


CLINICAL AND DEMOGRAPHIC PROFILE OF UTI IN CHILDREN BETWEEN 2- 15 YEARS IN A SECONDARY CARE CENTRE
¹Dr. Divya Dhiman and ^{2*}Dr. Twinkle Sood
¹M.D Paediatrics Both the authors are affiliated with Civil Hospital Palampur.

²M.S OBG, Both the authors are affiliated with Civil Hospital Palampur.

***Corresponding Author: Dr. Twinkle Sood**

M.S OBG, IGMC, Shimla, Himachal Pradesh.

Article Received on 21/12/2022**Article Revised on 11/01/2023****Article Accepted on 31/01/2023**
ABSTRACT

Introduction: Urinary tract infection is among the most common infections occurring during childhood. It is caused by both gram negative and grampositive bacteria and Escherichia coli is the causative agent. It results in significant morbidity by producing irreversible damage to renal system if not treated adequately. **Materials and Methods:** A observational study was carried out at Civil hospital Palampur from July 2022 to December 2022. In this study, children between the age group of 2 to 15 years who were diagnosed as a case of UTI on the basis of urine routine examination were included. These children were followed up for a period of 6 months. Some hematological investigations, urine routine examination and urine culture and sensitivity and ultrasonography is done in these patients. Their clinical and demographic profile is studied in this study. **Results:** In total 70 patient , 33 (47.1 %) were males and 37 (52.8%) were females . Out of total 70 patients, 28(40%) presented with urinary symptoms like burning micturition , increased frequency of micturition and pain while passing urine . 12 (17.14%) patient presented with pain abdomen, 14(20%) patient presented with fever only, 16 (22.8%) patient presented with fever with urinary symptoms. Out of 70 Patients, urine culture was positive in 12 (17.2 %) patients. The organisms isolated were E-Coli, Klebsiella, pseudomonas. E-coli was isolated in 8 patients, Klebsiella in 3, Pseudomonas in 1 patient. **Conclusion:** This study showed female preponderance and all children belonged to low socioeconomic class. In our study, urinary symptoms were most common presentation followed by fever with urinary symptoms followed by fever without urinary symptoms. Urine culture was positive in 12 (17.2%) patients and E-coli was the most common organism isolated. Radiologic changes on the basis of ultrasonography was found in 7 % of patients.

INTRODUCTION

Urinary tract infections (UTIs) occur in 1% of boys and 1-3 % of girls.The prevalence of UTIs varies with age. During the Ist year of life, the male: female ratio is 2.8 – 5.4 :1 . Beyond 1 -2 yr, there is a female preponderance, with a male : female ratio of 1: 10. In boys most UTIs occur during the Ist year of life; UTIs are much more common in uncircumcised boys, especially in the Ist year of life. In girls, the first UTI usually occurs by the age of 5 year, with peaks during infancy and toilet training.^[1] In early infancy (especially <3 months old), the male sex is more predisposed to UTI due to higher incidence of CAKUT (congenital anomalies of kidney and urinary tract), whereas in adolescence, infections are more common in girls.^[2]

UTIs are caused primarily by colonic bacteria. In girls, 75 -90 % of all infections are caused by Escherichia coli, followed by Klebsiella spp. And Proteus spp. Staphylococcus saprophyticus and enterococcus are pathogens in both sexes. Adenovirus and other viral

infections also can occur, especially as a cause of cystitis with gross hematuria.^[1]

Both urinalysis and urine culture are required for diagnosis of UTI in children. Empirical antimicrobial therapy is administered while awaiting the culture results. In a recent study, Escherichia coli was identified in 75.7 % of urine cultures and the overall positive rate of extended spectrum Beta – lactamase (ESBL) in Enterobacteriales was 37.2%.^[3] UTI is commonly characterized by burning micturition, increased urinary frequency, loss of bladder control, low back pain, and bloody or foul smelling urine, fever.^[4] The 3 basic forms of UTI are pyelonephritis, cystitis and asymptomatic bacteriuria. Infants cannot describe their symptoms accurately. Thus clinicians should be more vigilant when effectively diagnosing and treating this patient group.^[5] Risk factors for urinary tract infection includes female gender, uncircumcised male, voiding dysfunction, obstructive uropathy, urethral instrumentation, wiping from back to front in girls, constipation.

The presence of > 10 leukocytes per mm³ in fresh uncentrifuged sample, or > 5 leukocytes per high power field in centrifuged sample is useful for screening.

MATERIALS AND METHODS

Sample size - A observational study was carried out at civil hospital palampur from July 2022 to December 2022. In this study, 70 children between the age group of 2 to 15 year who were diagnosed as a case of UTI on the basis of urine routine examination.

Inclusion criteria - In this study, 70 children between the age group of 2 to 15 year who were diagnosed as a case of UTI on the basis of urine routine examination. The presence of > 10 leukocytes per mm³ in fresh uncentrifuged sample, or > 5 leukocytes per high power field in centrifuged sample is used for diagnosis. Midstream clean catch urine specimens were collected in a sterile container from suspected patients and were transported to the laboratory at the earliest.

Exclusion Criteria – Children less than 2 years and more than 15 years and those with neural tube defects were excluded.

Statistical Analysis - All the data obtained were presented as percentages in Microsoft Excel.

