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

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BACKGROUND

- Urinary tract infections (UTIs) are one of the most common bacterial infections in infants.
- Data on the treatment of UTIs in infants < 2 months of age are lacking and this population is largely excluded from guideline recommendations.
- Available studies focus on patients with UTIs and associated bacteremia but fail to assess treatment in non-bacteremic infants.
- Data to support outcomes based on the route of treatment (e.g. intravenous or oral) and duration of treatment in this younger population are needed.

OBJECTIVES

- To describe treatment (e.g. route and duration) and outcomes in infants less than 2 months of age with a diagnosed UTI.

METHODS

Study Design: Retrospective chart review
Study Population: Infants less than 2 months of age admitted to the Neonatal Intensive Care Unit (NICU) at St. Louis Children's Hospital from December 2018 to February 2024 who received antibiotics for the treatment of a UTI.
Study Measures:

- Gestational age, sex, birth weight, postnatal age and postmenstrual age at onset of the UTI, known genitourinary (GU) abnormalities, use of UTI antibiotic prophylaxis, antimicrobial data, duration of treatment, as well as recurrence and outcomes of UTI treatment.
- Recurrent UTI was defined as a subsequent UTI during the NICU admission with the same organism.

Statistical Analysis:

- Baseline demographics of the cohort were reported as medians and interquartile range.
- Statistical significance of recurrence of UTI was set at a p-value of <0.05 and analyzed using Fischer's exact test.

RESULTS

Table 1: Baseline Demographics (N=127)

Birth weight, g	1464 (951 – 2436)
Birth gestation, weeks	30.3 (27.6 – 36)
Male sex, n (%)	97 (76)
Congenital GU abnormality, n (%)	18 (14)
Received prophylactic antibiotics, n (%)	3 (2)
Received VCUG, n (%)	16 (13)
Invasive GU Hardware	1 (1)
Postnatal age, days	25 (17-40)
Postmenstrual age, weeks	35 (31.6-39.3)

GU - genitourinary
VCUG - voiding cystourethrogram

RESULTS

Table 2: Results (N=127)

Multi-organism UTI, n (%)	24 (19)
UTI caused by ESBL organism, n (%)	2 (2)
Febrile within 48 hours of positive urine culture, n (%)	23 (18)
Had other positive cultures 7 days before or after positive urine culture, n (%)	30 (24)
Consult with Infectious Diseases, n (%)	19 (15)

Figure 1: UTI Organisms Identified

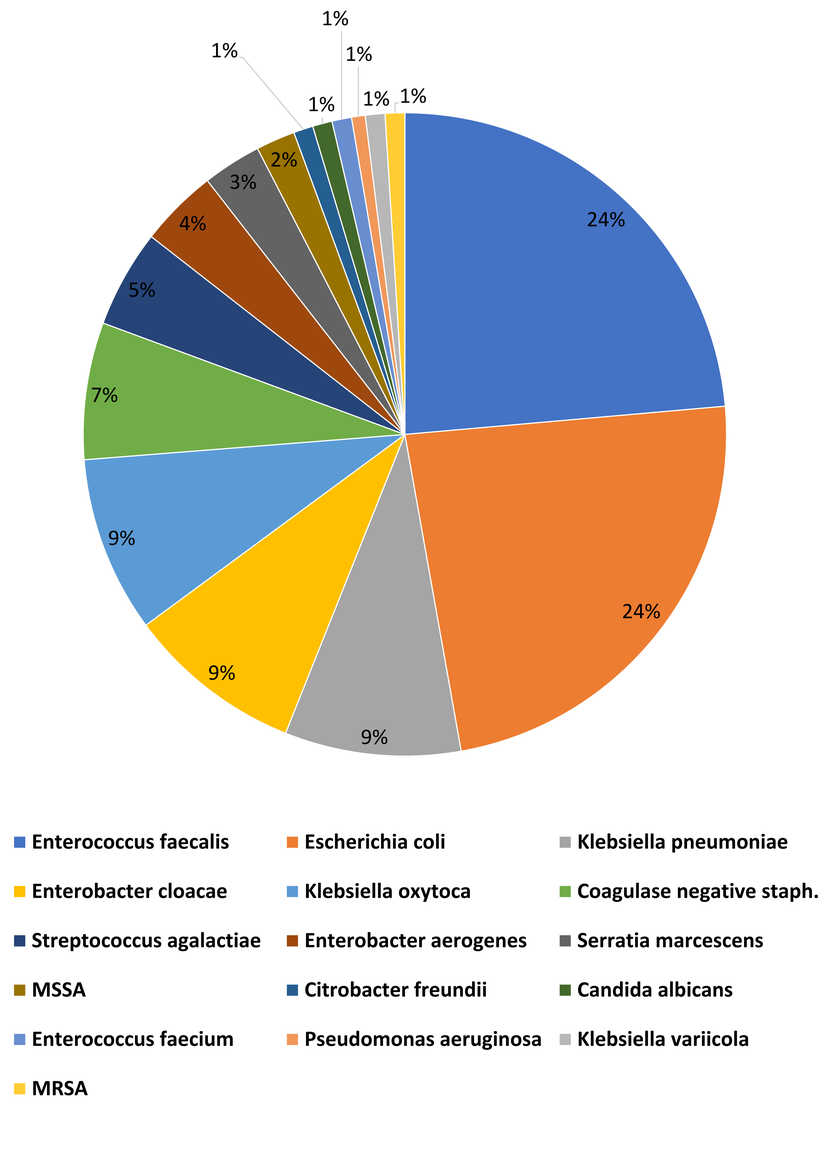

Figure 2: Urinalysis Data

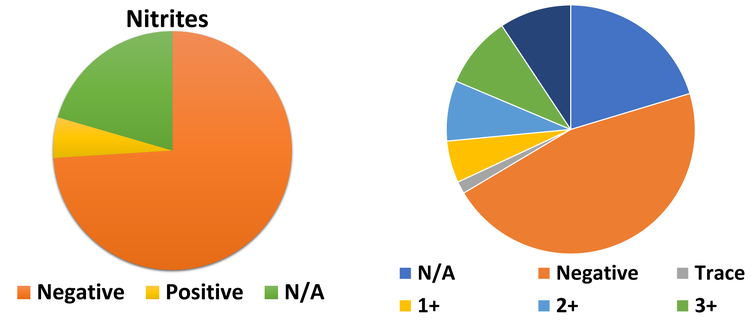

Table 3: Recurrence of UTI (N=127)

Recurrence of UTI by treatment route, n (%)	IV Only	17 (65%)	p = 0.784
	IV and PO	9 (35%)	
Recurrence of UTI by treatment duration, n (%)	≤ 8 days	16 (62%)	p = 0.737
	> 8 days	10 (38%)	
Recurrence of UTI by sex, n (%)	Male	21 (81%)	p = 0.759
	Female	5 (19%)	
Recurrence of UTI by congenital GU abnormality, n (%)	Yes	4 (15%)	p = 0.700
	No	22 (85%)	

DISCUSSION

- Recurrence of UTI was not associated with any specific cause including treatment duration, route, genitourinary abnormalities, or sex.

CONCLUSIONS

- In our cohort there were no identified risk factors for recurrence of UTI, including route and duration of treatment.
- Due to our analysis being limited to St. Louis Children's Hospital cohort, it could be beneficial to extend this study to other sites that fit our study criteria.