'Pulse' Methylprednisolone Therapy in the Treatment of Acute Crescentic Glomerulonephritis

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Dear Sirs,

Cole and co-workers [1,2] reported the results of intravenous (IV) methylprednisolone (30 mg/kg/day, 6 alternate days) in children with severe acute crescentic and non-crescentic glomerulonephritis (GN). Recently a dramatic improvement of renal function has been obtained with this treatment in adults with idiopathic rapidly progressive GN [3-5]. These reports encouraged us to apply this therapy to children with acute crescentic GN of different etiologies (fig. 1), employing a lower dosage of cortico-steroids: 10 mg/kg/day of IV methylprednisolone for 6 consecutive days, followed by oral prednisolone and cyclo-phosphamide for 8-12 weeks. Renal biopsies were done before treatment and repeated 1 year later; all of them were studied with light and immunofluorescence microscopy.

fi 0

0 1

Time, months

0 Pat. 1 MPGN type IIA Pat 2 MPGN type IID Pat 3 MPGN type I• Pat. A I-ISP

i Pat 5 SLE■ Pat. 6 MSP Dialysis

1 Pulse steroids

12 18 24 30 36 42

Results

6 patients (5 males) were treated. Ages at onset ranged from 6.7 to 14.5 years (mean 11.5 years). Before therapy, the average serum creatinine concentration was 3.45 ± 0.19 mg/dl ($\bar{x} \pm \text{SEM}$). It decreased to 1.25 ± 0.52 mg/dl within 4 weeks ($p < 0.01$). 4 children had persistent normal renal function during an average follow-up period of 35 months (range 19-44 months); 1 (No.2) had moderate decrease in glomerular filtration rate (his first biopsy had 100% of the glomeruli with crescents), and another (No. 3) is in end-stage renal disease (his treatment was not started till 2.5 months after onset; fibrous crescents were already present). The 6 patients had more than 65% crescents in pretreatment biopsy (range 65-100%). In 5 rebiopsied children the percentage of glomeruli with scarring (segmental or global sclerosis and fibrous crescents) was roughly similar to the percentage of crescents in the first biopsy.

Fig.1. Serial serum creatinine levels in 6 patients with acute crescentic GN treated with pulse methylprednisolone therapy. Point '0' represents time of admission. MPGN = membranoproliferative glomerulonephritis; HSP = Henoch-Schönlein purpura; SLE = systemic lupus erythematosus; ESRD = end-stage renal disease.

Comments

These patients presented similar clinical findings: nephritic-nephrotic syndrome and decreasing renal function; all of them had diffuse formation of crescents and mes-angial hypercellularity on light microscopy and deposition of complement (C 3) and/or immunoglobulins on immunofluorescence. Renal function improved immediately in all 6, and a favorable long-term course was observed in 5. The percentage of glomeruli with crescents in the first biopsy was similar to the percentage with scarring in the second. It seems, therefore, that treatment blocks the appearance of new crescents but does not prevent the organization of those already present.

Our results show that

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treatment with 10 mg/kg/day of IV methylprednisolone for 6 consecutive days is helpful and devoid of dangerous side effects in children with acute crescentic GN of various types, when given early in the course of the disease. Our data suggest, however, that a prospective controlled multi-center trial is warranted in this disease(s).

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References

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