

## FREQUENCY AND CLINICAL PRESENTATION OF UTI AMONG CHILDREN OF HAZARA DIVISION, PAKISTAN

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**Background:** Urinary tract infection is common in children and result in permanent renal damage and end stage renal failure in significant number of patients. It is imperative to diagnose urinary tract infection early and to treat adequately. We carried out this study to look into frequency and clinical profile of UTI in children admitted in our unit. **Methods:** Three hundred and seventy five patients with UTI, diagnosed by urine culture with age from 0–15 years admitted in pediatric unit during 2003-2006 were included in study. Urine sample for culture was collected by midstream clean catch, urine collecting bag and Suprapubic methods depending upon the age of patient. A proforma was used to record clinical presentation and laboratory findings of these patients. **Results:** Frequency of Urinary tract infections among children examined by urine culture was 375 out of 1000 (37.5%) out of which 36 (9.6%) were male and 339 (90.4%) were females. Almost half of them 48.5% were less than 3 years old. About 60% of patients belong to Kohistan and Batagram districts and failure to thrive was common presenting feature (56.6%) in patients of these two districts. Fever was common clinical presentation 91% followed by Dysuria (65%) and failure to thrive (40%). **Conclusion:** Frequency and clinical profile of urinary tract infection in children in Hazara Division is not significantly different from that of developing and developed countries.

**Keywords:** Urinary tract infection, Dysuria, failure to thrive.

### INTRODUCTION

Urinary tract infections (UTIs) are a common cause of morbidity in children,<sup>1</sup> if not diagnosed early and treated adequately result into chronic ill health and long term renal damage.<sup>2</sup> Its incidence varies in early infancy and childhood, being more common in boys in first three months of life with reported distribution of 5:1 with male predominance<sup>3</sup> whereas in later childhood the reported male to female ratio was 1:10.<sup>4</sup> The patient with UTI in early infancy present with poor weight gain, hypothermia, abnormal crying, skin colour changes, malodorous urine, vomiting, diarrhoea, abdominal distension, jaundice and hepatosplenomegaly.<sup>5</sup> Fever remains a more common presentation in neonates, infants and younger children, whereas older children present with classic signs of urinary tract infection, including increase frequency of urination, dysuria, enuresis and costovertebral angle tenderness.<sup>6</sup> Eighty (80%) of infants with culture proven UTI present with fever.<sup>7</sup> Dysuria can also be the main symptom of UTI in younger children and infants<sup>8</sup> and presents as irritability during micturition. Dysuria may be associated with enuresis and foul smelling turbid urine.<sup>9</sup> Recurrent UTI may present with failure to thrive which may be the only positive finding.<sup>10</sup> Urine examination is also recommended in infants presenting with jaundice.<sup>11</sup> The identified risk factors associated with increased risk of UTI under 2 years of age include temperature higher than 39°C, fever longer than 2 days, white race, age less than 1 year and no other obvious source of infection. The presence of two or more of above risk factors yielded a sensitivity of > 99% and specificity of 71% for detection of UTI in this age group.<sup>12</sup> This study was

conducted to analyze the frequency and clinical presentation of UTI in infants and children at Ayub Teaching Hospital with idea to diagnose UTI early and to reduce morbidity associated with it.

### MATERIALS & METHODS

As much as 375 patients with UTI diagnosed by urine culture in paediatric wards of Ayub Teaching Hospital during 2003–2006 were studied. These patients ages from 0–15 years and included both males and females. A proforma was used to record the clinical and laboratory presentation of these patients. Age, sex, weight and address were recorded. A detailed history was taken with special emphasis on the previous history of UTI and other diseases like diabetes mellitus, history of fever, dysuria, vomiting, urine colour, urinary stream, abdominal pain and urethral discharge. All the patients were thoroughly examined specially looking for their height, weight, failure to thrive, temperature, jaundice, abdominal tenderness, palpable kidneys and urinary bladder and any other visible external deformity related to urinary tract. Urine sample was collected for laboratory testing by midstream clean catch sample, urine bag collection and suprapubic methods in few cases.

### RESULTS

Out of 1000 patients who had complaints related to UTI and who were subjected to urine culture, male were 205 (20.5%) and females were 795 (79.5%). From these only 375 (37.5%) had confirmed UTI by urine culture. Among these 339 (90.4%) were females and 36 (9.6%) were male. The ratio of male to female was 1:9.4. Patients less than 3 years old

constituted 48.5% of total infected patients. The prevalence of UTI in male children was found to be the highest 4.8% in age group <1 years and declined gradually with increasing age which is similar to the universal pattern (Table-1). Majority of the patients (60%) belonged to only two districts Kohistan and Batagram, while the remaining 40% belonged to other three districts, having comparatively better socio economic status (Table-2). The failure to thrive was present in 40% of all patients and common presentation of patients from Kohistan and Batagram (Figure-1). Fever was the most common (91%) clinical presentation of UTI followed by dysuria (65%) and failure to thrive 40% (Table-3).

