



**ORIGINAL RESEARCH PAPER**

**Paediatrics**

**STUDY OF CLINICAL PROFILE, COMPLICATIONS AND OUTCOME OF IDIOPATHIC NEPHROTIC SYNDROME IN PEDIATRIC PATIENTS**

**KEY WORDS:** Nephrotic Syndrome, Steroid Response, Frequent Relapser

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**ABSTRACT**

**INTRODUCTION:** Nephrotic syndrome is primarily is a disease of childhood. This study was conducted to study clinical profile, complications and outcome in pediatric Idiopathic Nephrotic Syndrome.  
**MATERIAL & METHODS:** During study period, we enrolled 70 cases of Idiopathic Nephrotic Syndrome. We studied clinical profile, complications and outcome of patients. We excluded patients of secondary & congenital Nephrotic Syndrome.  
**RESULTS:** total 70 patients of Idiopathic Nephrotic Syndrome were enrolled during study period. 46 patients (65.72%) were in 1-5 year age group and 45 patients (64.28%) were male. Facial & pedal oedema was most common presenting symptom seen in 70 patients (100%) while oedema was most common presenting sign seen in 70 patients (100%). UTI was most common complication as well infection seen in 13 patients (18.57%). 67 patients (95.71%) were steroid responder and 66 patients (94.28%) had infrequent relapse. 41 patients had hospital stay less than 15 days while 69 patients were discharged.  
**CONCLUSION:** Most common affected age group was 1-5 years with male preponderance. Facial & pedal oedema was most common presenting symptom while oedema was most common sign on presentation. UTI was most common complication and infection encountered in patients of Idiopathic Nephrotic Syndrome. Most patients had good response to steroid with infrequent relapses. Majority patient had less than 15 days hospital stay.

**INTRODUCTION:**

Nephrotic syndrome (NS) is mainly a childhood disease. It was seen even before the days of Hippocrates, the Father of Pediatric Nephrology. It is not a single disease entity but a complex association of distinct type of glomerular histopathology, variable clinical course and uncertain prognosis.

90% of cases of NS are Primary or idiopathic Glomerular diseases while 10% are Secondary to other systemic diseases. In NS with primary glomerular diseases onset is at 2-7 year of life with male predominance (M:F 2:1 to 3:2).<sup>1</sup>

The reported annual incidence rate of Idiopathic NS is 2-5 per 1,00,000 children younger than 16 year and the cumulative prevalence rate is approximately 15.5 per 1,00,000 individuals.

Minimal Change Nephrotic Syndrome (MCNS) may occur at any age. when NS occurs in child younger than 5 years of age then likelihood that the lesion is MCNS is 90%. If NS occurs in child older than 10 years then likelihood of MCNS drops to approximately 50%.<sup>1</sup>

Incidence of idiopathic NS in Marathwada region is high. Hence this study aims to study clinical profile, complications and outcome of idiopathic NS in pediatric patients which will help in the management.

**MATERIAL AND METHOD:**

This prospective observational study was conducted in pediatric ward of a Tertiary Care Centre of Central Maharashtra from January 2016 to November 2017 after approval of Institutional Ethical Committee. After written informed consent, all patients of Idiopathic NS admitted in pediatric wards were enrolled. We excluded patients of secondary NS and congenital NS.

After enrolment, detailed history and physical examination were done. All necessary investigations like CBC, urine

routine & microscopy with urinary protein by heat coagulation method, LFT, KFT, USG abdomen & other investigations were done. Treatment in the form of steroids, antibiotics, diuretics and albumin were given as per need. Complications were noted and treated accordingly. Outcome noted as 'Discharge' or 'Death'.

Nephrotic Syndrome was defined by presence of heavy proteinuria (albuminuria >1 gm/m sq/24 hour), hypoalbuminemia (<2.5gm/dl), generalized oedema and hyperlipidaemia. Remission was defined as urinary protein <2+ for three consecutive days.<sup>1</sup>

Patient was considered frequent relapser if two or more relapses occurred within 6 months of initial episode or 4 or more relapses in any 12-month period. Patient was considered infrequent relapser if one relapse occurred within 6 months of initial response or one to three relapses in any 12-month period. Patient was considered steroid responder if attainment of remission was within initial 4 weeks of corticosteroid therapy and Steroid Resistant if failure to achieve complete remission after 8 weeks of corticosteroid therapy.<sup>2</sup>

**RESULTS:**

During study period, we enrolled 70 patients of Idiopathic Nephrotic Syndrome. Table 1 shows general characteristics of patients of Idiopathic Nephrotic Syndrome. Most commonly affected age group was 1-5 years. There was a male preponderance with 45 (64.28%) patients being male and 25 (35.72%) were female with male to female ratio of 1.8:1.

**Table 1: General characteristics of patients of Idiopathic Nephrotic Syndrome**

Characteristics	No of patients	Percentage
Age distribution (years)		
1-5	46	65.72
5-12	24	34.28

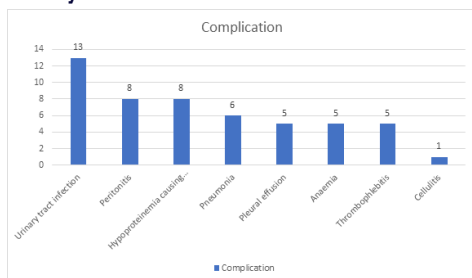
Sex distribution		
Male	45	64.28
Female	25	35.72
Total	70	100

Table 2 shows clinical results of patients of Idiopathic Nephrotic Syndrome. Most common clinical presentation was with facial and pedal oedema as seen in 70 patients (100%) f/b fever in 53 patients (75.71%). Least common symptom was diarrhoea seen in 5 patients (7.14%). Most common sign was oedema seen in 70 patients (100%) while least common sign was respiratory distress. Most common infection seen was UTI seen in 13 patients (18.57%) and least common was cellulitis seen in one patient (1.42%).

