CLINICAL PRESENTATION OF URINARY TRACT INFECTION AMONG CHILDREN AT AYUB TEACHING HOSPITAL, ABBOTTABAD

Azhar Munir Qureshi

Department of Paediatrics, Ayub Teaching Hospital, Abbottabad

Background: Urinary tract infection (UTI) is still common among children all over the world and a cause for significant number of out patient visits. Keeping in view the high incidence of UTI in children with associated morbidity and mortality, it is imperative to diagnose the urinary tract infection early and to treat the infection. We carried out this study to look into the clinical profile of UTI in children presenting at Ayub Teaching Hospital. **Methods:** One hundred patients of diagnosed UTI, from 0 to 15 years of age admitted in the Pediatric units of Ayub Teaching Hospital Abbottabad were included in the study. A proforma was used to record the clinical and laboratory presentation of these patients. **Results:** Fever was the commonest clinical presentation (92%) followed by dysuria (68%) and failure to thrive (31%). **Conclusion:** Clinical profile of urinary tract infection in children in this study was not significantly different from that of other developing and developed countries, however it will help us a lot in speedy diagnosis of our Paediatrics patients.
Keywords: urinary tract infection, dysuria, failure to thrive, fever.

INTRODUCTION

The morbidity of the Urinary Tract infection (UTI) in the infancy is very high resulting in permanent renal damage causing hypertension or end stage renal failure. It is known that the UTI is more frequent in boys in the first three months of life. The sex distribution is reported to be 5:1 with male predominance.[1] Neonates present with poor weight gain, hypothermia, colour changes of the skin, abnormal crying, irritability, abdominal distension, malodorous urine, vomiting, diarrhea, rash, jaundice and hepatospleenomegaly.[2] By preschool age, the sex ratio is reversed, with majority of the urinary tract infections occurring in the females. Recurrence is common and occurs in approximately 18% of the male and 26% of female infants.[3] Fever remains a more common presentation in the neonates, infants and younger children whereas older children present with other symptoms.[4] Eighty (80%) of the infants with culture proven UTI present with fever.[5] Dysuria can also be the main symptom of the UTI in younger children and infants.[6] They present as irritability during micturition. Dysuria may be associated with enuresis and foul smelling turbid urine.[7] Urinalysis was also recommended in infants presenting with jaundice.[8] Along with other sign and symptoms failure to thrive is also noted in the children with recurrent UTI and may be the only positive physical finding.[9] Paediatric investigators have identified the risk factors associated with an increased risk of UTI in children less than 2 years of age. They include temperature higher than 39°C, fever longer than two days, white race, age less than one year and no other obvious source of fever. The presence of two or more of the above risk factors yielded a sensitivity of >99% and specificity of 71% for the detection of UTI in this age group.[10]

The purpose of this study was to analyze the clinical presentation of UTI in infants and children presenting at Ayub Teaching Hospital with an idea to expedite diagnosis and thus reduce the morbidity associated with it.

MATERIAL AND METHODS

All patients admitted in the Paediatric wards of Ayub Teaching Hospital, Abbottabad were included in the study. Non probability (convenience) sampling technique was applied. Age, sex, weight and address were recorded. A detailed history was taken with special emphasis on the antecedent history of UTI and other diseases like diabetes mellitus, history of fever, dysuria, vomiting, urine colour, urinary stream, abdominal pain and discharge urethra. All the patients were thoroughly examined especially looking for their height, weight, failure to thrive, temperature, jaundice, abdominal tenderness, palpable kidneys, and palpable urinary bladder, any other visible external deformity related to urinary tract and rachitic rosary. One hundred patients with diagnosed UTI were included in the study.

RESULTS

Majority of patients (46%) belonged to the age group 13 to 60 months. Fever was most common presentation. The detail is given in table-1 and Figure-1.

