DOI: 10.7860/JCDR/2016/20222.7999

Short Communication

Paediatrics Section

Spectrum of Renal and Urinary Tract Diseases in Kashmiri Children

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ABSTRACT

Introduction: Definite paucity of data pertaining to spectrum of renal and urinary tract diseases in our state and in various parts of India forms the basis of this study. Available data has emphasized more on specific clinical syndromes and chronic renal diseases rather than over all spectrums of renal and urinary tract diseases, that too in adult population.

Aim: The present study a retrospective analysis, forms one of the basic data of paediatric nephrology and urology related disorders in our state.

Materials and Methods: Retrospective analysis of the case records of all the hospitalized patients with renal and urinary tract diseases between 2012 and 2013 were performed. Case records were analysed and categorized into various groups like; Urinary Tract Infections (UTI), Acute Kidney Injury (AKI), Acute Glomerulonephritis (AGN), Nephrotic Syndrome (NS), haematuria, Polycystic Kidney Disease (PCKD), Posterior Urethral Valve (PUV), Vesicoureteric Reflux (VUR), Chronic Kidney Disease (CKD), Congenital Anomalies of Kidney and Urinary Iract (CAKUT) and others. These groups were divided into subgroups to get more insight about the pattern of these diseases.

Results: Out of 28114 patients hospitalized between 2012 and 2013 years, 447 (232 males and 215 females) patients were diagnosed of renal and urinary tract diseases which forms 1.58% the total admitted patients. Among these patients 32.9% (147/447) were diagnosed Acute Kidney Injury (AKI); 24.1% (108/447): Urinary Tract Infection (UTI); 9.6% (43/447): Acute Glomerulonephritis (AGN); 5.6% (25/447): bilateral hydronephrosis with UTI; 4.47% (20/447): nephrotic syndrome (NS); 3.5% (16/447): haematuria; and 4% (18/447) were having CAKUT (Congenital Anomalies Of Kidney And Urinary Tract). In addition to this there were 17 cases of Renal Tubular Acidosis (RTA), 3 cases of Barter syndrome and one case of Liddle syndrome.

Conclusion: A substantial number of children are hospitalized with renal and urinary tract diseases with delayed ages of presentation, which at times have suffered irreversible renal damage that could have been prevented or treated if diagnosed earlier. Our study indicates that majority of these renal and urinary tract diseases are preventable and treatable. Henceforth, there is a need to develop a comprehensive service for the children with renal and urinary tract diseases in Jammu & Kashmir (J&K) India.

Keywords: Jammu and Kashmir, Paediatric nephrology, Renal data

INTRODUCTION

Burden of kidney disease is rising globally. In many of these disorders, risk factors and etiologies first begin in fetal life or during childhood. Risk factors for paediatric kidney and urological disorders are common. However, epidemiological data regarding these ailments is lacking. Data from the developed countries, with well placed system and established renal registries help the stake holders in resource allocation [1]. While this is not applicable to our resource limited country in particular to our state where these problems do have low priority, partly due to more focus on common infective ailments.

MATERIALS AND METHODS

The study was carried out at Paediatric Nephrology division of the Department of Paediatrics, G.B. Hospital, Govt. Medical College Srinagar. It is one of the tertiary hospitals in the state providing Paediatric nephrology care to children of Jammu and Kashmir, India. During the study period only peritoneal dialysis services were utilized and those patients needing haemodialysis and renal tranplant were referred to advanced centers of the country. Retrospective data of all children, aged between 0-18 years, admitted over a period of one year (2012-2013), was analysed statistically using the Statistical Package for Social Science software version 18.0. This included the demographic data, clinical history, investigations, diagnosis, disease outcome and procedures such as dialysis and renal biopsies. Detailed history, thorough clinical examination and relevant laboratory investigations including imaging, immunologic and histopathologic studies helped us in making the diagnoses. Imaging techniques such as ultrasonography, micturating cystourethrogram, intravenous urogram, computerized tomography and magnetic resonance imaging were also employed. AKI was diagnosed using the RIFLE (Risk, Injury, Failure, Loss, End-stage) criteria [2]. Chronic Kidney Disease (CKD) and nephrotic syndrome were defined based on the Kidney Disease Outcomes Qualitative Initiative (KDOQI) [3].

