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The Socio Demographic Status of Frequent Relapse Nephrotic Syndrome (FRNS) and Infrequent Relapse Nephrotic Syndrome (IFRNS) in Children

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Abstract		Original Research Article

Objective: In this study our main objective is to assess the sociodemographic status of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) in children. *Methodology:* This Cross-sectional comparative study conducted at the Department of Paediatric Nephrology, Bangabandhu Sheikh Mujib Medical University (BSMMU) and Department of Paediatrics, Dhaka Medical College Hospital, Dhaka from February 1, 2010 to October 1, 2010. During the study, 60 children were included in the study according to judgmental or purposive sampling method and they were grouped as follows: Group A (n = 30): Frequent Relapse Nephrotic Syndrome (FRNS), Group B (n= 30): Infrequent Relapse Nephrotic Syndrome (IFRNS). *Results:* During the study, 46.67%) children's urine cultures were positive for bacteria and (53.33%1) children's urine cultures were negative for bacteria in group A. But in group B, 6 (20%) children's urine cultures were positive for bacteria and 24 (80%) children's urine cultures were negative for bacteria. During the study, among the (46.70%) urine culture positive cases in group A, majority (33.33%) children had E. coli followed by (6.67%) children had Enterobacter, (3.33%) children had Acenetobactor and remaining (3.33%) had Klebsiella in group A as the bacteria of urinary tract infection (UTI). Whereas, in group-B it was 20%. *Conclusion:* From our study we can conclude that, proper identification and adequate consciousness is needed for management of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) in children.
Keywords: Frequent relapse and infrequent relapse, Nephrotic syndrome, IgE level.

INTRODUCTION

Nephrotic syndrome is a common problem with an annual incidence of 2 to 7 per 100,000 children and prevalence rate of 12 to 16 per 100,000 children. It is an important cause of great degree of morbidity in children. The disease is a heterogeneous group of glomerular disorder and due to its relapsing nature causes a great burden to the parents and other family members. For complete knowledge, rational management, motivation and counseling of the parents, assessment of prognosis of the disease is of immense importance. Elevated serum IgE level has been noted in glomerular disease. It is uncertain whether elevated levels of serum IgE in childhood nephrotic syndrome are pathogenic or co-incident. Assay of serum IgE is necessary in order to clarify the role of serum IgE with frequency of relapse of nephrotic syndrome in children.

In a study among eighty-seven nephrotic children (59 male and 28 female), found that patients with steroid resistant nephrotic syndrome had higher serum IgE than steroid sensitive nephrotic syndrome both in pre and post treatment. Higher level of serum IgE in nephrotic syndrome was noted with association with frequent relapses and appeared to be associated with poor outcome. These findings suggest that IgE may play an important role in - pathogenesis and

relapse of childhood idiopathic nephrotic syndrome [1, 2].

There are several studies in different countries related to association of IgE with glomerular diseases but yet it is uncertain whether elevated serums IgE level in childhood nephrotic syndrome are pathogenic or coincidence. Assay of serum IgE in relapsing idiopathic nephrotic syndrome is necessary in order to clarify the association of serum IgE with frequency of relapse [2-4].

In this study our main goal is to evaluate the sociodemographic status of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) in children.

OBJECTIVE

General Objective
- To evaluate the sociodemographic status of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) in children.

Specific Objective
- To detect types of organism in positive culture.
- To identify urine culture test of the patients.

METHODOLOGY

Type of study	Cross-sectional comparative study.
Place of study	Department of Paediatric Nephrology, Bangabandhu Sheikh Mujib Medical University (BSMMU) and Department of Paediatrics, Dhaka Medical College Hospital, Dhaka
Study period	January 2017 to December 2018
Study population	admitted with the features of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) were enrolled
Sampling Technique	**Purposive**

Study Population
During the study period total 60 children of both sexes with age ranged from 2 to 15 years admitted with the features of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) were enrolled in non-randomed fashion as study population. Among 60 patients, 30 were of FRNS group and 30 were of IFRNS group. 60 children were included in the study according to judgmental or purposive sampling method and they were grouped as follows: Group A (n = 30): Frequent Relapse Nephrotic Syndrome (FRNS) and Group B (n= 30): Infrequent Relapse Nephrotic Syndrome (IFRNS).

Inclusion Criteria
- Children diagnosed as cases of frequent relapse nephrotic syndrome and
- Infrequent relapse nephrotic syndrome.

