertise. Thereafter, we liaison with primary and consulting teams to make dose adjustments, monitor treatment responses and toxicity, and recommend duration of therapy. Depending on the clinical history and strain characteristics, the most commonly recommended treatment regimens were gentamicin 7 mg/kg IV +/- doripenem 1 gm IV Q8hrs, or doripenem 1 gm IV Q8hrs + colistin IV (loading and daily dose as in AAC 2011;55:3284-94). The addition of inhaled tobramycin or colistin is generally recommended for pneumonia. In the pre-intervention period (6/07-5/13), 83 bacteremic patients were identified. Median length of stay (LOS), 90d readmission rate, in-hospital mortality rate, and average total charges/patient (2013 US\$) were 60d, 39%, 45% and \$2,013,973, respectively. Total charges for all patients were \$167,159,739. The highest charges were for pharmacy (average \$685,535/patient), lab/pathology services (average \$501,605/patient), and ICU admission (average \$268,407/patient). 9 patients with 60d follow-up were identified in the post-intervention period. Among patients who survived for ≥ 3 d after (+) blood culture, 30d mortality rates in the pre- and post-intervention period were 45% (34/75) and 0% (0/7), respectively ($p=0.04$), and mean LOS after (+) blood cultures were 34d and 14.5d, respectively ($p=0.065$). No patients in the post-intervention period developed renal failure.

Conclusions. The clinical and economic impact of CR-Kp bacteremia at our center is substantial, reflecting the propensity of the disease for transplant and other acutely-ill patients. Preliminary data suggest that a formal intervention program may improve outcomes and shorten lengths of stay. The cost-savings of the intervention are anticipated to be high, based on LOS data and the fact that pharmacy expenses account for a large percentage of charges. Data collection is ongoing as the program continues, and we are planning to expand our interventions to infections caused by other multi-drug resistant Gram negative bacteria. Our XDR Pathogen research lab is studying several antimicrobial combinations against Gram negative bacteria with strain backgrounds that predict treatment failures based on our current algorithms.