

## Combination Treatment of Triple Immunosuppressive Agents in Patients with Refractory or Resistant Idiopathic Nephrotic Syndrome

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### Combination Treatment of Triple Immunosuppressive Agents in Patients with Refractory or Resistant Idiopathic Nephrotic Syndrome

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**Background :** The treatment of patients with corticosteroid or cyclosporine dependent, with the risk of side effects, or corticosteroid or cyclosporine resistant idiopathic nephrotic syndrome (INS) remains a clinical problem. We report our experience about the combination treatment of triple immunosuppressive agents in patients with refractory or resistant idiopathic nephrotic syndrome.

**Methods :** Eight patients with biopsy- proven INS (4 with focal segmental glomerulosclerosis, 3 with membranous nephropathy, 1 with minimal change disease) were treated with the regimen of the combination of corticosteroid, cyclosporine (trough drug level 100- 150 ng/mL) and Mycophenolate mofetil (MMF, dose range 500 to 2,000 mg per day) or Mycophenolic acid. Six patients had steroid- resistant or dependent disease, five patients had cyclosporine- resistant disease and two patients were intolerable to cyclosporine. Cyclophosphamide had failed in six patients and MMF had failed in four patients previously.

**Results :** Median duration of triple combination therapy was 12.5 months (range 4.4 months to 26.4 months). Complete remissions occurred in one patient and partial remissions occurred in four patients. One patient experienced partial remission during the nineteen months of triple therapy but relapse occurred during the period of tapering of MMF due to patient's GI intolerance. There were no significant changes in serum creatinine level during the period of triple combination therapy in patients with remissions. The side effects of triple combination treatment were mild (one patient with gingival hypertrophy and one patient with GI intolerance).

**Conclusion :** We experienced the triple combination treatment of corticosteroid, cyclosporine and MMF could induce complete or partial remissions of proteinuria without serious side effects in certain patients whose disease could not be controlled by mono- or dual therapy of immunosuppressive agents.

**Key Words :** Nephrotic Syndrome, Mycophenolate mofetil, Cyclosporine