Exclusion Criteria
- Age of onset of nephrotic syndrome before 2 year or after 15 years.
- Nephrotic syndrome with atypical presentation.
- Steroid resistant nephrotic syndrome (SRNS)
- Secondary nephrotic syndrome like systemic lupus erythematosus (SLE),
- Henoch Schonlein purpura (HSP), Alpert syndrome, IgA nephropathy, etc.

METHOD
In this study, 60 diagnosed cases having the inclusion criteria of relapsing idiopathic nephrotic syndrome according to the operational definitions were enrolled. Of them 30 patients were Frequent relapse nephrotic syndrome group and 30 patients were of Infrequent relapse nephrotic syndrome group and were designated as group A and group B respectively. Written consent of the parents was taken prior to enrollment in the study. After enrolment, histories of the patients were taken and physical examinations were done in accordance to the data collection sheet. Relevant investigations were done for each patient. From each study subject, total 10 ml of blood samples were drawn from antecubital vein in a plain test tube. Out of this 10 ml, 2ml for hematological investigations, 5ml for all bio-chemical parameters and remaining 3 ml for serum IgE assay.

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-squiare, t-test .

RESULTS
In Figure-1 shows distribution of the patients according to gender where (66.7%) children were male and (33.3%) children were female in group A. In group B (60%) children were male and (40%) children were female. The difference was statistically not significant ($P>0.05$). The following figure is given below in detail:
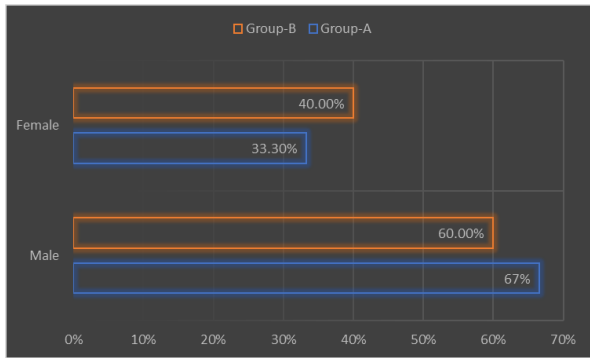
Fig-1: Gender distribution of the patients

In Table-1 shows age distributions of the patients where the age distribution of patients. Majority i.e. 18 (60%) were of age group 2-5 years followed by 8 (26.7%) were of age group 6-9 years and 4 (13 3%) were of age group 10-15 years in group A. On the other hand majority 20 (66.8%) were of age groups 2-5 years followed by 5 (16.7%) were of age group 6-9 years and 5 (16.6%) were of age group 10-15 years. The mean age was 6.13 years (SD ± 2.32) in group A and 5.90 years (SD ± 2.36) in group B. The difference was statistically not significant (P>0.05). The following table is given below in detail:

Table-1: Age distribution of the patients (n = 60)

Age in years	Group A (n=30)			Group B (n=30)			P value
	No	%	Mean±SD	No	%	Mean±SD	
2-5	18	60.0	6.13±2.32	20	66.8	5.90±2.36	0.701
6-9	8	26.7		5	16.6		
10-15	4	13.3		5	16.6		
Total	30	100		30	100		

Data were Analyzed Using Student's T test

In Figure-2 shows socioeconomic condition of the patients (n = 60) where majority (66.7%) children were from lower class followed by (23.3%) children were from middle class and only (10%) were upper class in group A. On the other hand, in group B majority (66.7%) were from middle class followed by (30%) children were from lower class and only (3.3%) were from upper class. The difference was statistically significant (P<0.05). The following figure is given below in detail:

Fig-2: Socioeconomic condition of the patients

Data were analyzed using chi-square test.

Data were analyzed using Student's Y test.

