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Glomerular disease

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Clinical Usefulness of the Oxford Classification in Determining Immunosuppressive Treatment in IgA Nephropathy

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Background: The current guideline in the management of IgA nephropathy (IgAN) suggests corticosteroid therapy in patients with persistent proteinuria ≥1 g/day, despite 3-6 months of optimized supportive care. The Oxford classification has recently been established to predict clinical outcomes in IgAN. However, clinical utility of pathologic classification as guidance in treating immunosuppression is unknown. Thus we investigated whether the Oxford classification could predict the development of proteinuria ≥1 g/g Cr and worsening kidney function. We further examined clinical efficacy of corticosteroid treatment by each histologic variable of the Oxford-MEST.

Methods: The data was retrieved from the Glomerulonephritis Registry of Yonsei University Health System and National Health Insurance Service Ilsan Hospital. Among 623 patients with biopsy-proven IgAN between 2005 and 2014, we included 380 patients with early stages of IgAN who had proteinuria <1 g/g Cr and estimated glomerular filtration rate (eGFR) ≥50 ml/min/1.73 m^2. The study endpoints were the development of random urine protein-to creatinine ratio (UPCR) ≥1 g/g Cr and a 30% decline in eGFR during follow-up. In addition, we further analyzed whether corticosteroid treatment can reduce proteinuria and improve kidney function using propensity score matching.

Results: Among the Oxford-MEST lesions, only M1 was significantly associated with an increased risk of developing UPCR ≥1 g/g Cr (hazard ratio [HR], 4.017; 95% confidence interval [CI], 1.191-13.553; P=0.025) compared to other lesions. In addition, the risk of reaching a 30% decline in eGFR was significantly higher in patients with M1 than in those with M0 (HR, 3.546; 95% CI, 1.189-10.576; P=0.023) in a time-varying Cox model adjusted for multiple confounding factors. Furthermore, patients with M1 had a greater decline of eGFR than patients with M0 (-0.42±0.91 vs. -2.16±1.68 ml/min/1.73m^2/year, P<0.001). Among patients with M1, corticosteroid treatment significantly reduced proteinuria who reached persistent UPCR ≥1 g/g Cr during follow-up. However, there was no difference in the development of a 30% decline in eGFR (HR, 2.456; 95% CI, 0.752-8.024; P=0.137) and eGFR decline rate between steroid users and non-users.

Conclusion: We showed that the Oxford-M1 predicted the risk of developing proteinuria ≥1 g/g Cr, which was significantly associated with worsening kidney function. This finding may provide a rationale of using the Oxford classification as guidance to initiate immunosuppression in early stages of IgAN. However, steroid treatment was not associated with improving clinical outcomes. Further randomized controlled studies are required to investigate whether earlier steroid administration in patients with M1 results in better outcomes.

Keywords: IgA nephropathy, Immunosuppressive therapy, Oxford classification, Proteinuria