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Response to tacrolimus in steroid resistant membranoproliferative glomerulonephritis

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We report the outcome of 13 steroid resistant cases of membranoproliferative glomerulonephritis (MPGN) treated with tacrolimus. All cases of steroid resistant nephrotic syndrome (SRNS) who underwent kidney biopsy at our center during June 2011 - December2017 were retrospectively reviewed. Cases with systemic lupus erythematosis, Hepatitis B and C were excluded. 13 children with SRNS (7 patients with initial steroid resistant and 6 with late steroid resistant) having histological diagnosis of MPGN were treated with tacrolimus. Eight were male and five were female. Median age was 9 years (age range 1.8-13 years). 5 patients had gross hematuria while 6 had microscopic hematuria, all 13 had nephrotic range protein urea and 69.7% had hypertension. Histological characteristics reveal MPGN type1 in 10 and type I in 3 patients. Tubular atrophy was found in 69.2% and glomerulosclerosis in 61.5%. Focal mesangial sclerosis was found in 30.7%. Four patients had cellular/fibrocellular crescents. Tacrolimus was used in dose of 0.15-0.2 mg/kg/day maintaining through level of 4-8 ng/ml. The complete remission was achieved in 76.9% which was sustained in 66.6% while 2/10 relapsed after stopping tacrolimus. 7.6% did not respond and progressed to end-stage renal disease (ESRD) in 48 months. Another 15.3% showed partial response (one of these 2 partial responder achieved complete remission after addition of mycophenolate mofetil). Median duration of response was 8.5 weeks. Side effects were mild and transient with mild hyperglycemia in one patient and 20% increase in serum creatinine in another patient. Mean follow-up period was 39.4 months. Mean eGFR at start was 94.3 and 102 at end of follow-up period. Severe tubular atrophy, glomerulosclerosis and cellular/fibrocellular crescents were found to be predictors of poor response with p value of <0.05. Follow-up biopsy was done in 5 patients, tacrolimus nephrotoxicity was found in one patient. We conclude that tacrolimus is a safe and well tolerated therapeutic option for cases of severe MPGN. However we need close follow-up and monitoring for progression of disease and nephrotoxicity.

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