

## Study of Urinary Tract Infection in Pediatric Age Group with Its Association to Various Systemic Diseases –A Hospital Based Study

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**Abstract:** The urinary tract infection is a significant cause of morbidity and mortality in Pediatric age group.The studies have shown that urinary tract infections in pediatric age group are potentially dangerous,because they are the forerunners of several renal diseases in the adulthood.The following study has been done amongst children admitted in the department of Pediatrics,RIMS,Ranchi to see the urinary tract infection is not isolated even but associated with systemic diseases. Detailed history and complete clinical examination was done.laboratory investigations were carried out.

**Keywords:** Urinary tract infection, pediatric age group, systemic diseases, examination, investigations

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### I. Introduction

The urinary tract infection (uti) is among the most common infections of childhood.The urinary tract infection is a significant cause of for morbidity and mortality .The studies have shown that urinary tract infections in early childhood are potentially dangerous, because they are the forerunners of several renal diseases in adulthood.The risk of occurrence of Urinary tract infection before the age of 14 years is app. 1.3% in boys and 3-10% in girls.During infancy, the male to female ratio is 3-5.1% .Beyond 1-2 yrs there is female preponderance with male to female ratio of 1:10.The diagnosis of urinary tract is often missed in infant and young children since symptoms are minimal and non specific.Prompt identification and adequate management are mandatory to prevent cortical scarring which can lead to progressive parenchymal damage and hypertension,chronic renal failure,cerebral palsy, nephrotic syndrome.

Significant Bacteriuria: A colony count of more than 100000CFU//ml of a single bacterial sepsis in a midstream clean catch sample.

Asymptomatic bacteriuria :Significant bacteriuria without symptoms of urinary tract infection is called asymptomatic bacteriuria.

Recurrent uti :Denotes a second episode of uti.

Complicated uti: is diagnosed in the presence of fever>39\*c,systemic toxicity,persistent vomiting,dehydration,renal angle tenderness and raised serum creatinine.

Simple uti :may have dysuria,frequency,urgency with or without fever and none of the symptoms of complicated uti.

Uti are caused by Ecoli(mostcommon),klebsiella,enterobacter,staphylococcaeipidermidis,proteus,pseudomonas (following obstruction or instrumentation)Candida infection(immunocompromised children) or after prolonged antimicrobial therapy.(2)Predisposing factors for recurrent uti include sex,female,age,below 6months,obstructive uropaty,severe vesicoureteric reflux(vur)habitual postmpoment of voiding,constipation and repeated catheterization.Neonates show features of sepsis with fever,vomiting,diarrhea,jaundice,poor weight gain lethargy.Older children have unexplained fever,frequent micturition occasionally convulsions.Radionuclide studies show that most uti in children below 5 years of age involve upper part.

### II. Objective

To study about the patients admitted in pediatric department,Rajendra Institute of Medical Sciences(RIMS),Ranchi with features of utis and having any relation with any systemic diseases.

### III. Methods

The present study is a hospital- based cross-sectional study conducted in the department of pediatrics and neonatology,Rajendra Institute of Medical Sciences,Ranchi,Jharkhand,during mid April 2018 to mid March 2019.In this study 60 cases ( aged below 12 yrs) with a clinical suspicion of urinary tract infections who were admitted in pediatric ward with signs and symptoms suggestive of urinary tract infections such as fever,burning micturition dribbling of urine,pain abdomen etc were included in the study and whether they had any association with systemic diseases.

Inclusion criteria: All admitted patients aged below 12 years in pediatric ward RIMS,Ranchi with clinical suspicion of urinary tract infections..

Exclusion criteria:

- i) outdoor patients.
- ii)Malnourished children.
- iii)Immunocompromised patients receiving therapy.
- iv)Patients having utis already on treatment before admission.

Detailed history and complete clinical examination was done in all suspected cases of urinary tract infections. The laboratory investigations were done in the department of Pathology and Department of Microbiology,RIMS,Ranchi.

The parameters were:i) Urine-----  
 (a) Routine examination  
 (b) Culture and sensitivity

(II) Dipstick examination

(iii)Combing leukocyte esterase and nitrite tests

(Iv)complete blood count

(v)ESR

(VI)CRP

(vi)Blood culture and sensitivity

### IV. Results

Total 60 cases with clinical suspicion of urinary tract infections aged below 12 years and having association with systemic diseases were admitted in pediatric ward RIMS ,Ranchi were taken for study.