**Table 2: Outputs of patients of Idiopathic Nephrotic Syndrome**

Finding	No of patients	Percentage
Clinical symptom		
Oedema (Facial & pedal)	70	100
Fever	53	75.71
Cough	51	72.82
Abdominal distention	48	68.57
Abdominal pain	33	47.14
Oligouria/anuria	15	21.42
Respiratory difficulty	08	11.42
Anorexia	07	10
Diarrhoea	05	7.14
Signs		
Oedema (Facial/pedal)	70	100
Ascites & abdominal distention	48	68.57
Scrotal oedema	32	45.14
Tender abdomen	23	32.86
Hypertension	05	7.14
Hepatomegaly	06	8.57
Respiratory distress	06	8.57
Infections		
Urinary tract infection	13	18.57
Peritonitis	08	11.42
Pneumonia	06	8.57
Thrombophlebitis	05	7.14
Cellulitis	01	1.42

**Figure 1: Complications seen in patients of Idiopathic Nephrotic Syndrome**



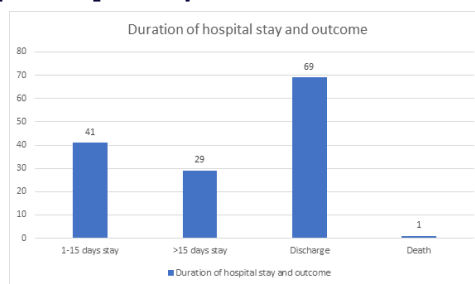
As seen in figure 1, most common complication encountered was UTI (13 patients) while least common complication was cellulitis (1 patient).

Table 3 shows treatment response in patients of Idiopathic Nephrotic Syndrome. Majority patients had infrequent relapse (66 patients) while majority were steroid responsive (67 patients).

**Table 3: Treatment response in Idiopathic Nephrotic Syndrome**

Characteristic	No of patients	Percentage (%)
Pattern of relapse		
Infrequent relapse	66	94.28
Frequent relapse	04	5.72
Steroid response pattern		
Steroid responders	67	95.71
Steroid resistant	03	4.29

**Figure 2: duration of hospital stay and outcome in Idiopathic Nephrotic Syndrome**



In majority patients, duration of hospital stay was 1-15 days (41 patients) while 69 patients were discharged as shown in figure 2.

**DISCUSSION:**

The most common age group of presentation and male preponderance was similar in many studies e.g. Navale R et al 152. Facial and pedal oedema was most common presenting symptom seen in 100% cases. Similar finding was seen in Navale R et al<sup>5</sup>, Krishnan C et al<sup>4</sup>. Oedema being worrisome to parents was the most common presenting symptom.

Oedema was the most common clinical sign observed in present study (100% patients) f/b ascites & abdominal distention. Navale et al<sup>5</sup> and Sahana K et al<sup>5</sup> also found oedema as most common clinical sign. But Ajayan et al<sup>6</sup> found that ascites as most common clinical sign in patients of Idiopathic Nephrotic Syndrome. In their study, anasarca was most common complication and peritonitis was common. Which may explain ascites as most common sign.

Most common infection found in present study was UTI seen in 13 patients (18.57%) similar to many other studies e.g. Sahana et al<sup>5</sup>. But study by Ajayan et al<sup>6</sup> found peritonitis to be most common infection. In their study, anasarca was most common complication which may explain peritonitis as most common infection.

In present study, UTI was most common complication seen in 13 patients (18.57%) f/b peritonitis in 8 (11.42%). Similar finding was seen in many studies like Gulati et al<sup>7</sup> and Rajendra Kumar et al<sup>8</sup>. Ajayan et al<sup>6</sup> found anasarca as most common complication as they included cases of severe infection who required hospitalization and this hospitalization could have added in hypoproteinaemia.

In present study, 66 patients (94.28%) were infrequent relapser, a finding similar to Gulati et al<sup>7</sup>. Study by Chaudhari et al<sup>9</sup> found frequent relapser more common as they included patients with age group of 6 month to 16 years.

In present study, majority patients were steroid responder.

Similar finding was seen in study by Sahana K et al<sup>8</sup> and many others. In present study, duration of hospital stay was less than 15 days similar to many other studies like Kumar D et al<sup>10</sup> as complication rates were less.

**CONCLUSION:**

In present study, most common age group affected was 1-5 years while Idiopathic Nephrotic Syndrome has male preponderance with M:F ratio of 1.8:1.

Facial & pedal oedema was most common presenting symptom and oedema was most common presenting sign. Commonest complication and infection seen was UTI. Majority patients were infrequent relapser with good response to steroids with duration of hospital stay less than 15 days. These findings will add to knowledge of Idiopathic Nephrotic Syndrome which will help in management and to delineate prognosis.

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