Treatment of Urinary Tract Infections in Infants Less Than 2 Months of Age

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Abstract

Background: Urinary tract infections (UTIs) are among the most common bacterial infections in neonates, yet infants under two months of age are often excluded from standardized treatment guidelines due to their distinct clinical characteristics. In this high-risk population, optimal route and duration of antibiotic therapy remain unclear.

Objective: To evaluate antibiotic treatment patterns and assess clinical outcomes, including recurrence, in neonates less than two months of age diagnosed with a UTI in the Neonatal Intensive Care Unit (NICU) setting.

Methods: This retrospective chart review was conducted at St. Louis Children's Hospital NICU between January 2021 and March 2024. Infants under two months of age with a positive urine culture (≥10,000 CFU/mL) who received antibiotic treatment during hospitalization were included. Patient records were reviewed through the electronic medical record (EMR) to collect data including demographics, genitourinary anomalies, antibiotic route and duration, and UTI recurrence. Associations were analyzed using Fisher's exact test, with statistical significance set at a p-value of < 0.05.

Results: A total of 156 charts were reviewed, with 127 patients meeting inclusion criteria. Patients were predominately male at 76% (97). IV antibiotics were the major treatment route at 63% (80). 80% of our patients received short-duration therapy of ≤8 days (102). UTI recurrence occurred in 20% of our cohort. Data collected did not indicate any differences in recurrence of UTIs for any variables (sex, congenital GU abnormality, duration </= 8 days, or use of IV v. oral antibiotic regimens).

Conclusion: In the single-center cohort review, recurrence was not associated with antibiotic route, treatment duration, or patient-specific factors. Further analysis at outside facilities who fit our criteria could be beneficial. Antibiotic selection and duration should be determined within the interdisciplinary team based off the clinical status of the patient. Despite there being no correlation of risk variables in regard to recurrence, this study emphasizes the importance of antimicrobial stewardship and provides guidance on how patient outcomes can be optimized.