

The Clinical and Biochemical Characteristics of Nephrotic Syndrome in Children

Dr. Md. Nasir Hossain^{1*}, Dr. Mohammed Razzak Mia², Dr. Md. Mostafizur Rahman³, Dr. Md. Shakibur Rahman⁴, Dr. Subrota kumar Roy⁵, Dr. Md. Salim⁶

¹Associate Professor, Department of Paediatrics, Nephrology, Sir Salimullah Medical College, Hazi Kadam Ali Rd, Dhaka, Bangladesh

²Senior Consultant, (FCPS) Medicine, 100 Beded District Hospital, Narsingdi

³Assistant Professor, Department of Paediatrics, Sir Salimullah Medical College, Hazi Kadam Ali Rd, Dhaka, Bangladesh

⁴Medical Officer, Department of Paediatrics, Dhaka National Medical College, Hazi Kadam Ali Rd, Dhaka, Bangladesh

⁵Assistant Professor, Department of Paediatrics, Dhaka Medical College, Hazi Kadam Ali Rd, Dhaka, Bangladesh

⁶Associate Professor, Department of Paediatrics, Mugda Medical College, Hazi Kadam Ali Rd, Dhaka, Bangladesh

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*Corresponding author: Dr. Md. Nasir Hossain

Abstract

Original Research Article

Objective: In this study our main goal is to evaluate the clinical and biochemical characteristics of Nephrotic syndrome in children. **Methodology:** This Cross-sectional comparative study conducted at Tertiary Medical College Hospital, Dhaka from January 2015 to December 2016. During the study, 100 The study subjects were included with relapsed NS were taken using simple random sampling technique, who can show all the medical reports of their investigation and treatment and who were willing to participate and provide required information. **Results:** during the study, most of the patients belongs to ≥ 5 Years years age group, 61%. The common symptom was puffiness of face (52), oliguria- (53), ascites (30) and mean of serum creatinine 76 (+17.5) $\mu\text{mol/L}$. **Conclusion:** From our study we can conclude that, urine protein-creatinine report is highly reliable and rapid test for quantification of nephrotic range in children. Further study is needed for better outcome.

Keywords: Relapse, Childhood Nephrotic Syndrome, Serum creatinine.

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INTRODUCTION

Nephrotic syndrome (NS) is the most common kidney disease in children worldwide. It is 15 times more common in children than adults. It is a relatively common clinical condition in our country affecting typically the young children. Most children (90%) with NS have a form of Idiopathic NS (INS).

Most common type (85%) of INS is minimal change NS(MCNS) & more than 95% MCNS well responded tosteroid therapy. Incidence of relapses is highly variable. In a year, some patients have < 3 (infrequent relapses) where as others have > 4 relapses (frequent relapses). International study of kidney disease in children initially stated a relapse rate of 60% but later data suggests up to 76-90% with regularly relapsing rate up to 50%. Relapse is also higher in our children which is 36.4% [1-3].

The recent mainstay of treatment is high-dose oral corticosteroids. However, 80 to 90% percent of

patients will experience disease relapse, with half relapsing recurrently or becoming dependent on corticosteroids to maintain remission. In addition, about 7.4–19.6% of children have corticosteroids-resistant disease with poor renal prognosis [4, 5].

In this study our main goal is to evaluate the clinical and biochemical characteristics of Nephrotic syndrome in children.

OBJECTIVE

General Objective

- To assess the risk factor associated with Relapse in Childhood Nephrotic Syndrome.

Specific Objective

- To detect sociodemographic factors of the patients
- To identify infection rate of the patients.

METHODOLOGY

Type of study	Cross-sectional comparative study.
Place of study	Tertiary Medical College Hospital, Dhaka
Study period	January 2015 to December 2016
Study population	100 The study subjects were included with relapsed NS were taken using simple random sampling technique, who can show all the medical reports of their investigation and treatment and who were willing to participate and provide required information.
Sampling technique	Purposive

METHOD

All patient was provided written informed consent for this study. Total 50 patients having various degree of proteinuria was selected purposively. Careful history, thorough physical examinations was done. Twenty-four-hour urinary total protein along with spot urinary protein/ creatinine ratio of each patient were estimated. Urinary total protein excretion was quantified by the Esbach's Albuminometer. Urinary Creatinine measurement was done by using auto analyzer.

Statistical Analysis

- First data were edited to the validity and consistency of the data. After proper verification data were coded and entered into computer by using SPSS software programs. Descriptive analysis was done by percentage, mean and standard deviation. Association was observed by appropriate statistical test at 95% confidence interval eg. odds ratio, Chi-square, t-test.

