

ANTIBIOTIC PRESCRIBING PATTERNS AT BAYLOR CLINIC 2014-2016: EVALUATING PRESCRIBING PATTERNS AND SURVEYING PHYSICIAN BEHAVIORS

Lead Author: Kristen Mathias, Medical Student, MSIII

Contributing Authors: Rory Laubscher, Baylor College of Medicine, Susan Schindler, Baylor College of Medicine, Stacey Rose M.D., Baylor College of Medicine

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Background

Inappropriate antibiotic prescribing is a growing public health concern with potentially severe consequences, such as the development of antimicrobial resistance and Clostridium difficile infection (CDI). To advocate for better outpatient antimicrobial stewardship, the Centers for Disease Control and Prevention (CDC) has recommended tracking and reporting outpatient antibiotic prescribing patterns, with an emphasis on diagnoses for which antibiotics are commonly misused.

Objectives

The primary purpose of this study was to evaluate the appropriateness of antibiotic prescriptions at Baylor Clinic, a university-affiliated clinic in Houston, Texas, from 2014-2016. The study also examined cases of CDI to look for an association between inappropriate antimicrobial prescribing and subsequent CDI.

Methods

De-identified data on antimicrobial prescribing and CDI in patients seen at Baylor Clinic from 2014-2016 were retrospectively reviewed using the clinic's electronic medical record. Data was filtered to include visits of patients who had been prescribed antibiotics and were diagnosed with either sinusitis, pharyngitis, urinary tract infection (UTI) and/or CDI. For patients with repeat visits for the same diagnosis, only the first visit was included for analysis. CDC recommendations were used to classify antibiotic prescriptions as first-line or non-first-line.

Results

2072 antibiotic prescriptions associated with diagnoses of sinusitis, pharyngitis, or UTI and 95 cases of CDI were identified. 339 antibiotic prescriptions and 35 cases of CDI associated with repeat visits for the same diagnosis were excluded from analysis. Of 729 antibiotic prescriptions for sinusitis, 38% were first-line, compared to 16% of 209 prescriptions for pharyngitis and 44% of 795 prescriptions for UTI. Antibiotics belonging to the macrolide and/or fluoroquinolone classes were the most commonly prescribed non-first line agents for each condition. Additionally, of 60 unique cases of CDI examined, one was preceded by an inappropriate antibiotic prescription for UTI.

Discussion

In this study of antibiotic prescribing patterns, the majority of patients were prescribed non-first-line antibiotics for diagnoses of sinusitis, pharyngitis and UTI. In addition to the case of CDI preceded by an inappropriate antibiotic prescription, a particularly concerning result in our sample was the widespread use of fluoroquinolones. This antimicrobial class was recently determined by the U.S. Food and Drug Administration to carry more risk than potential benefit in patients with acute bacterial sinusitis and UTI. Study limitations include the retrospective, single-center design, as well as potential unmeasured confounders such as patient comorbidities or allergies. Nevertheless, the results support the need for improvement in outpatient antibiotic stewardship, with special emphasis on initiatives to address inappropriate prescribing of fluoroquinolones.