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# A Prediction Model for Responsiveness to Immunosuppressive Therapy in Patients with IgA Nephropathy

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**Objectives:** Few studies have reported the responsiveness of immunosuppressive therapy in patients with IgAN. We aimed to establish a predictive model for responsiveness of immunosuppression.

**Methods:** We retrospectively studied 134 biopsy-proven IgAN patients receiving immunosuppressive therapy. Demographics, blood pressure, pathologic variables of the Oxford classification, eGFR, BUN, serum concentrations of cholesterol, albumin, calcium, and phosphorus, UPCR, and RAAS blocker use were collected. Multivariable logistic model was constructed to identify factors associated with remission of proteinuria, which was defined as a reduction of proteinuria less than 0.5g/g at 6 months after starting immunosuppressive therapy. Then, beta coefficient of significant factors was used to derive a score-based prediction model.

**Results:** Before immunosuppression, mean eGFR was 72.4±29.0 ml/min per 1.73m$^2$ and median UPCR was 2.10(1.40-3.50) g/g. In addition, RAAS blockers were used in 72.4% of the patients and mean BP 123.7±14.4 was mmHg. A total 55 of 134 patients(41.0%) achieved a remission at 6 mo. In multivariable logistic regression model after adjustment of confounders, mesangial hypercellularity involving less than 50%(M0), presence of endocapillary hypercellularity(E1), UPCR <1.8 g/g, eGFR ≥65.6 ml/min per 1.73m$^2$ and absence of hypertension at the time starting immunosuppressive therapy were significant predictors for remission. The scoring system derived from these variables showed an AUROC of 0.75(95% CI, 0.67-0.84). When we determined three responsiveness groups based on this scoring model(low,0-1;intermediate,2-3;high,4-6), hazard ratios for ≥30% eGFR decrease or incident end-stage kidney disease was significantly lower in intermediate(HR,0.40;95% CI,0.07-0.68) and high-score groups(HR, 0.17;95% CI,0.05-0.56) than in low-score group.

**Conclusions:** This study showed that IgAN patients with M0, E1, eGFR ≥65.6 ml/min per 1.73m$^2$, and UPCR <1.8g/g, and without hypertension were more likely to respond to immunosuppression. In addition, our proposed prediction model well predicted adverse kidney outcome. Further multicenter validation studies are required to test the usefulness of this model.