In Table-2 shows comparison of urine culture results of the patients between two groups (n = 60) where (46.67%) children's urine cultures were positive for bacteria and (53.33%1) children's urine cultures were negative for bacteria in group A. But in group B, 6 (20%) children's urine cultures were positive for bacteria and 24 (80%) children's urine cultures were negative for bacteria. The following table is given below in detail:

Table-2: Comparison of urine culture results of the patients

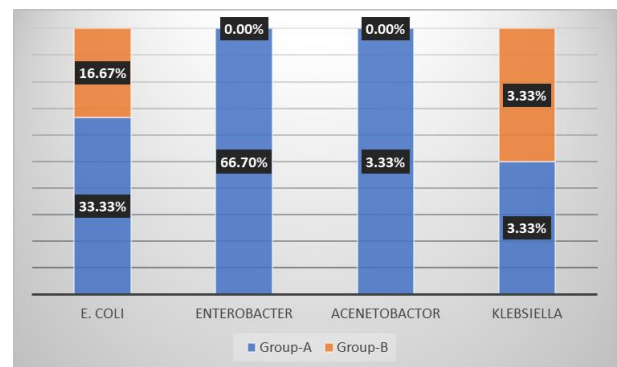| Urine culture	Group A (n=30)		Group B (n=30)	
	No	%	No	%
Positive	14	46.7	6	20.0
Negative	16	53.3	24	80.0
Total	30	100	30	100
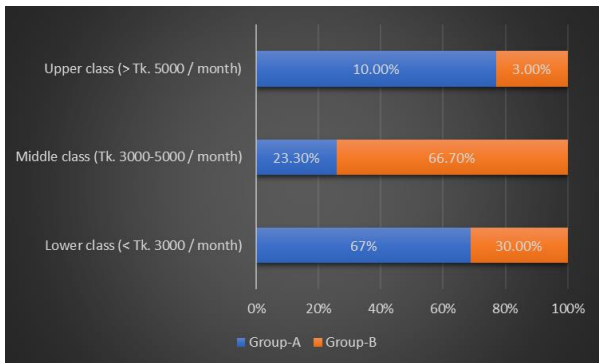
In Figure-3 shows types of organism among culture positive cases, where among the (46.70%) urine culture positive cases in group A, majority (33.33%) children had E. coli followed by (6.67%) children had Enterobacter, (3.33%) children had Acenetobactor and remaining (3.33%) had Klebsiella in group A as the bacteria of urinary tract infection (UTI). On the other hand in among the (20%) significantly urine culture positive cases in group B, majority (16.67%) children had E. coli followed by (3.33%) children had Klebsiella as the bacteria of urinary tract infection (UTI). The following figure is given below in detail:

Fig-3: Types of organism among culture positive cases

DISCUSSION

This study was carried out to assess whether serum IgE level in frequent relapse nephrotic syndrome (FRNS) is higher than that of infrequent relapse nephrotic syndrome (IFRNS) or not. A total of 60 children (age 2 year to 15years) were included in this study. Thirty children of frequent relapse nephrotic syndrome (FRNS) were taken as group A and 30 children of infrequent relapse nephrotic syndrome (IFRNS) were taken as group B of the study population. Patients were diagnosed as idiopathic nephrotic syndrome based on the clinical presentation according to the ISKDC criteria and grouping of study population was done according to operational definitions.

The incidence of the disease was almost same in middle class and lower class. However, the incidence of frequent relapser (FR) was more common in children belonging to the lower class socioeconomic group which was 66.7% compared to 30% in children belonging to the middle class socioeconomic group. This high incidence of frequent relapse nephrotic syndrome in lower class socioeconomic group might have been due to overcrowding, infection unhygienic living condition of the children belonging to lower socioeconomic condition These findings of our study are consistent with the findings who reported that relapses are usually associated with reactions to infections, insect bite, bee stings etc [5, 6].

Urinary tract infection (UTI) was significantly more in frequent relapser (FR) group than in infrequent relapser (IFR) group. In frequent relapser (FR) group 46.7% patients were suffering from UTI whereas 20% of infrequent relapser (IFR) group was suffering from UTI. Frequent relapsers were more associated with infection and the findings are comparable with the other findings [6].

Incidence of all form's nephrotic syndrome in child hood is 2 - 4 per 100,000 populations per year but this figure vary according to the ethnic mix of population. For instance incidence amongst Asian children in two cities in the UK was reported as ranging from 9 -16 per 100, 000 children per year [7]. Another article reported that the incidence of nephrotic syndrome amongst Indian children ranging from 1-3 per 100,000 per year [7]. Another study reported that annual incidence of nephrotic syndrome ranges from 2-7 per 100,000 children per year and prevalence rate ranges from 12-16 per 100,000 children [8].

CONCLUSION

From our study we can conclude that, proper identification and adequate consciousness is needed for management of frequent relapse nephrotic syndrome (FRNS) and infrequent relapse nephrotic syndrome (IFRNS) in children.

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