

Original Research Article

To Study the Clinico - etiological profile of urinary tract infection among children in outpatient and inpatient department.

Dr. Priyanka Bordiya¹ (MBBS, MD Paediatrics), Dr. Gunjan Kela² (Professor and HOD) & Dr. Neeta Singh³ (Senior Resident)

^{1,2}Department of Paediatrics, Sri Aurobindo Institute of Medical Sciences, Indore M.P.
³Department of Paediatrics, SRVS Medical College, Shivpuri

Corresponding Author: Dr. Priyanka Bordiya

Abstract:

Background & Method: The aim of this study is to Study the Clinico - etiological profile of urinary tract infection among children in outpatient and inpatient department. We had enrolled all the patients of Paediatric department who had either symptoms of UTI of 3months to 15years of age during October 2019 to March 2021 with positive Urine R/M or Urine C/S History, clinical features, investigations and treatment given will be recorded as per Performa.

Result: Patients according to presenting complaints. Fever was seen in 176 (88%) patients, vomiting in 143 (71.5%) patients, abdominal pain in 137 (68.5%) patients, dysuria in 134 (67%) patients, constipation in 127 (63.5%) patients, frequency of urination in 122 (61%) patients, failure to thrive in 42 (21%) patients, urgency in 14 (7.0%) patients, hematuria in 9 (4.5%) patients, lethargy / dullness in 7 (3.5%) patients, enuresis in 3 (1.5%) patients and incontinence in 2 (1%) patients. Fever, vomiting, abdominal pain, dysuria, constipation and frequency of urination were the most common presenting complaints.

Conclusion: Fever was seen in (n 176) (88%) patients, vomiting in 71.5% (n 143) patients, abdominal pain in 68.5%(n 137) patients, followed by dysuria in 67%(n 134) patients, Fever, vomiting, abdominal pain, dysuria, constipation and frequency of urination were the most common presenting complaints. Renal abnormalities were seen in 8.5% (n 17) patients, neuromuscular problems was seen in 2.5%(n5) patients and voiding dysfunction was seen in 2%(n 4) patients.

Keywords: etiological, UTI & children,.

Study Designed: Observational Study.

1. INTRODUCTION

Urinary tract infection (UTI) is a serious condition that impacts many children. After gastrointestinal infections and respiratory disorders, it is thought to be the third most prevalent cause of fever in children.

UTI is associated with significant morbidity in this important and sensitive age group because it can lead to major consequences such as hypertension, renal scarring, and end-stage renal failure.

High grade fever, abdomino-pelvic discomfort, and urine symptoms are common in children with acute pyelonephritis. These symptoms, however, are not specific and can arise in diseases of the lower urinary tract, such as cystitis.

Differentiating between the two disorders on a clinical basis is difficult. As a result, more research is needed to determine the correct diagnosis and prognosis. Age, gender, constipation, lack of circumcision, poor water intake, not taking an anthelmintic, and lack of toilet training are all risk factors for UTI.

UTI is more common in males in first six months of life because they are more likely to be born with structural abnormalities of the urinary system. Symptomatic infections are 10 to 20 times more common in girls than in boys during the preschool years.

Constipation is a common issue among children all over the world. The prevalence rate of functional constipation in children has been estimated to be anywhere from 4% and 37%. Infection of the urinary system is a major cause of morbidity in children. It includes kidney damage as well as child mortality.

Urinary tract infection caused by a variety of organisms. Gram negative coliform bacteria, which originate from faecal flora colonising the perineum and enter and ascend the urinary tract, are the most common cause of UTI in children. The most frequent uropathogen is *Escherichia coli* (*E.coli*), which causes around 80% of paediatric UTIs. To circumvent host defences, uropathogenic *E.coli* strains have unique features, such as fimbriae that bind to the uroepithelial cell surface. *Klebsiella*, *Proteus*, *Enterobacter*, and *Enterococcus* species are among the most prevalent uropathogens.

2. MATERIAL & METHOD

Sri Aurobindo Institute of Medical Sciences & PGI, Indore hospital after obtaining approval from the Institutional Ethics Committee and after obtaining written informed consent from Parents.

We had enrolled all the patients Paediatric department who had either symptoms of UTI of 3months to 15years of age during October 2019 to March 2021 with positive Urine R/M or Urine C/S History, clinical features, investigations and treatment given will be recorded as per Proforma.

Relevant data was analysed with respect to etiology, clinical features, complications, treatment given and outcomes of patients with UTI admitted in paediatric ward

Inclusion Criteria

- Children of age 3months to 15years admitted and coming in OPD and in paediatric wards who had either urine routine microscopy or urine culture positive for UTI.

Exclusion Criteria

- Children who had normal urine routine microscopy
- Informed written consent has been taken from the patient or patients relatives.
- A pre-structured Proforma is used for collection of base line data.
- A detailed history and correlation with relevant lab investigations has been done.

Sample Size

Sample size of 200 patients(considering average 10-12cases of UTI in paediatric wards and patients coming in OPD every month).

3. RESULTS

Table No 1 - Distribution of patients according to age

| Age | Number | Percentage |
|--------------|------------|--------------|
| <=5 years | 93 | 46.5 |
| 6-10 years | 48 | 24.0 |
| 11-15 years | 59 | 29.5 |
| Total | 200 | 100.0 |

The above table shows the distribution of patients according to age.

93 (46.5%) patients were of age <=5 years, 48 (24%) patients were in the age group 6-10 years and 59 (29.5%) patients were in the age group 11-15 years. Majority of the patients were in the age group <=5 years.