DISCUSSION

UTI is a significant problem in Abbottabad District and Northern areas of Pakistan. The factors responsible for high occurrence of UTI are the non-specific clinical presentations in children and lack of appreciation of high morbidity and mortality associated with UTI and the spectrum of micro organisms associated with it. Majority of patients (46%) belonged to the 13 to 60 month age group and this coincides with other studies.[11-13] This could be because of the reason, as reported by other studies that this age group of 13 to 60 months is more susceptible to infections due to their toilet training problems.[14]

Table-1: Clinical presentations of UTI in children(n=100)

Presentation	Present	Absent
Fever	92%	8%
Dysuria	68%	32%
Failure to thrive	31%	69%
Weak urinary stream	20%	80%
Discharge urethra	15%	85%
Previous episode of UTI	28%	72%
Altered colour of urine	12%	88%
Vomiting	26%	74%

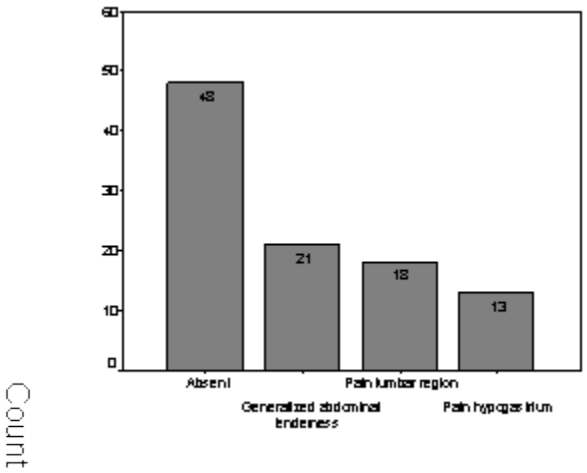

Figure-1: Abdominal tenderness in the patients with UTI

The number of the patients was less in the neonatal period and the cases increased with the increasing age and declined after the thirteen years of age till fifteen years. It is also reported by many studies.[1,12] Fever was the most common symptom in the 100 enrolled cases. 92% of the patients had history of fever. 20.3% of the children presented with fever in another study.[15] The difference in the study was due to the fact that fever alone, as the only prese-nting symptom was considered by them. However other studies also indicate the high association between the fever and urinary infection.[4,5,10,16,17]

Failure to thrive was common (31%) in my study as compared to the studies from different countries.[14,15] No data is available on failure to thrive and its association with UTI in Pakistan. However, in one study it was reported to be as high as 80%. Only infants were included in the study and are the cause of difference.

Underlying malnutrition with added infection and poor intake has been blamed for it.[18] Jaundice is considered to be a common presenting symptom in neonates and infants with UTI.[19] Only one patient presented with jaundice during the neonatal period and was found to be due to the Rh incompatibility. The difference could be due to the small sample size in my study and there is also evidence of decrease in cases of jaundice due to UTI.[20]

Dysuria is a common presentation in older children (4% to 60.8%), but it can also be a presenting symptom in the infants.[15,21] Most of the observations were beyond 48 months of age. The difference seen in various studies is due to the difference in the patients age groups. Dysuria was reported in 4% neonates,[21] and upto 60.8% cases[15] in patients beyond neonatal period. There was a poor relationship between the urine colour and the urine culture positive UTI. A significant number (88%) of children presented with normal colour of urine and no change in the smell of the urine. Similar results were reported by a study conducted in St. Mary's Hospital, Portsmouth.[7]

A strong relationship was observed between UTI and combination of dysuria with weak urinary stream. In this study all the patients presenting with both dysuria and weak urinary stream had positive urine cultures. A significant percentage of children (28%) presented with recurrent urinary infection. In females, poor compliance and follow-up were identified as major problems. In males, the urinary tract abnormalities were also contributory.

Failure to thrive was another underlying cause for recurrent urinary tract infections in both the sexes. In one report the recurrence of UTI after first attack is approximately 30% and can be as high as 75% in children after second or third episode of UTI.[7] Recurrent episodes are the main reason for the development of vesicoureteral reflux and eventually leading to end stage renal failure.[18]

Pain abdomen is also a non specific finding in patients having UTI, 48% of our patients did not have any pain. Others presented with generalized abdominal pain, lumber tenderness and hypogastric pain in descending order of frequency. It is also reported by others with similar findings.[14]

There were other associated findings in patients with UTI, like urethral discharge and palpable urinary bladder. A small number of patients presented with lower UTI like symptoms: 11% with palpable urinary bladder and 15% with urethral discharge. It is comparable to other studies, where children were identified with lower urinary tract symptoms (9.5%) as having UTI.[15]

REFERENCES

1. Langley JM, Hanakowski M, Leblanc JC. Unique epidemiology of nasocomial urinary tract infection in children. Am J Infect Control 2001; 29: 94–8.

