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CARDINAL MANIFESTATIONS AND CLINICAL PRESENTATIONS OF PAEDIATRIC NEPHROTIC SYNDROME

Paediatrics

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ABSTRACT

Nephrotic syndrome is primarily disorder which is fifteen times more common in children as compare to adults. The clinical and biochemical features of nephrotic syndrome result from heavy proteinuria, hypoalbuminemia, lowered plasma oncotic pressure and oedema follows sustained loss of large amount of protein in urine. About 95% of nephrotic syndrome are due to glomerular pathology and are called idiopathic nephritic syndrome. Idiopathic nephrotic syndrome can be clearly separated into minimal change steroid responsive type and other with significant glomerular lesion mostly non-responsive to steroid. We performed a study to determine the incidence and clinical presentation of nephrotic syndrome in paediatric patients.

KEYWORDS

Nephrotic syndrome, Oedema, Proteinuria

INTRODUCTION

Paediatric NS is a chronic condition presenting pitting oedema, protein in urea in excess of 3.5 g/day, high cholesterol and hypoalbuminemia [1]. Histological examination of kidney reveals minimal lesions in about 90% cases with idiopathic NS. Corticosteroid treatment provide immediate results with remission of proteinuria but about three- fourth cases presents more than one relapse and required to be treated with repeated corticosteroid therapy. The patients with steroid resistant are at risk of complications and renal insufficiency [2]. We conducted a study in children to elucidate the clinical presentation of NS and to make certain recommendations to combat the condition.

MATERIALS AND METHODS

A cross sectional study was conducted on 40 patients below the age of 19 years in S.N Children Hospital, Department of Paediatrics, M.L.N Medical College, Allahabad. Present study included all newly diagnosed patients of NS and patient with frequent relapse. Patients with oedema at presentation, proteinuria, hypoalbuminemia and those previously diagnosed as a case of NS attending hospital as follow up were considered for the study. Family history along with the previous medications was also recorded. The diagnosis of NS was confirmed by clinical, radiological examination and biochemical investigations including urinary protein, serum albumin, and serum cholesterol analysis.

RESULTS

Out of 5,595 patient admitted in the hospital, 62 patients were diagnosed with NS and 40 patients were included in the study those satisfying the inclusion criteria. Incidence of male and female patients with NS was found to be 26 (65%) and 14 (35%) respectively (Table 1).

Table 1: Distribution of patients on the basis of age and gender

Age (year)	Male	Female	Number of Cases
<1	0	0	0
1-3	10	6	16 (40%)
4-6	10	5	15 (37.5 %)
7-9	3	3	6 (15%)
10-19	3	0	3 (7.5%)
Total	**26**	**14**	**40**

Table 2: Presenting Features

Sign and Symptoms	No. of cases	%age
Signs		
Pallor	18	45
Lymph nodes	4	10
Hepatomegaly	8	20
Hypertension	6	15
Symptoms		
Oedema	40	100
+	7	17.5
++	7	17.5
+++	25	62.5
++++	1	2.5
Oligouria	18	45
Abdominal distension	28	70
Fever	20	50
Cough	6	15
Dark coloured urine	3	7.5
Vomiting	2	5
Abdominal pain	2	5
Hypertensive encephalopathy	1	2.5
Breathlessness	2	5

Of the 40 cases, duration of oedema at admission was less than 15 days in 17 cases, 15-30 days in 10 cases, 30-60 days in 6 cases, 60- 90 days in 3 cases and more than 90 days in one case. No history of preceding illness was found in the study. (Table: 3)

Table 3: History of preceding illness

Particulars	No. of cases	%age
Fever	4	10
Sore throat	1	2.5
Skin infection	1	2.5
No history of preceding illness	34	85

DISCUSSION

Previous literatures has reported incidence of NS 1.2–1.8 per 100,000 children/year in Germany, [3] 3-3.5 per 100,000 children in Paris and the surrounding area [4] and 6.49 per 100,000 children /year in Japan [5]. The annual incidence of NS in Scottish children reported by Arneil was 2 per 100,000 below the age of 12 years. [6] Rothenberg and Heyman provided similar figure of 2.3 new cases per 100,000 children upto the age of 9 years in Ohio. [7]

In present study, the percentage of NS among hospital admitted patients was 1.10%. We found more number of male patients (65%) affected with NS. Lal et al found the maximum patients (44%) in the age group 3-5 years. [8]

We observed oedema, the cardinal sign of NS was observed in all cases. Oliguria and pallor was present in 45% cases. High incidence of pallor was due to anemia. The blood pressure was found to be increased in 3 cases which attained back to normal in 3 cases. Vomiting, convulsions and hematuria were other observable symptoms. In present study, a massive proteinuria was observed in 36 patients and protein in urine was one plus in 4 cases and that was due to pretreatment of corticosteroid before admitting to hospital. We also observed raised BP ranged from 90-148 mmHg in majority of cases

and that reached to normal after treatment. Our results were concomitant with the study of Ghosal and Chaudhuri who found only five patients with persistent hypertension (diastolic BP above 90mmHg). [9] In present study, raised BP was due to nephritic onset of disease. Thus, hypertension was not a common feature in patients of NS

CONCLUSION

Out of 60 cases of clinically diagnosed NS admitted to hospital aged between 1-19 years were included in the present study. Frequency of NS was profound in male patients than female. The onset of disease was between 1-6 years in 75% cases. The commonest feature was oedema followed by included Oligouria, abdominal distension and pain, fever, cough, vomiting, breathlessness.

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