**Original article:**

# Clinical profile and socioeconomic demography in children with urinary tract infection

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**Abstract:**

**Introduction:** Urinary Tract Infection (UTI) is a common clinical problem in childhood. Localization of bacteria in the renal parenchyma, renal pelvis, bladder of urethra, irrespective of the fact, whether the child is symptomatic or asymptomatic, is termed as urinary tract infection.

**Methodology:** This work was completed during two years. Children who met the inclusion criteria were screened (around 1-2/day). Urine for culture was sent in appropriate cases. Consent to carry out investigations was obtained from parents of each child after explaining to them the nature of illness in terms they could understand, most often in their own language.

**Results :** This statistical test is significantly proving that girls are more affected than girls are more affected than boys in urinary tract infections among the study population.

**Conclusions**: From present study we may conclude that prevalence of UTI was more in boys< 2 years and in girls> 2 years.

## Introduction:

Urinary Tract Infection (UTI) is a common clinical problem in childhood. Localization of bacteria in the renal parenchyma, renal pelvis, bladder of urethra, irrespective of the fact, whether the child is symptomatic or asymptomatic, is termed as urinary tract infection.[1] Urinary tract is very often the site of bacterial localization. Symptomatology of urinary tract infection is quite variable. Urinary tract infection is very common cause of morbidity in infants and children. Because of Jack of urologic signs and symptoms, many attacks of pyelonephritis in infants are missed or are diagnosed late, or are misdiagnosed as teething problems tonsillitis, bronchitis or stomach upsets. Untreated or inadequately treated, urinary tract infection lead to chronicity. [2] As a result, the progression from acute to chronic pyelonephritis is common. In its chronic form, it may cause serious impairment of renal function with resultant growth failure, renal rickets, uraemia, hypertension and death in older children and young adults. About one third of patients suffer from recurrences or from other sequelae as mentioned before.[3] With this background present work was planned to study of urinary tract infections among the children aged 2 months to 12 years, attending the Paediatric Department of Mahavir hospital, Hyderabad.

## Methodology:

This work was completed during two years. Children who met the inclusion criteria were screened (around 1-2/day). Urine for culture was sent in appropriate cases.

Consent to carry out investigations was



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obtained from parents of each child after explaining to them the nature of illness in terms they could understand, most often in their own language.

**Inclusion criteria**

Children with fever with signs and symptoms of UTI ( burning m icturation, haematuria, urinary incontinence, bed wetting, abdominal pain, foul smelling urine)

Children with fever with no specific focus of infection.

**Exclusion criteria**

Children or infants with diagnosis of upper respiratory tract infection, otitis media, gastroenteritis or central nervous system manifestations.

Children who have been on antibiotics prior to evaluation.

Detailed history and thorough clinical examination were undertaken according to the proforma attached. History was obtained regarding clinical symptomatology, predisposing factors, risk factors were taken. Detailed examination was done to find the focus of infection with special attention to the presence of dysmorphic features, congenital anomalies and renal masses, if any.

**Observations and results:**

**Table 1: Age wise distribution of total sample as per urinary symptoms**

| AGE | POSITIVE URINARY SYMPTOMS | NEGATIVE URINARY ''SYMPTOMS | TOTAL |
|---|---|---|---|
| 2mths-12yrs | 23(8.51 %) | 4800(25%) | 4823(24.86%) |
| 2Yrs-5yrs | 146(54.07%) | 9325(48.74%) | 9471(48.81%) |
| 5yrs-12yrs | 101(37.4%) | 5005(26.16%) | 5106(26.31%) |
| TOTAL | 270 | 19130 | 19400 |

The above table shows that children are affected more after the age of years.146(54.07%) were between 2-5yrs and 101(37.4%) were between 5-12yrs. $X^2$ (Chi-square test)= 39.15 ($p < 0.00000r$). This statistical test is significantly proving that children above 2yrs are more prone to develop urinary tract infectiorts in the study population.



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Table 2 : **Sex wise distribution of total sample as per urinary symptoms**

| SEX | URINARY SYMPTOMS POSITIVE | URINARY SYMPTOMS NEGATIVE | TOTAL |
|---|---|---|---|
| MALE | 102(37.7%) | 8676(45.35%) | 8778(45.24%) |
| FEMALE | 168(62.2%) | 10454(54.64%) | 10622(54.74%) |
| TOTAL | 270 | 19130 | 19400 |

The above table shows that female children (62.2%) are more affected than males (37.7%).

$X^2$ (Chi-square test) $-617(p < 0.0130)$

This statistical test is significantly proving that girls are more affected than girls are more affected than boys in urinary tract infections among the study population.

**Table 3 : Socioeconomic profile**

| CLASS | MALE | I | TOTAL |
|---|---|---|---|
| Upper class | 12(11.76%) | 9(5.35%) | 21(7.7%) |
| Upper middle | 9(8.8%) | 8(4.76%) | 17(6.2%) |
| Upper lower | 21(20.58%) | 40(23.8%) | 61(22.95%) |
| Lower middle | 32(27.45%) | 53(31.54%) | 85(31.48%) |
| Lower class | 28(27.45%) | 58(34.52%) | 86(31.85%) |
| TCTAL | 102 | 168 | 270 |

The above table shows that children with low socioeconomic status are more prone to develop UTI.