2. Falcao MC, Leone CR, D'Andrea RA, Berardi R, Ono NA, Vaz FA. Urinary tract infections in full-term newborn infants: value of urine culture by bag specimen collection. Rev Hosp Clin Fac Med Sao Paulo1999;54: 91–6.

3. Barnett BJ, Stephens DS. Urinary tract infection: an over view. Am J Med Sci 1997; 314:245-49

4. Kaushal RK, Sumeet B, Sharma VK, Sood A, Goyal A. Urinary tract infection among children presenting with fever. Ind Pediatr 2003;40:269-70

5. Shaw KN, Shortliffe LMD. Urinary tract infection in the pediatric patient. Pediatr Clin North Am 1999;46(6):1111-24

6. Bagga A. consensus statement on management of urinary tract infections. Ind Pediatr 2001;38:1106-15

7. Struthers S, Scanlon J, Parker K. Parental reporting of smelly urine and urinary tract infection. Arch Dis Child 2003;88:250-52

8. Garcia FJ, Negar AL. jaundice as an early sign of urinary tract infection in infancy. Pediatrics 2002;109:846-51

9. Bartkowski DP. Recognizing UTIs in infants and children. Postgrad Med. 2001;109(1):171-81

10. American Academy of Pediatrics. Practice parameter: the diagnosis, treatment and evaluation of the initial urinary tract infection in febrile infants and young children. Pediatrics 1999;103:843-52

11. Wammanda R.D., Ewa B.O. Urinary tract pathogens and their sensitivity pattern in children. Annals of Tropical Pediatrics 2002; 22:197-198.

12. Arslan S, Caksen H, Rastgeldi L. use of urinary gram stain for the detection of urinary tract infection in childhood. Yale Journal of Biology and Medicine 2002;75:73-8.

13. Mehr SS, Powell CV, Curtis N. cephalosporin resistant urinary tract infections in young children. J Paediatr Child Health 2004;40(1-2):48-52

14. Gallager SA, Hemphill RR. Urinary Tract Infections: Epidemiology, Detection, and Evaluation. [Cited on 2003]. Available from: www.ahcpub.com

15. Saleh SI, Tuhmaz MM, Sarkhouh MY. urinary tract infection in children in Al-jahra area, Kuwait: An overview. Kuw Med J 2003;35(1):31-35

16. Gorelick MH, Shaw KN. Screening test for UTI in children: A Meta analysis. Pediatrics 1999;104(5):e54

17. Pitetti RD, Choi S. Utility of blood cultures in febrile children with UTI. Am J Emerg Med 2002 Jul;20(4):271-4

18. Elder JS. Urinary tract infection. Behrman RE, Kliegman RM, Jenson HB, editors. Nelson Textbook of Pediatrics. 17th ed. Philadelphia: WB Saunders Company; 2004.p.1621-5.

19. Crain EF, Gershel JC. Urinary tract infections in febrile infants younger than 8 weeks of age. Pediatrics 1990;86:363-67

20. Newman TB, Bernzweig JA, Takayama JI, Finch SA, Wasserman RC, Pantell RH. Urine testing and urinary tract infectoin in febrile infants sen in office settings: The Pediatric Research In Office Settings' Febrile Infants Study. Arch Pediatr Adolesc Med. 2002;156:44-54

21. Biyikli NK, Alpay H, Ozek E, Akman I, Bilgen H. Neonatal urinary tract infections: Analysis of the patients and recurrences. Pedtr Int 2004; 46:21-25.

Address for Correspondence:

Dr. Azhar Munir Qureshi, Department of Paediatrics, Ayub Teaching Hospital, Abbottabad.

E-mail: azhar22010@hotmail.com