**Table 1:** Age incidence of the study population

Age group(years)	Number	Percentage(%)
1-2	17	28.3
2-5	13	21.6
.5-12	30	50
Total	60	100

The maximum numbers of cases were in the age group of 5-12 years i.e 50 % followed by 1-2 years(28.3%) and 2-5 years(21.6%).

**Table 2:** Sex incidence of the study population

Sex	Number	Percentage(%)
Female	45	75
Male	15	25
Total	60	100

There were 45 females(75%) and15 males(25%) .The female : male ratio was 3:

**Table3:** Incidence of urinary tract infection in urban and rural area

Area	Number	Percentage(%)
Rural	48	80
Urban	12	20
Total	60	100

48 children i.e.80% came from rural areas and 12 i.e. 20% from urb

**Table4:** incidence of urinary tract infection in different social classes

Social class	Number	Percentage(%)
Upper	04	6.60
Middle	10	16.66
Lower	46	76.66
Total	60	100

Most of the cases were from lower classes with 76.66% and 16.66% incidence in middle class and 4% pediatric age group patients were admitted in RIMS,Ranchi during the study.

**Table 5:** Clinical features at the time of presentation

Fever	56	93.33%
Burning micturition	20	33.33%
Pain abdomen	14	23.33%
Palpable bladder	08	13.33%
Convulsion	06	10.00%
Loss of appetite	05	8.33%
Dribbling of urine	03	5.00%
Handling of genitalia	04	6.66%

Maximum patients presented with fever i.e.93.33% at the time of admission.Other common symptoms were burning micturition 33.33%,pain abdomen 23.33%,palpable bladder 13.33% convulsion10%,loss of appetite 8.33%, dribbling of urine 5%, handling of genitalia 6.66% of case

**Table 6:** Association with various systemic diseaseas

Only urinary tract infection	37	61.66%
Nephrotic syndrome	12	20%
Moribund patient with foley*s		
Catheterization	05	8.33%
Chronic kidney diseases	02	3.33%
Diabetic ketoacidosis	03	5%
Posterior urethral valve	03	5%

Most of the patients presented with only urinary tract infection( uti) i.e. 61.66%,nephrotic syndrome 20%,moribant patient with Foley\*s catheterization 8.33%, chronic kidney disease 3.33%,diabetic ketoacidosis 5%, posterior urethral valve 5%.

## V. Conclusion

The majority of the children in the present study were in the age group of 5-12 years.The female to male ratio was 1:3.Fever was the most common symptom.Incidence of urinary tract infection was more in rural than urban. Most of the children were from lower classes. Association was more with nephrotic syndrome(20%).

## References

- [1]. IAP Textbook of Pediatrics,5<sup>TH</sup> Edition
- [2]. Ghai Essential Paediatrics -Vinod K Paul,, Arvind Bagga ; 9<sup>TH</sup> Edition 2019
- [3]. Nelson Textbook of Pediatrics,,20<sup>TH</sup> Edition
- [4]. The Indian Journal of Medical Research ,January, 2010: From North India Paediatric urinary tract infection in a tertiary care centre
- [5]. Belapurkar KM,Taluja RK,Kaul KK.Urinary tract infection: clinical features and radiological observations.Indian Pediatr.1970;7(8):442-8
- [6]. Grag BK. Urinary tract infection in the childhood.Indian Pediatr. 1966;3(1):1-8
- [7]. Varma RP,Krishna K,Bhargava US.Prevalence of asymptomatic urinary tract infection.Indian Pediatr.1984;21(5):415-20.
- [8]. Saxena H,Goswami P.Asymptomatic bacteriuria in infants and children. Indian J Pediatr.1970;37(272):465-7.
- [9]. Ethiraj S,Moses L G,Thangadorai C,Somu N,Gopaul S,Ranganathan G et al.A critical study of urinary tract infection among the pediatric age group .Indian Pediatr.1976;13(7):553-5.
- [10]. Bergstrom T,Lincoln K,Orskov F,Orskov I,Winberg J. Studies of urinary tract infection in infancy and childhood. J Pediatr.1972;71(1):859-66

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