Table No.2 Distribution of patients according to sex

| Sex | Number | Percentage |
|--------------|------------|--------------|
| Female | 93 | 46.5 |
| Male | 107 | 53.5 |
| Total | 200 | 100.0 |

The above table shows the distribution of patients according to sex. There were 93 (46.5%) patients were females and 107 (53.3%) patients were males. There were more males compared to the females.

Table No. 3 Distribution of patients according to presenting complaints

| Presenting Complaints | Number | Percentage |
|-----------------------|--------|------------|
| Fever | 176 | 88.0 |
| Vomiting | 143 | 71.5 |
| Abdominal pain | 137 | 68.5 |
| Dysuria | 134 | 67.0 |
| Constipation | 127 | 63.5 |
| Frequency | 122 | 61.0 |
| Failure to thrive | 42 | 21.0 |
| Urgency | 14 | 7.0 |
| Hematuria | 9 | 4.5 |
| Lethargy / dullness | 7 | 3.5 |
| Enuresis | 3 | 1.5 |
| Incontinence | 2 | 1.0 |

The above table shows the distribution of patients according to presenting complaints. Fever was seen in 176 (88%) patients, vomiting in 143 (71.5%) patients, abdominal pain in 137 (68.5%) patients, dysuria in 134 (67%) patients, constipation in 127 (63.5%) patients, frequency of urination in 122 (61%) patients, failure to thrive in 42 (21%) patients, urgency in 14 (7.0%) patients, hematuria in 9 (4.5%) patients, lethargy / dullness in 7 (3.5%) patients, enuresis in 3 (1.5%) patients and incontinence in 2 (1%) patients. Fever, vomiting,

abdominal pain, dysuria, constipation and frequency of urination were the most common presenting complaints.

Table No .4 Distribution of patients according to comorbidities

| Comorbidities | Number | Percentage |
|------------------------|---------------|-------------------|
| Renal abnormalities | 17 | 8.5 |
| Neuromuscular problems | 5 | 2.5 |
| Voiding dysfunction | 4 | 2.0 |

The above table shows the distribution of patients according to comorbidities.

Renal abnormalities were seen in 17 (8.5%) patients, neuromuscular problems was seen in 5 (2.5%) patients and voiding dysfunction was seen in 4 (2%) patients.

Table No.5 Distribution of patients according to renal abnormalities

(N=17)

| Renal abnormalities | Number | Percentage |
|-------------------------------------|---------------|-------------------|
| HYDRONEPHROSIS | 10 | 47.6 |
| PUJ OBSTRUCTION | 2 | 9.5 |
| Duplication of pelvicalyceal system | 1 | 4.8 |
| VUR | 5 | 23.8 |

| | | |
|---------------------------------|----|-------|
| Polycystic kidney disease | 1 | 4.8 |
| Renal agenesis, potter syndrome | 1 | 4.8 |
| Right dysplastic kidney | 1 | 4.8 |
| Total | 21 | 100.0 |

The above table shows the distribution of patients according to renal abnormalities.

4. DISCUSSION

In this study urinary tract infection occurred more in male children than in female children. 46.5% (n 93) patients were of age ≤ 5 years, 24% (n 48) patients were in the age group 6-10 years and 29.5% (n 59) patients were in the age group 11-15 years.

Majority of the patients were in the age group ≤ 5 years. Studies done elsewhere and literature may be different from this. The probable reason for this difference is that the study being hospital based and the proportion of male and female children attending our hospital may be different.

On analysing the clinical profile of the study group fever was the most common presenting symptom with 88% (n 176) of the children presenting with it. This is followed by vomiting which was seen in 71.5% (n 143). The third common symptom was abdominal pain which contributed 68.5% (n137)

This is similar to other study by A Sharma et al⁽¹⁰¹⁾ which included children from two months to fifteen years conducted in Nepal except that the second common presentation was abdominal pain.

In a study by April Gamier Bay et al⁽¹⁰⁵⁾ taking all children with Urinary infection coming to outpatient department at Philippines also showed fever as the most common presentation and abdominal pain as the second common one.

Malla KK et al⁽¹⁰²⁾, Islam MN et al⁽¹⁰³⁾ and Brkic S et al⁽¹⁰⁴⁾ showed fever as most common presenting complaint in their studies.

In a study by Qureshi AM et al⁽¹⁰⁶⁾ fever as the most common presentation and abdominal pain as the second common one.

Malla KK et al⁽¹⁰²⁾, Islam MN et al⁽¹⁰³⁾ and Brkic S et al⁽¹⁰⁴⁾ showed fever as most common presenting complaint in their studies.

In a study by Qureshi AM et al⁽¹⁰⁶⁾ fever was the most common presentation but percentage was very high (92%) and dysuria was second common presentation with 68% of children presenting with it. This study involved children up to fifteen years of age at Abbottabad.

Among laboratory findings 54 % (n 108) children had leukocytosis. This was the most common presentation and 7% (n 14) of children had elevated creatinine.

5. CONCLUSION

93 (46.5%) patients were of age ≤ 5 years, n 48 (24%) patients were in the age group 6-10 years and n 59 (29.5%) patients were in the age group 11-15 years. Majority of the patients were in the age group ≤ 5 years.

Fever was seen in (n 176) (88%) patients, vomiting in 71.5% (n 143) patients, abdominal pain in 68.5% (n 137) patients, followed by dysuria in 67% (n 134) patients, Fever, vomiting, abdominal pain, dysuria, constipation and frequency of urination were the most common presenting complaints. Renal abnormalities were seen in 8.5% (n 17) patients, neuromuscular problems were seen in 2.5% (n 5) patients and voiding dysfunction was seen in 2% (n 4) patients.

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