RESULTS

Total number of patients admitted during the study period was 28114. Among these patients 447 were having renal and urinary tract derangements. Out of these 447 patients, male were 215 and females were 232. Six to twelve years age was the most common age group having renal problems. Acute kidney injury was the commonest entity (32%), seconded by the UTI (24%). There was a significant correlation between the pattern of renal disease and the age of presentation ($p < 0.05$); 80% of patients with glomerular diseases were between 4-12 years of age, whereas 90% of those with congenital renal anomalies were below 4 years of age. Pertaining to gender, UTI was more common in females ($p < 0.05$). Other findings are depicted in [Table/Fig-1].

DISCUSSION

The prevalence of 1.58% for kidney disease among hospital admissions is similar to the previous reports [4,5] which range from

Age / Clinical Entity	0 to 1 month	1 month to 1 year	1-3 years	4-6 years	6-12 years	13-18 years	Total
UTI	18	28	29	16	16	1	108
B/L HDN UTI	2	4	4	4	9	2	25
Nephrotic Syndrome			2	8	5	5	20
AGN		2	2	6	26	7	43
HAEMATURIA	1	2		6	2	4	15
Distal RTA FTT	2	2	1	2	3	1	11
HDN PUJ obstruction		2	10	2	2		16
VUR with Urosepsis	10			4			14
AKI	40	40	16	20	24	7	147
Nephrocalcinosis		2	3		2	1	8
Nephrolithiasis			1	3	4	1	9
CAKUT	7	2	3	2	3	1	18
CKD		1	2	3	3	4	13
Total Patients	80	84	71	73	96	29	447

[Table/Fig-1]: Age wise classification of the renal and urological disorders.
NS: Nephrotic Syndrome, B/L HDN: Bilateral Hydronephrosis, PCKD: Polycystic Kidney Disease, PUV: Posterior Urethral Valve, VUR : Vesicoureteric Reflux, AGN: Acute Glomerulonephritis, AKI: Acute Kidney Injury, CKD: Chronic Kidney Disease, UTI: Urinary Tract Infection, CAKUT: Congenital Anomalies of Kidney and Urinary Tract

1.1–4.5%. However, a study from Nigeria reported a prevalence of 8.9% [6] and prevalence of 12% was reported among Paediatric admissions from a tertiary center in our country [7]. This may be indicative of poor disease characterization, consequent upon relative under-development of the sub-specialty in the state of Jammu and Kashmir. Studies from the United Kingdom and America are largely centered around chronic kidney disease, presumably due to significant advancements in the provision of Renal Replacement Therapy (RRT). AKI was our leading diagnosis which is contrary to the studies from other parts of the world [8,9]. Higher diagnostic rate of AKI in our study could be result of use of the RIFLE criteria, which enables the inclusion of earlier stages of AKI [10]. However, UTI were the next common disorders which is in conformity with the earlier studies [11,12], We observed Acute Nephritic Syndrome (ANS), at rate of 9.6% of total paediatric nephrology disorders which is very low in contrast with reports from different countries showing higher prevalence rates of AGN; China (30%), Nigeria (37.7%), and South Africa (45%) [13-15]. This difference could be because of environmental, racial, and genetic factors and a low referral rate to our centre. Among the renal and urological disorders 4% were the CAKUT, among which renal hypoplasia, dysplasia, multicystic dysplastic kidney, hydronephrosis, ureteropelvic junction obstruction, and vesicoureteral reflux were the common ones. In our study, 13 children (2.9%) had CKD which is comparable to other studies [14,16], while as higher figures were reported from other developing countries; Nigeria (20.3%), Iran (14.9%), and Jordon (17.3%) [13,15,17].

LIMITATIONS

Limitations of our study is its retrospective nature, less advanced Paediatric nephrology center, and exclusion of incomplete records. The prevalence reported in this study may therefore be an under-estimation.

CONCLUSION

We observed that a substantial number of children are hospitalized with renal and urinary tract diseases with delayed ages of presentation, which could be prevented or treated if timely diagnosed. Our study implies that majority of these ailments are treatable and highlights the need for heightened awareness about these ailments and development of a comprehensive service for the children with renal and urinary tract diseases in J&K India.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Mar 18, 2016**
Date of Peer Review: **Apr 06, 2016**
Date of Acceptance: **May 14, 2016**
Date of Publishing: **Jun 01, 2016**