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The spectrum of uropathogens of urinary tract infection in children with different age groups

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Background: Urinary Tract Infection (UTI) is a serious infection in children. Epidemiology of pediatric UTI varies by age and other factors. The untreated/delay in diagnosis causes significant renal damage and hypertension in adult-life. Hence, timely identification of uropathogens is crucial for making therapeutic decisions in treating children.

Objective: The study aimed to determine the spectrum of uropathogens in children with UTI in different age groups.

Methods & Materials: The study was carried out with 506 culture-positive mid-stream/clean catch urine samples of children with UTI attending the Lady-Ridgeway Hospital, Colombo and District General Hospital, Polonnaruwa, Sri Lanka. Causative agents were presumptively identified by culture on Cysteine-Lactose-Electrolytes-Deficient agar and HiCrome-UTI agar followed by biochemical testing.

Results: A total of 506 children comprised 24 neonates (<1month), 79 infants (1 month-1 year), 177 children with 1–5 years, 129 with 5-10 years, and 97 with 10-14 years. Enterobacteriaceae was the predominant uropathogen (441/506;87.2%). *E. coli* accounted for the majority (274/506; 54.2%) in all age groups except in neonates in whom *Klebsiella* was predominant followed by *Enterococcus* (5/24; 20.7%) and *E. coli* (4/24;16.7%). *E. coli* (43/79;54.4%) was predominantly isolated from infants which was followed by *Klebsiella* (19/79;24.0%), *Enterococcus* (10/79;12.6%) and *Pseudomonas* (4/79;5.1%). In children of 1-5 years, *E. coli* (93/177;52.5%), *Klebsiella* (32/177;18.1%), *Enterococcus* (19/177;10.7%), *Pseudomonas* (16/177;9.0%), *Proteus* (12/177;6.8%), and coagulase-negative staphylococci (CNS) (3/177;1.7%) were isolated. *E. coli* (77/129;59.7%), *Klebsiella* (17/129;13.2%), *Pseudomonas* (15/129;11.5%), *Enterococcus* (7/129;5.4%), CNS (4/129;3.1%), *Proteus* (3/129;2.3%), *Acinetobacter*, *S. aureus*, and Group-B-streptococci (2/129;1.6% each) were isolated from children of 6-10 years. *E. coli* (57/97;58.7%), *Klebsiella* (23/97;23.7%), *Pseudomonas*, CNS (5/97;5.2% each) and *Proteus* (3/97;3.1%) were isolated from children of 11-14 years. A statistically significant difference was found in the spectrum of uropathogens between neonates against 1-5, 5-10, 10-14 age groups (p<0.001).

Conclusion: *E. coli* accounted for UTI in the majority of all age groups except in neonates. *Klebsiella* was predominantly isolated from neonates *S. aureus* remained least prevalent. The current data would serve as a basis until a larger-scale study involving more centers is done.