

# The Incidence and Organisms Causing Spontaneous Peritonitis in Children With Nephrotic Syndrome

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Infection is major complication of nephrotic syndrome and has been recognized as an important cause of morbidity and mortality in children with nephrotic syndrome. This study was conducted to determine the incidence of spontaneous peritonitis in children with nephrotic syndrome and also the organisms causing spontaneous peritonitis. One hundred and five children with nephrotic syndrome, from birth to 16 years, were evaluated through detailed history, clinical examination and investigations during a period of one year. Out of them 69 were male and 36 were female. A total of 41 patients were found to have infection, out of them 13 were diagnosed to have spontaneous peritonitis during this period, so the incidence of spontaneous peritonitis was 32%. Organisms causing peritonitis were gram positive cocci, E-Coli, Acinetobacter, Enterobacter and Citrobacter.

**Key words:** Nephrotic syndrome, spontaneous peritonitis, incidence, organisms.

Infection is major complication of nephrotic syndrome and has been recognized as an important cause of morbidity and mortality in children with nephrotic syndrome. Proposed explanations for increased susceptibility to bacterial infections include

1. decreased immunoglobulin levels<sup>2</sup>
2. edema fluid
3. protein deficiency
4. hypovolemia leading to decreased perfusion of spleen
5. loss of complement factor
6. immunosuppressive therapy
7. altered helper and suppressor cell ratio.

Incidence of infection in children with nephrotic syndrome is 30-40%. Spontaneous peritonitis is most common type of infection in children with nephrotic syndrome. Streptococcus pneumoniae is the most common organism causing peritonitis, gram negative organisms like H-Influenzae, E-coli, Klebsiella pneumoniae are also encountered.

## Aims and objectives

This study was conducted to determine the incidence of spontaneous peritonitis in children with nephrotic syndrome and also the organisms causing peritonitis.

## Patients and methods

This study was conducted prospectively in the department of paediatric Jinnah Hospital Lahore for a period of one year. Children who fulfilled the criteria of nephrotic syndrome were included in the study. Total 105 patients were studied during this period. The patients of 0-16 years were included in the study. They were investigated through history, detailed clinical examination and relevant investigations including CBC, ESR, blood culture, peritoneal fluid examination & C/Sand abdominal ultrasound.

## Results

During period of one year, a total of 105 children with nephrotic syndrome attended the pediatric ward Jinnah hospital Lahore. Out of them 69 were males while 36 were females. A total of 41 patients were found to have infection. Out of them 13 nephrotics were found to have spontaneous peritonitis, so the incidence of Spontaneous peritonitis in children with nephrotic syndrome was 32%. Out of 13 nephrotics with peritonitis, majority was male with male: female ratio of 2.25:1. Different organisms cultured from peritoneal fluid were gram positive cocci in 4 cases, E-Coli in 3 cases, Acinetobacter in 2 cases and two cases were found to have Enterobacter and Citrobacter each. In two cases there was no growth on peritoneal fluid culture.

Table Organisms causing peritonitis

Organism	No.	%age
Gram Positive Cocci	4	30
E-coli	3	23
Acinetobacter	2	15
Enterobacter	1	7.7
Citrobacter	1	7.7
No growth	2	15
Total	13	

## Discussion

Nephrotic syndrome is a fairly common problem in paediatric age group<sup>1</sup>. Infection is the major complication of nephrotic syndrome. Infection has been recognized as an important cause of morbidity and mortality in children with nephrotic syndrome<sup>2</sup>. In the present study, 105 nephrotics attended the children ward at Jinnah Hospital Lahore. Out of them 41 nephrotics were found to have infection. 13 were found to have spontaneous peritonitis (32%)<sup>3</sup>. According to international studies, peritonitis is the most common type of infection in nephrotics<sup>4&5</sup>. Eleven cases were culture-proven peritonitis with 4 due to gram-positive cocci, 3 due to E-Coli, 2 due to

Acinetobacter, one due to Enterobacter and one due to Citrobacter respectively. Although Streptococcus pneumoniae is the commonest organism causing peritonitis, however, there is a definite increasing trend of gram-negative bacilli over the last 4 years<sup>6</sup>.

#### Conclusion and suggestions

1. Incidence of spontaneous peritonitis in children with nephrotic syndrome is 32%
2. Gram-positive cocci are common organisms causing peritonitis followed by E-Coli, Acinetobacter, Citrobacter and Enterobacter.

#### References

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