

Impact of Urinary Tract Infection on Steroid Response in Idiopathic Nephrotic Syndrome in Children

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Abstract

Context: UTI is one of the most common infection in nephrotic syndrome and may be a cause of delayed steroid response. **Objective:** To observe the impact of urinary tract infection on steroid response in idiopathic nephrotic syndrome children aged 2-6 years. **Study design:** Quasi experimental study **Study period & place:** Pediatric ward of Chittagong Medical College Hospital, Chittagong from 01.01.2009 to 31.12.2009. **Participants:** 52 Nephrotic syndrome children aged 2-6 years with typical clinical features Group A: Nephrotic syndrome with UTI, Group B: Nephrotic syndrome without UTI. **Methods:** Heat coagulation test, urine for R/M/E and C/S was done in every patient. Steroid was given according to standard regimen. Date of starting of steroid was recorded. Antibiotic was given in group A cases according to C/S report. Patients were followed for clinical and urinary remission. Group A and B were compared for remission time achieved by statistical method. **Results:** A male preponderance was noted about 57.7% against female about 42.3%. Generalized swelling of body & scanty micturation found in cent percent study group. Ascitis was found in 23.08%. Scrotal/labial swelling 7.69%. UTI developed in 30.8% of patients of NS. Male female ratio is 1:1. Infection delayed the remission of proteinuria. Mean remission time of NS without UTI patients was 7.39 days and with UTI patients was 9.31 days. In statistical analysis, mean remission time in group A = 9.31+2.24 days (mean + SD), in group B = 7.39+2.51 days (mean + SD), P value = <0.05, statistically significant. **Conclusion:** UTI in nephrotic syndrome causes delayed remission of proteinuria and may be asymptomatic. It should be screened in every nephrotic syndrome children routinely.

Key words : Nephrotic syndrome; UTI; proteinuria.

INTRODUCTION

Nephrotic syndrome is a common chronic disease in childhood. Incidence of idiopathic nephrotic syndrome in western countries varies between 2-7 new cases with prevalence rates of nearly 16 cases per 100000¹⁻². A study at Bangabandhu Sheikh Mujib Medical University (BSMMU) showed that 50-60% of total indoor bed in pediatric renal unit is occupied by the patient of nephrotic syndrome³.

Children of nephrotic syndrome are exposed to a variety of infectious complication that result in significant mortality and morbidity especially in developing countries such as ours⁴⁻⁵. Of all infection UTI are of special interest because of their association with propensity for long term damage and in most cases they are asymptomatic⁶⁻⁷. Information regarding their prevalence in nephrotic syndrome and the extent of impact on steroid response is scant and conflicting. This study adds information about the impact of UTI on steroid response in nephrotic syndrome for early diagnosis of UTI to prevent related hazards.

MATERIALS & METHODS

Heat coagulation test, urine R/M/E and C/S was done in every patient. Steroid was given according to standard regimen⁸. Date of starting of steroid was recorded. Antibiotic was given in culture positive cases according to C/S report. Patients were followed for clinical and urinary remission. Culture positive and negative cases were compared for remission time achieved by statistical method.

RESULTS & DISCUSSION

It was a quasiexperimental study. In this study, male preponderance was noted in 52.2% cases like other studies³. But reasons for male preponderance was obscure. Cent percent patients presented with generalized swelling and scanty micturition followed by 23.8% with ascities and 7.69% with scrotal swelling.

Prevalence of UTI in our study was 30.8% that correlates with previous studies. But both male and female were equally infected with UTI which is not supported by many other studies⁹. Majority of UTI patients (68.8%) was asymptomatic which is consisted with standard reference¹⁰⁻¹¹. Regarding clinical presentation of UTI, we had found fever(60%), lower abdominal pain (20%), dysuria(20%). As we know typical presentation of UTI are dysuria, loin pain & generalized symptoms like fever, anorexia, abdominal pain, vomiting¹². Our study is consisted with these findings.

In our study, pyuria was found in 62.5% culture positive cases and in 52.8% culture negative cases showing poor correlation between pyuria and definite UTI. This is consisted with observation of M Rahman, K M Rahman⁹.

Causative organism of UTI isolated in our study were E coli in 50%, klebsiella in 25%, coliforms & proteus in 18.7% & 6.3% respectively. According to Gulati, Gupta et al, E coli is the commonest organism followed by klebsiella¹³. Our findings is supported by that study.

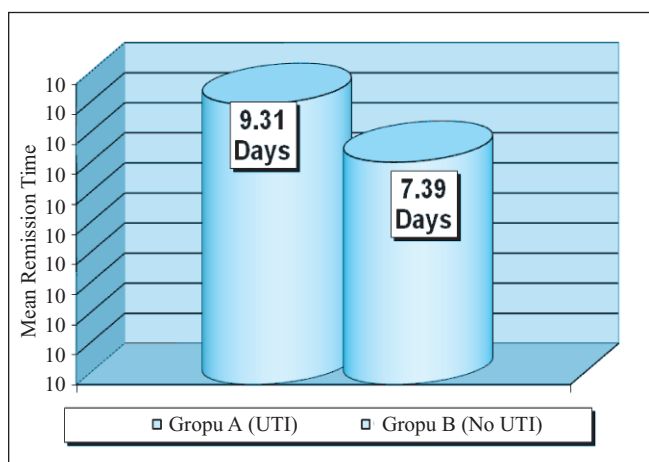
Table 1: Common organisms of UTI

Organisms	Frequency	Percentage (%)
E. Coli	08	50.0
Klebsiella	04	25.0
Coliform	03	18.7
Proteus	01	6.3
Total	52	100.0

The mean remission time of proteinuria was 7.39 days in patients of nephrotic syndrome without UTI & 9.31 days in nephritic syndrome with UTI patients showing delayed remission UTI patients which is consisted with other studies^{14,15}.

Table 2: Remission time in nephritic syndrome with UTI and without UTI patients. (with t – test significance)

	N	Mean	±SD	Median	Range	Sign.	
Remission Time (Days)	Group A (UTI)	16	9.31	2.24	9.50	6-13	P < 0.05 Significant
	Group B (No UTI)	36	7.39	2.51	7.00	4-18	
	TOTAL	52	7.98	2.57	8.00	4-18	



CONCLUSION

Urinary tract infection in nephritic syndrome is mostly asymptomatic and causes delayed remission of proteinuria. Every nephrotic child should be screened for UTI routinely for proper management and to avoid prolonged hospital stay, thereby to prevent long term renal damage.

DISCLOSURE

All the authors declared no competing interest.

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