Immunosuppressive Agents and Primary glomerulonephritis

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Primary glomerulonephritis (GN) is defined as inflammation of glomerulus without a known systemic process, whereas secondary GN is related to the process of a systemic disease. Many GN are named after their microscopic results of renal biopsy, either by light microscopy, immunofluorescence, or electron microscope. We briefly introduced the clinical presentations of the five primary GN, which are minimal change disease (MCD) , focal segmental glomerulosclerosis (FSGS), membranous glomerulonephritis (MGN), membranoproliferative glomerulonephritis (MPGN), and IgA nephropathy (IgA nephropathy). Clinically, primary GN are usually treated with immunosuppressive agents. These agents include corticosteroid, calcineurin inhibitors, alkylating agents, or other miscellaneous treatments.

The minimal change disease (**MCD**) is the most common cause of nephrotic syndrome in children. Nephrotic syndrome is defined as heavy proteinuria (>3.5 g/day), hyperlipidemia, and edema. It is usually treated with steroids without renal biopsy because steroid responsiveness equated the diagnosis of MCD.

FSGS is responsible for about one-fourth of kidney diseases in adults with proteinuria >2g/day. It contains five histologic variants and differs in clinical response. Standard treatment is started with high dose daily steroid for at least 16 weeks. Steroid resistant FSGS may be treated with cyclosporine 5mg/kg per day in divided dose. The remission rate is above 70%.

MGN is the most common cause of nephrotic syndrome in people aged above 60 with a male predominance. Disease specific therapy for MGN includes Ponticelli protocol with alternative use of steroid and chlorambucil in 6 months, with a responsive rate of 88% compared to 47% in control.

MPGN is pathological diagnosis based on the finding of diffuse mesangial proliferation, thickening of the capillary wall, subendothelial deposit, and hypercellularity. The role of alternate-day, high dose steroids and cytotoxic agents in MPGN remains controversial. Although untreated MPGN progresses to death or end stage renal disease (ESRD) in 50% of adults within 5 years, and up to 90% un 20 years. Antiplatelet therapies have been studied in several trials.

IgA nephropathy is the most common GN diagnosed worldwide, more popular in eastern countries. Microscopic or gross hematuria is always noted. Blood pressure control with ACE inhibition is recommended in all hypertensive patients. The effect of fish oil containing omega-3 fatty acid is controversial. Studies suggest severe or progressive disease may benefit from combined treatment of steroids and cyclophosphamide.