Some haematological investigations, urine culture and sensitivity and ultrasonography is done in these patients. These children were followed for a period of 6 months. Then clinical, demographic profile was studied.

RESULTS

Table 1: General Characteristics of patients.

Variables	Frequency(70)	Percentage
Sex		
Male	33	47.1 %
Female	37	52.8 %
Age (years)		
2-5 years	28	40%
6 -10 years	20	28.5%
11 -15 years	22	31.4 %

In total 70 patients, 33 (47.1 %) were males and 37 (52.8%) were females. Among 70 patients, 28 (40%) were among the age group of 2-5 years, 20 (28.5%) were among the age group of 6 -10 years and 22 (31.4%) were among the age group of 11- 15 years.

Table 2: Clinical Profile of Patients.

Symptoms	Frequency	Percentage
Urinary symptoms	28	40%
Pain abdomen	12	17.14%
Fever	14	20%
Fever with urinary symptoms	16	22.8%

Out of total 70 patients, 28(40%) presented with urinary symptoms like burning micturition , increased frequency of micturition and pain while passing urine . 12 (17.14%) patient presented with pain abdomen , 14(20%)patient presented with fever only , 16(22.8%) patient presented with fever with urinary symptoms.

Table 3: On the basis of Urine culture.

Urine culture	Frequency	Percentage
Positive	12	17.2 %
Negative	58	82.8%

Out of 70 Patients, urine culture was positive in 12 (17.2 %) patients. The organisms isolated were E-Coli, Klebsiella, pseudomonas. E-coli was isolated in 8 patients, Klebsiella in 3, pseudomonas in 1 patient. Ultrasonography was done in all patients and it was normal in 65 patients, 4 patients cystitis and one had renal scarring. These 5 patients were referred to higher centre for further investigations and management.

DISCUSSIONS

UTI is a very common problem in Paediatric patients. The proper diagnosis and treatment reduce the frequency of complications like pyelonephritis, renal abscess, hypertension. In this study we found slight female preponderance. Winberg et al also found female preponderance.^[6] In our study, we found E-coli is the most common pathogen isolated on urine culture. Palak Gupta et al also found E-coli is the most common pathogen in their study.^[7] A Sharma et al also found E.coli as the most common pathogen.^[8] In our study, urinary symptoms were the most common presentation followed by fever with urinary symptoms. A Sharma et al found that fever was the most common presentation followed by pain abdomen.^[8] Qureshi AM et al also found that fever was the most common presentation followed by dysuria.^[9] On ultrasonography, cystitis was the most commonly found.

CONCLUSION

This study showed female preponderance and all children belonged to low socioeconomic class. In our study, urinary symptoms were most common presentation followed by fever with urinary symptoms followed by fever without urinary symptoms. Urine culture was positive in 12 (17.2%) patients and E.coli was the most common organism isolated. Radiologic changes on the basis of ultrasonography was found in 7 % of patients. Further investigations were needed in these patients. UTI is a very common problem in Paediatric OPD.

BIBLIOGRAPHY

1. American Academy of Pediatrics Subcommittee on Urinary Tract infection, Steering Committee on quality Improvement and Management: Urinary tract infection: clinical practice guidelines for the diagnosis and management of the initial UTI in

- febrile infants and children 2 to 24 months, Pediatrics, 2011; 128: 595 -610.
- 2. Goldman, M; Lahat,E; Strauss, S; Reisler, G; Livne,A; Gordin,L; Aladjem, M. Imaging after urinary tract infections in male neonates. Pediatrics, 2000; 105: 1232 -1235.
 - 3. Quan J, Dai H, Liao W, Zhao D, Shi Q, Zhang L, et al. Etiology and prevalence of ESBLs in adult community – onset urinary tract infections in East China: a prospective multicentre study. J Infect, 2021; 83: 175 -81.
 - 4. Ayelign B, Abebe B, Shibeshi A, et al: Bacterial isolates and their antimicrobial susceptibility pattern among pediatric patients with urinary tract infections. Turk J Urol, 2018; 44: 62-9.
 - 5. Velez Echeverri C, Serna - Hguita LM, Serrano AK,et al : Resistance profile for pathogens causing urinary tract infection in a pediatric population , and antibiotic treatment response at a university Hospital,2010-2011.Columbia Medica, 2014; 45: 39 -44.
 - 6. Winberg J, Andersen HJ, Bergstr M T, Jacobsson B, Larson H, Lincoln K. Epidemiology of symptomatic urinary tract infection in childhood. Actapdiatrica, 2010; 63: 1- 20.
 - 7. Palak Gupta, Jharna Mandal, Sriram Krishnamurthy , Deepak Barathi , Nandini Pandit.Profile of urinary tract infections in paediatric patients. Indian J Med Res, 2015 Apr; 141(4): 473 -477.
 - 8. A Sharma, Shrestha S, Upadhyay S, RijalP. Clinical and biological profile of urinary tract infection in children at Nepal Medical college teaching hospital. Nepal med coll J., 2011; 13(1): 24 -6.
 - 9. Qureshi AM. Clinical presentation of UTI among children at Ayub Teaching Hospital, Abbottabad. J Ayub med coll Abbottabad, 2005; 17(2): 79-81.