Proceedings S. Z. P. G. M. I. Vol. 2 (1988), pp. 24–26

Role of Long Acting Steriods in Minimal Change Nephrotic Syndrome

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Nephrotic syndrome is a common Pediatric problem with a reported annual incidence of 2–4 new cases per 100,000 children under 16 yrs. Of the various types minimal change disease is the commonest and is marked by good response to steroids, given in oral form and divided doses. Since this poses problems, including that of compliance, a prelimary study was carried out in 10 freshly diagnosed cases of Nephrotic syndrome using injectable deposteroids once a week. Results are comparable to the orally treated group.

INTRODUCTION

Nephrotic syndrome is a common diagnosis in the pediatric age group, with an annual incidence of 2–4 new cases 100,000 children under. The cumulative prevalence is 16 per 100,000 children.[1,3]

A familial tendency to acquire nephrotic syndrome has been reported in 2 to 8 per cent of cases.[3] Nephrotic syndrome can present at any age, but 74 percent of children with minimal change nephrotic syndrome have onset of their disease between ages 2 and 7 years, with a male to female ratio of 2:1[4] Of the various types, "the minimal change disease" is the commonest and is marked by good response to steroids. The standard treatment is to give prednisolone by mouth. This however poses problems for many children and their families:

1. It is difficult to swallow tablets especially when the total number may be 7–10/day.
2. Administration of this therapy becomes erratic due to frequent dosing and illiteracy of the family.
3. Gastrointestinal problems which are very common in tropical countries or secondary to nephrotic syndrome may interfere with oral medication.
4. Oral medicine may not be absorbed in patients having intestinal wall edema due to severe hypopratienmia of long duration.

A trial was therefore conducted to use injectable deposteroids instead of oral therapy.

PATIENTS AND METHODS.

Children between the age of 2–7 years who were admitted to the Pediatric unit of Shaikh Zayed Hospital, Lahore in whom diagnosis of minimal change disease was made were included in this study. The diagnosis of minimal change disease was made on the basis of generalized edema, low serum albumin, high cholestrol and:

i. Age between 2 to 7 years.
ii. Proteinuria without significant hematuria.
iii. Normal blood pressure.
iv. Normal blood urea and creatinine.
v. Urine sediment not showing any cellular casts.

These children were given injection of depo-medrol in a dose of 1mg/kg body wt X 7 as a single dose by deep 1/M Injection once a week. The rest of the treatment i.e. salt restriction, high protein diet, and antibiotics for infection etc., remained the same as per orally treated group. Patients were followed weekly as out patients, examined

& observed for side effects. Urine analysis was repeated weekly before giving the next injection. The patient was declared responsive to treatment if two consecutive urine specimens were protein free.

TABLE–I.

No Name	Age Sex	Wt (Kg)	Urine Prot	Casts prot	24Hr Uprot mg	Serum Chol mg/dL	Serum Prot GM/L	Serum Alb Gm/L	Blood Urea mg/d	Serum Creat mg/dL	Response After Injections	Remarks	Side effects
1.M.S.	3YM	12	+++	–ve	1300mg	282	4.8	1.5	32	0.8	05 Inj.	Patient responded well, now urine protein free	Cushingoid Face
2.S.R.	3Y.M.	10.5	+++	+v	560	324	3.2	1.4	50	1.2	06 Inj	Patient got relapse but responded initially. Now on maintenance steroids	
3.L.B.	3Y.F	12	+++	–ve	1000	291	3.9	0.8	20	0.8	05 inj	Patient responded initially, Got relapse Now on oral Steroids	
4.M.S	6Y.M	15.8	+++	+ve	411	401	5.6	1.6	8	0.4	03Inj	Now patient asympto-matic and urine protein free	Cushingoid face & Hy-pertension
5.M.S.	6Y.M	15.8	+++	–ve	900	280	4.6	1.2	12	0.3	04 Inj	Patient asymptomal & urine protein free.	Nil
6.R.A	2Y.M	9	+++	+ve	1200	290	4.8	1.2	25	0.4	No respon	Patient did not respond though Protein urea decreased. Now on oral steroids, Not responding.	Cushingoid face.
7.U.B.	3½Y.M	14.5	+++	+ve	1000	208	4.8	1.2	25	0.6	0.4 Inj	Protein urea –ve, Patient asymptomatic	Nil
8.M.A	3T.M	13	+++	–ve	7000	304	4.1	2.1	20	0.3	05 Inj	Protein urea –ve, Patient asymptomatic	Nil
9.M.A	4½Y.M	13	+++	–ve	600	220	5.0	2.0	25	0.5	06 Inj	Patient symptom free	Nil
10.A.W.	6Y.M	18.5	+++	++ve	1110	215	4.8	1.4	12	0.6	04 Inj	Patient responded Got relapse Now on oral sterioids	

Alb – Albumin
Prot – Protein
Creat – Treatine creatinine

DISCUSSION.

Minimal change disease responds very well to prednisolone therapy. In a report of 363 patients with biopsy proven minimal change nephrotic syndrome, 93% responded to the initial 8 week course of Prednisone by mouth.[5] Response meant absence of proteinuria on 3 consecutive urine specimens. Of those who are going to respond (responders) 73% did so within 14 days and 94% within 28 days of therapy. Approximately 85% of children will

however experience a relapse (defined as three consecutive days of proteinuria of 2 & or more) Response to the regimen of Prednisone in daily divided doses is superior to once a day or alternate day therapy in inducing remission. [5]

In our study, 90% responded initially and this is comparable to the experience of the international study group. So far, although the followup has been short (max 9 months) only 4 (44%) relapsed. One patient did not respond to the injectable therapy but this child did not even respond to oral therapy subsequently.

Although the number of patients is small and they have been followed only for a maximum of 9 months, the initial impression is that long-acting steroids are at least as effective as oral steroids given in daily divided doses. Side effects and relapses rate are not common. For a country like ours with low literacy and incomplete motivation and compliance this regimen should be considered a reasonable alternative.

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