

Clinical Presentation and Aetiological Agents of Urinary Tract Infection in Children

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ABSTRACT

Objective: To describe the clinical presentation and to identify the aetiological agents causing urinary tract infection.

Study Design: Descriptive study

Place and Duration of Study: This study was carried out in the Department of Paediatric Medicine, Nishtar Medical College/Hospital, Multan from January 2013 to December 2013.

Materials and Methods: A total of 50 children were included in the study conducted at Nishtar Medical College/Hospital, Multan.

Results: Out of 50 children, 38 were female and 12 were male. 28 children were from 1-3 years age group and 22 were of more than 3 years. Most common clinical presentations were fever, urinary symptoms, vomiting and pain abdomen. Aetiological agents in study were Escherichia coli, klebsiella, proteus, staphylococcus saprophyticus, streptococcus fecalis or pseudomonas. four cases of UTI (3 females, 1 male) were associated with nephritic syndrome. Four cases were associated with malnutrition.

Conclusion: It is concluded from study that UTI is more common in females between the age of 2-4 years mostly due to problems in their toilet training.

Key Words: Urinary tract infection, Fever, Dysuria

INTRODUCTION

Urinary tract infection (UTI) is defined as the presence of a single bacterial growth of >10 colony forming units/ml¹ in a clean catch, mid stream urine sample or >10 organisms/ml in a catheter or suprapubic aspirated of urine².

Urinary tract infections are a common clinical problem in childhood and may lead to renal scarring, hypertension or end stage renal dysfunction³. Urinary tract infections occur in 3-5% of girls or 1% of boys. In girls, the first UTI usually occurs by the age of 5 years, with peaks during infancy or toilet training. In boys, most UTIs occur during the first year of life; UTIs are much more common in uncircumcised boys⁴. Several studies shown that infants and young children can present with fever as a sole manifestation of a UTI⁵.

Symptoms of UTI in older children may include fever, urinary symptoms and abdominal pain⁶. Occasionally, older children may present with failure to thrive, nephropathy or hypertension secondary to unrecognized UTIs earlier in childhood⁷.

MATERIALS AND METHODS

This descriptive study was carried out in the Department of Paediatric Medicine, Nishtar Medical College/Hospital, Multan from January 2013 to December 2013. A total of 50 children were included in the study.

RESULTS

Out of 50 children, 38 were female and 12 were male. 28 children were from 1-3 years age group and 22 were of more than 3 years. Mean age of the children was 2.75 ± 1.05 . Mean weight was 12.41 ± 2.3 kg and mean height was 91.1 ± 7.97 cm.

The most common symptoms noted in present study were fever 84%, urinary frequency 32% and vomiting 30% as shown in table-1.

Clinical findings noted were generalized abdominal tenderness 24%, lumbar tenderness 18% and suprapubic tenderness 14% as shown in Figure-1.

Regarding the aetiology, E. coli was responsible for UTI in 78% children (Table-2).

Table No.1: Symptoms of UTI (n=50)

Symptoms	Patients age		Total
	1-3 Years (28)	>3 years (22)	
Fever	25(89.3%)	17 (77%)	42(84%)
Urine frequency	07 (25%)	09 (41%)	16(32%)
Vomiting	08 (28%)	07 (32%)	15(30%)

Table No.2: Aetiology of the UTI (n=50)

Aetiology	No. of children	%age
E. coli	39	78.0
Klebsiellae	04	04.0
S. saprophyticus	02	04.0
P. aeruginosa	02	04.0
S. facalis	02	04.0
Proteus	01	02.0

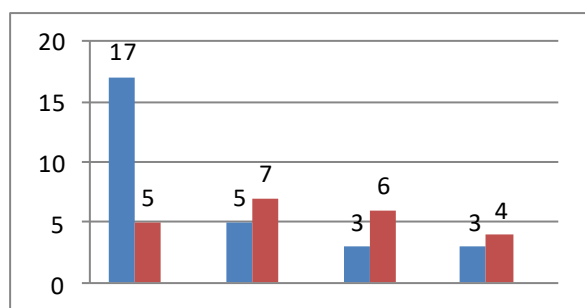


Figure No.1: Abdominal tenderness (n=50)

DISCUSSION

The common symptoms noted in present study were fever 84%, urinary frequency 32% and vomiting 30%. In a study it has been reported that fever 92%, dysuria 68% and failure to thrive 31%⁵. Fever in 73.3%, failure to thrive 46.6%, vomiting and pallor (40% each) were the most common presentations in another study⁸. Ahmad et al have found fever the most common presentation (78%) followed by pain abdomen 54% and dysuria 40% in patients of UTI⁹, while to thrive was observed in 12% of patients. Ahmadzaden et al have reported fever 83% and dysuria 48% in patients of UTI in the study¹⁰.

In a study it is reported that 48% of the patients did not have any pain⁵. Others presented with generalized abdominal pain 21, lumbar tenderness 18% and hypogastric pain 13% in descending order of frequency. Similar findings were observed in other study¹¹.

S. saprophyticus was found 4% in present study. It was 14.9%, 10-15% in other studies¹². *P. aeruginosa* was found 4% in present study. In present study of 50 children the ratio of female to male was 3.2:1. In a study, female to male ratio in the patients of UTI up to the age of 7 years was found 4.9:1¹³. It was found 16.7% and 9% respectively in other studies¹⁴.

It was found that single and multidrug resistance to ampicillin, amoxicillin, cefazolin, ciprofloxacin, nitrofurantoin and co-trimoxazole were found on all specimens of UTI patients. The *E. coli* resistance to ampicillin peaked in toddlers (52.8%) but was high in infants 50.4%. the most common co-resistance in all age groups was ampicillin/co-trimoxazole¹⁵. In another study *E. coli* had a resistance rate of more than 50% to ampicillin, amoxicillin, co-trimoxazole, cephadrine and fosfomycin, but a very low resistance rate (<4%) to 3rd generation cephalosporin, nitrofurantoin, azactam and amikacin¹⁶. In a study conducted, trimethoprim resistance was found 15.2% overall, with a resistance rate for *E. coli* to trimethoprim was 17.7%. Rates of antibiotic resistance for all organisms to nitrofurantoin (2.9%) and norfloxacin 0.9%) remain low¹⁷

CONCLUSION

It is concluded from study that UTI is more common in females between the age of 204 years mostly due to problems in their toilet training.

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