RESULTS

In Figure-1 shows age distribution of the patients where among 100 patients here, most of the patients belongs to ≥ 5 Years age group, 61%. The following table is given below in detail:

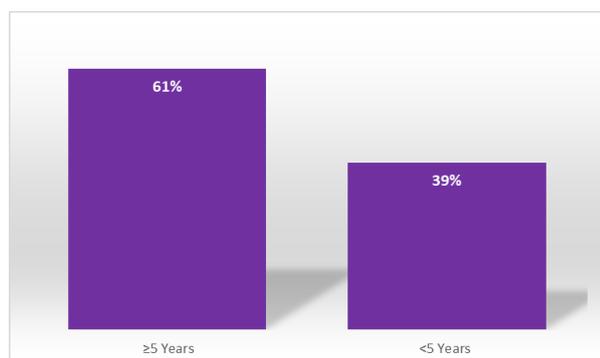


Fig-1: Age distribution of the patients

In Table-1 shows gender distribution of the patients where male patients were higher in study group. The following table is given below in detail:

Table-1: Gender distribution of the patients

Gender	%
Male	59%
Female	41%

In Table-2 shows socioeconomic condition of the patients where most of them belong to poor economic condition. The following table is given below in detail:

Table-2: Socioeconomic condition of the patients

Variable	%
Economic condition of parents:	
• Poor	61%
• Middle class	24%
• Upper class	15%

In Figure-2 shows distribution of patients in different clinical presentations where the most common symptom was puffiness of face (52), oliguria- (53), ascites (30). The following figure is given below in detail:

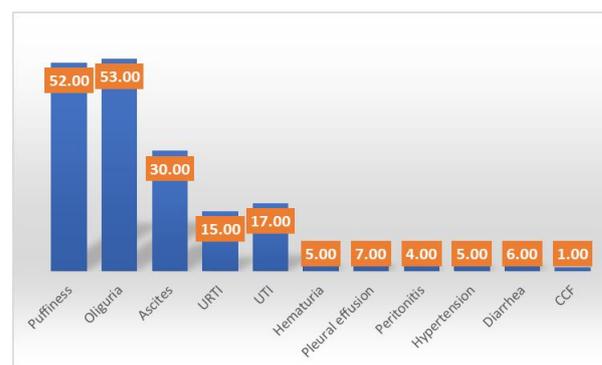


Fig-2: Distribution of patients in different clinical presentations

In Table-3 shows biochemical profile of the study subjects where mean of serum creatinine 76 (+17.5) $\mu\text{mol/L}$. The following table is given below in detail:

Table-3: Biochemical profile of the study subjects

biochemical profile	Mean (+ SD)
Serum Albumin	19 (+5.78) gm/L
Serum Globulin	30 (+6.2) gm/L
Serum Cholesterol	12(+2.9) mmol/L
Serum creatinine ($\mu\text{mol/L}$)	76 (+17.5) $\mu\text{mol/L}$

In Figure-3 shows Chest X-ray of the patients which revealed that 15 patients had consolidation, 5 had pleural effusion and 35 nonspecific pulmonary lesions. The following figure is given below in detail:

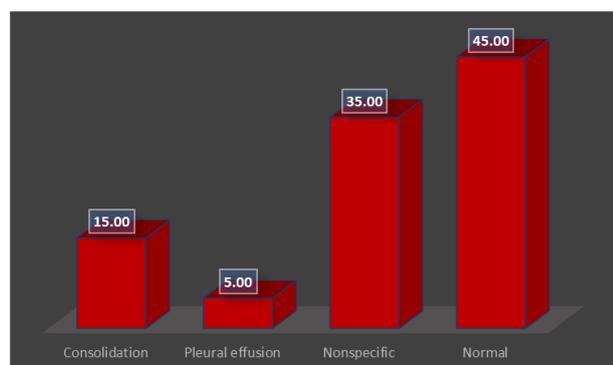


Fig-3: Chest X-ray of the patients

DISCUSSION

In our study, most of the patients belongs to ≥ 5 years age group, 61%. But one study reported that the mean age in the present study was 6.5 years. Similar observations were made by several study.

During the study the most common symptom was puffiness of face (52), oliguria- (53), ascites (30).

One study reported that the most common symptom was puffiness of face (100%), oliguria- 100%, ascites (66.66%) and RTI (32.66%), UTI (32%) which mostly similar to our study. Various investigation profiles are noted in our study, where mean of serum creatinine 76 (+17.5) $\mu\text{mol/L}$ [5, 6].

One report said that, in their study, all cases showed urine protein to be $>3+$. In their study, the range of timed 24 hours urine total protein was 300-3150mg/m²/hour with the mean value of 1725 mg/m²/hour. While as U(Pr/Cr) ratio ranged from 3.1-

27.5 with the mean value of 15.2. Urine protein/creatinine ratio (UP/UC) (mg/mg) [6].

CONCLUSION

From our study we can conclude that, urine protein-creatinine report is highly reliable and rapid test for quantification of nephrotic range in children. Further study is needed for better outcome.

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