**Table-1: Distribution of UTI by Age (n=375)**

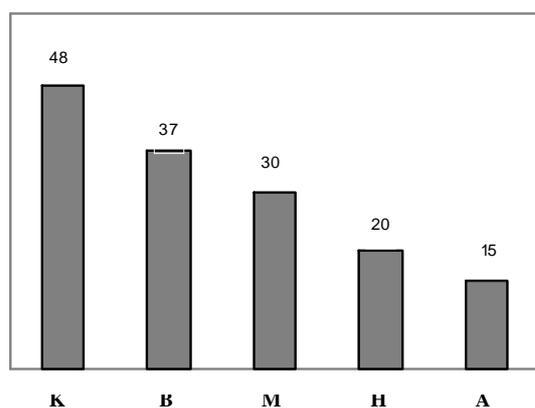
Age	Male	Female	Total
0-1 years	18 (4.8%)	40 (10.6%)	58 (15.4%)
1-2 years	9 (2.4%)	50 (13.3%)	59 (16%)
2-3 years	5 (1.3%)	60 (16%)	65 (17.3%)
3-10 years	4 (0.1%)	139 (10.4%)	143 (38.1%)
10-15 years	0 (0%)	50 (13.3%)	50 (13.3%)
Total	36 (9.6%)	399 (90.4%)	375 (100%)

**Table-2 District-wise distribution of UTI patients**

District	Number	Percentage
Kohistan	118	31.4%
Batgram	107	28.5%
Manshrah	55	14.6%
Haripur	52	13.8%
Abbottabad	43	11.46%
Total	375	100%

**Table-3 Clinical presentations of UTI (n=375)**

Presentations	Present
Fever	91%
Dysuria	65%
Failure to Thrive	40%
Previous episode of UTI	30%
Vomiting	28%
Pain Abdomen	22%
Poor Urinary Stream	15%
Altered Urine color	12%
Urethral Discharge	10%



K= Kohistan, B=But gram, M=Manshehra, H=Haripur, A=Abbottabad

**Figure-1: District-wise distribution of failure to thrive**

## DISCUSSION

UTI is a significant problem in Hazara Division of Pakistan. In the present study, the total no of patients subjected to urine culture was relatively low, because not all patients with symptoms and signs of UTI could be subjected to urine culture. Therefore, at times patients had to be treated according to microscopic examination of urine, as some patients were unable to pay for urine culture. In this study only 375 out of 1000 (37.5%) of the examined patients were confirmed as having UTI. This is similar to study from Yemen<sup>13</sup> but low in comparison to other studies.<sup>4,14</sup> In this study UTI in male (male to female ratio 1:9.4) were similar in comparison with other studies where the ratio was 1:10.<sup>4,14</sup> But low in comparison to the study from Yemen where male to female ratio was 1:26<sup>13</sup>, may be due to early circumcision which is usually carried out within 7 days after birth in Yemen. In this study patients less than 3 years constituted almost 1/2 of total infected patients which coincides with other studies.<sup>13,15-17</sup> This could be due to more susceptibility to infection due to toilet training problems in this age<sup>21</sup>. Majority of patients (60%) belonged to districts Kohistan and Batagram and having common presentation of failure to thrive, can be explained, by poor hygienic conditions, poverty, late circumcision, malnutrition and inadequate health care facilities in these two districts. Fever was the most common symptom and 91% had history of fever. Other studies also indicate the high association between fever and urinary tract infection.<sup>6,7,12,18-20</sup> Failure to thrive was common in this study as compared to the studies from different countries,<sup>21,22</sup> but similar to a study from this area.<sup>20</sup> Underlying malnutrition with recurrent infection and poor intake has been blamed for it.<sup>4</sup> Dysuria was a common presentation in older children (4%-60.8%) but it can also be a presenting symptoms in the infants.<sup>4,22,23</sup> Dysuria was reported in (4-60.8%) cases but it can also be presenting symptom in infants<sup>20,22,23</sup>. Dysuria was reported in 4% in neonate and 60.8% cases<sup>22</sup> beyond neonatal period. There was a poor relationship between urine colour and culture positive UTI. A significant number (88%) of patients presented with normal urine colour and no change in smell of urine, similar to earlier reported studies.<sup>9,20</sup> In a significant percentage of children presenting with recurrent UTI, poor compliance, follow-up and urinary tract abnormalities were contributing factors. Failure to thrive was another underlying cause of recurrent UTI in both 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.<sup>9</sup> Recurrent episodes of UTI (cystitis) are the main reasons for development of secondary vesicoureteral reflux and eventually leading to end stage renal

failure.<sup>4</sup> Pain abdomen is also non-specific finding in patients having UTI, 78% of our patients did not have any pain, other presented with generalized abdominal pain, lumbar tenderness and hypogastric pain in descending order of frequency as reported in previous studies.<sup>20</sup> Other associated findings present in our patients with UTI, like urethral discharge (10%) and palpable urinary bladder is comparable to previous studies where children were identified with lower urinary tract symptoms (9.5%) as having UTI.<sup>22</sup>

## CONCLUSION

Frequency and clinical profile of urinary tract infection in children in Hazara Division is not significantly different from that of developing and developed countries.

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