Innovations

Clinical Profile of Nephrotic Syndrome in Children a Study Done in the Tertiary health care centre in Andhra Pradesh India

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Abstract:

Introduction:*Nephrotic syndrome is a common renal disease worldwide andan important chronic renal disease in children.The main objective of the study was to analysethe demographic profile, response to steroids andcomplications, in children with Nephrotic syndrome.* ***Materials and Methods:*** *Prospective observational study at the paediatric department of paediatrics, Government GeneralHospital, Srikakulam.58 children who were diagnosed to havenephrotic syndrome were included in the study. Cases were noted down into the proformaconcerning history, examination and investigations.* ***Results:*** *a total of 58 cases of Nephrotic Syndrome, the most common age group was 4–6 years (55.2%). There was a male-to-female ratio of 1.25:1. It was found that 72.4% of subjects were newly diagnosed and 27.6% were relapse cases. 100% of cases responded to steroid therapy.* ***Conclusion:*** *In the present study clinical profile of children with Nephrotic syndrome was concordant with typical nephrotic syndrome in children.*

Keywords: 1.*Nephrotic syndrome, 2.steroid therapy, 3.oedema*

Introduction:

Nephrotic syndrome is a common chronic disorder, characterized by alterations in the permeability of the glomerular capillary wall, resulting in its inability to restrict the urinary loss of protein.It is characterized by oedema, nephrotic range proteinuria (>40 mg/m^2/h), hyperlipidaemia (hypercholesterolemia), and hypoalbuminemia.[1] Incidence is reported to be 2-3/100000 children in western countries while its incidence is slightly higher (2-7/100000) in children of South Asian origin and its prevalence is 12-16/100000 children.[2]Nephrotic range proteinuria is said to be present if early morning urine protein is 3+/4+ (heat coagulation test), spot urine protein/creatinine ratio >2, or urine albumin excretion >40 mg/m2/h.[3] The standard medication for treatment is prednisolone.The treatment fora first attack is prednisolone 2 mg/kg per day (maximum 60 mg in single or divided doses) for 6 weeks, followed by 1.5 mg/kg (maximum 40 mg) as a single morning dose on alternate days for the next 6 weeks. Remission is defined as urine albumin nil or trace for 3 consecutive early morning specimens.The advances in the understanding of the nephrotic syndrome, thechanging epidemiology and regional differences in disease pattern,necessitates further studies on clinical types of nephrotic syndrome,management patterns and determination of trends across various settings. So, in this study, we assessed the clinical presentation, investigation profile, associated complications, and therapeutic response in children with Nephrotic syndrome.

Materials and Methods:

This prospective observational hospital-based study was conducted in the department of paediatrics of Government Generalhospital in Andhra Pradesh, India from Jan2021 to December 2022. The study included children aged 1–12 years with newly diagnosed as well as previously diagnosed Nephrotic syndrome who presented with relapse.58 children who were diagnosed to have the nephrotic syndrome in whom steroid therapy was not yet started were included in the study. Both thepatients with the first attack and relapse were included in the study. Diagnostic criteria of NS with massive proteinuria – urinedipstick testing >300 mg/dl or 3+ or >40 mg/m2/h on a 1-timedsample, hypoalbuminemia (<2.5 g/dl), hypercholesterolemia (total cholesterol >200 mg/dl), and generalized oedema.[1] Detailed information on age, sex at the first episode, and thelocality were noted. The presenting complaint, detailed historyof presenting illness, diet history, and social and family history was taken. Detailed general physical examination, vitals,anthropometry, and systemic examination were done. Routine investigations were done: Urine routine and microscopy for total protein, albumin, red blood cell, casts and pus cell, urineculture, and sensitivity when indicated, serum protein, lipid profile, serum cholesterol, blood urea,creatinine, complete bloodcount with an erythrocyte sedimentation rate (ESR), chest X-ray andultrasonography (USG) abdomen, renal USG, ascites fluid forroutine microscopy, and culture sensitivity as per indication. Allthese parameters were recorded on a pro forma sheet.

