Impact of Initial Inappropriate Antibiotic Therapy on Outcome for Uncomplicated Urinary Tract Infection Due to Antibiotic Non-susceptible Enterobacteriaceae

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ABSTRACT

Background: Uncomplicated urinary tract infection (UTI) is a common outpatient infection. Rising resistance rates among gram-negative bacteria have made some antibiotics ineffective for UTI, highlighting the potential for failure of outcomes related to initial inappropriate antibiotic therapy (IAT). The impact of IAT on cuff due to susceptible and non-susceptible Enterobacteriaceae has not been previously studied.

Methods/Outcome: We queried the BD Insights Research Database to evaluate ambulatory antibiotic fill history for patients from 15 U.S. institutions with a positive ambulatory urine culture for an uncomplicated UTI. Patients with a positive ambulatory urine culture for an UTI were further categorized as susceptible or non-susceptible Enterobacteriaceae. The frequency of hospitalization, >28 day-refills, antibiotic re-prescription rate, and all-cause 28-day refill rate were evaluated.

RESULTS

Table 1: Demographics and Characteristics of Outpatients with UTI

Table 2: Microbiologic Biology and 28-Day Antibiotic Fill

Table 3: 28-Day Fill Rate by Initial Antibiotic

Table 4: Impact of Mismatched Antibiotic Therapy on Outcomes within 28 Days

RESULTS

Table 3: 28-Day Fill Rate by Initial Antibiotic

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CONCLUSIONS

• Greater than 20% of patients with an outpatient UTI receive an antibiotic to which their pathogen is resistant.

• The 28-day antibiotic refill rate did not differ significantly by baseline pathogen or initial antibiotic prescribed.

• Refill rate did not differ by colony-forming unit at baseline.

• 28-day refill rates were similar for all oral antibiotics.

• Compared with episodes due to susceptible strains, prescribing an antibiotic to patients with outpatient UTI to which their pathogen is resistant is more likely to result in:

• A second antibiotic prescription within 28 days

• Hospitalization

• Further regression analysis will help define subgroups of patients who are most vulnerable to inappropriate and mismatched initial therapy.

• These findings highlight the need for novel oral antimicrobial options with activity against non-susceptible Enterobacteriaceae.