$X^2$ (Chi-square test) = 8.33 ($p < 0.0038$)

This statistical test is significantly pl!oving that low socioeconomic status can be an extraneous factor for UTI among the study population.



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**Bad personal hygiene**

**Table 4**

| BAD PERSONALITY<br><br>HYGIENE | FEMALE | MALE | TOTAL |
|---|---|---|---|
| + | 42(25%) | 15(14.7%) | 57(21.1 %) |
| - | 126(75%) | 87(85.2%) | 213(78.8%) |
| TOTAL | 168 | 102 | 270 |

The above table shows that bad personal hygiene, females (25%) and males (14.7%) was an important factor for causation of UTI.

$X^2$ (Chi-square test)= 4.04 (P < 0.04'447)

This statistical test is significantly proving that bad personal hygiene can be an extraneous factor for UTI among study population.

**Table 5**

| CATHETERIZATION | MALE | FEMALE | TOTAL |
|---|---|---|---|
| + | 03(2.9%) | 28(16.6%) | 31(11.48%) |
| - | 99(97.05%) | 140(83.33%) | 239(88.51 %) |
| TOTAL | 102 | 168 | 270 |

The above table shows catheterization, males (2.9%) and females (16.6%) can be a cause for UTI.

$X^2$ = 11.76 (p < 0.0006) . This statistical test is significantly proving that catheterization can be an extraneous factor for UTI among the study population.

**Analysis of clinical features :**

**Table** 6

| S. NO. | SYMPTOMS | NO. OF CASES |
|---|---|---|
| l | Fever ( > 100° F ) | 153 ( 56.66%) |
| 2 | Burning micturation | 139( 51.48% ) |
| 3 | Frequency | 88 ( 32.59%) |
| 4 | Pain abdomen | 97 ( 35.92%) |
| 5 | High coloured urine | 46 ( 17.03%) |
| 6 | Dribbling | 23( 8.51%) |
| 7 | Vomiting | 46 ( 17.03%) |



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| | | |
|---|---|---|
| 8 | Crying while passing urine | 37 ( 13.70%) |
| 9 | Urgency | 37 ( 13.70%) |
| 10 | Haematuria | 37 ( 13.70%) |
| **II** | Diarrhoea | 9( 3.33%) |
| 12 | Thin urinary stream | 5( 1.85%) |
| 13 | Failure to thrive | 9(3.33%) |

The above table indicates the various symptoms the patients presented with. The above data suggests that fever was a consistent finding with axillary temperature of more than l 00° F in 33 cases and was a nonspecific manifestation (l).Pain abdomen was observed in 46 children and vomiting in 46 children. Older children presented with specific related to the urinary tract (burning micturation, polyuria and high coloured urine) making the diagnosis more easy. High index of clinical suspicion was necessary in infancy when symptoms were nonspecific [9].

In infancy. symptoms are nonspecific and may allow prolonged infection to occur prior to diagnosis and treatment [9. 51]. The first attack of UTI in infancy and early childhood is usually not a single attack but beginning of a continuous process with risk of recurrences {1[2] **1** unexplained fever, failure to thrive, vomiting is the common presenting symptom.

**Discussion**

Though UTI is the second most common infection in paediatric age group, initial episodes of UTI occur more commonly in infancy than at any other ageCl, IOl. In our study we had more number of cases in the age group of 2 to 5 yrs and which is in concordance with other studies.

Fever appears to be the consistently present feature in infants in more than 2/3rct< of cases with UTI, while no other signs and symptoms accurately predict the presence of UTI [3]. Therefore clinical suspicion is paramount in early recognition and prompt therapy.

Determination of prevalence of a disease is influenced by the approach to diagnosis and varies with age and sex. The overall percentage in out study of documented was around 0.3%. Of the various studies that quote the prevalence, Gill Ruston et al suggest a prevalence of sythptomatic UTI at risk for 11 years in 3% for girls and 1.2% for boys. Julia Spences et al suggest a prevalence of 0.7to 1.9% in girls and 0.2% in boys <[4]

In this study males predominated < 2years age group and formed 72.7% of cases in this group. KASS EH analyzed sex prediction in < !year age group and found 77% incidence in male children <[54]l. According to study done by K. Ranganathan <[5]l, V. N. Tripathi maximum numbers of urinary tract infections were in the age group of l – 5 years. Male children were predominant in the age group of 1 – 2 years and girls were predominant after 2 years.

In this study female predilection was seen in the age group 2 – 5 years were 66.6%. The incidence of UTI in girls was more in > **I** year age group, with a peak in 3 – 6 years \[6]l.

In this study male : female sex ratio was



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1 : 1.42.In less than 2 years it was 2.6 : 1, 2– 5 years it was 1 : 2 and 5– 12 yeas it was 1 : 1.9. Thus males dominated in < 2years while females dominated in> 2 years.

Increased Frequency was complained by 32.59% cases. It was difficult to assess frequency in infants because of involuntary passage of urine in the diapers. Garg (1966) observed it in 24% while Belapurkar at al ( 1970) in 10.4% cases.

On clinical examination – suprapubic pain (17.03%), renal angle pain (3.33%), facial oedema (5.9%), fever (56.66%) suprapubic dullness (11.85%), phimosis (3.33%), anaemia (29.31 %)hypertension (10.34%).

**Conclusions**:

From present study we may conclude that prevalence of UTI was more in boys< 2 years and in girls> 2 years.

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