Results:

In the present study total of 58 children presented with nephrotic syndrome were included,children presented between the ages of 1-12 years with the mean age atpresentation being 5.3 years. In the present study, 55.2% of the cases belonged to the 4-6 years agegroup followed by the 7-9 years age group, which accounted for 20.7% of the nephrotic syndrome

patients. 55.2% of the cases were male while 44.8 % of cases were female with male to female ratio of 1.23:1 suggesting male preponderance. Table 1 shows the age and sex distribution of cases.Cases presented with the firstepisode were 72.4% while 27.6% of cases werehaving a relapse.The most common presenting symptom was generalizedoedema in 100% of cases followed by fever in 22.4% of cases and oliguria in 20.7% as shown in Table 1.

Table 1: Complete Demographic profile of the study subject

Demographic data		Cases (58)	Percentage (100%)
Age of presentation	1–3 year age group	8	13.8%
	4–6 year age group	32	55.2%
	7–9 year age group	12	20.7%
	10–12 year age group	6	10.3%
Gender	Male	32	55.2%
	Female	26	44.8%
First episode/ relapse	First episode	42	72.4%
	First relapse	12	20.7%
	Second relapse	4	6.9%
Presenting symptoms and signs of nephrotic syndrome in study subjects			
Presenting symptoms			
Edema		58	100%
Oliguria		12	20.7%
Abdominal pain		8	13.8%
Malaise		8	13.8%
Fever		13	22.4%
Sign-on clinical examination			
Ascites		38	65.5%
Hypertension		8	13.8%
Pleural effusion		10	17.2%
Tachypnea		12	20.7%

On analysing investigation 67.2 % of cases had anaemia with a peripheral smear showing normocytichypochromic in 29cases and microcytic hypochromic anaemia in 10 cases. Mean leukocyte count of 8342/mm3.On biochemical investigation, blood urea meansa value of 25 mg/dl. Serum creatinine was in the range of 0.5-1.5mg/dl with a meanvalue of 0.83mg/dl. Serum albumin was between 1.4-2.8mg/dl with the mean value of 2 mg/dlindicative of hypoalbuminemia. Serum cholesterol range was between 216-380 mg/dl with a meanlevel of 290 mg/dl suggestive of hypercholesterolemia Hypoalbuminemia andhypercholesterolemiawere present in all cases.In our study, infection was the mostprevalent complication and urinary tract infection (UTI) was themost common infection, seen in 36 (62%) subjects followed byperitonitis in 4 (6.9%) cases.

Discussion:

This study was conducted on 58 children who were diagnosed to have nephroticsyndrome in our institution.The age of study subjects ranged between 1 and 12 years witha peak age of 4to6 years and a mean of 5.3 years. Themean age was reported in other studies. In a studyby Sahana[4], the mean age at presentation was 7.4 years. In theirstudy, 65% of the subjects belonged to 6–12 years of age followedby 1–5 years (31%). Pandya and Mehta [5] reportedthe mean ageas 4.08 years and Kiran and Kumar[6] reported the mean age atpresentation as 6.7 years There were 55.2% males and 44.8% females with a male-female ratio of 1.23:1. Sahana [4] found that 76% of the subjects were males while 24% werefemales with male to female ratio of 3.27:1 suggesting a malepreponderance. Pandya and Mehta[5] and Kiran and Kumar[6] alsoobserved male predominance in their studies

On clinical examination, we found that all the patients hadoedema (100%) and ascites (65.5%). Hypertension was presentedin 13.8% of subjects, fever in 22.4%,and pleural effusion in 17.2%of cases. Sahana[4] found thatoedema with facial puffiness was presented in 100% of subjects,ascites in 63%, pleural effusion in 15%, and hypertension in 12% ofthe subjects before initiation of corticosteroid therapy. Kiran and Kumar [6] observed oedema in 96% of the subjects,ascites in 90%, and pleural effusion in 30% of the subjects.In our study, we noted that 100% of cases were responders to steroid therapy. No mortality in our study.

Conclusion:

In our study, the most common age of presentation of NS wasbetween 4 and 6 years with a mean of 5.3 years andmale: female was 1.23:1. Almost all patients presented withoedema and the most common complication was UTI.

References:

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