Clinical predictors model as practical alternative to international IgA nephropathy risk prediction tool in estimating renal end points of patients with IgA nephropathy

Shamira Shahar[1,2], Goh Bak Leong[2], Fairol Huda Ibrahim[2], Anim Md Shah[1,3], Nor Fadhlina Zakaria[1,3], Wan Zul Haikal Hafiz Wan Zukiman[1,3], Mohamad Zulkarnain Bidin[3], Christopher Lim Thiam Seong[1,3]

[1]Department of Medicine, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, [2]Department of Nephrology, Hospital Sultan Idris Shah, Serdang, [3]Department of Medicine, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Selangor, Malaysia

ABSTRACT

Introduction: IgA nephropathy (IgAN) is the most common glomerular disease globally. The IgAN heterogeneity presents significant challenges in predicting disease progression and its management. The International IgA Nephropathy Risk Prediction Tool (IIgAN-RPT) was created to estimate the risk of disease progression. However, its reliance on histological features limits its practicality. This study evaluates the effectiveness of clinical predictors compared to the IIgAN-RPT. **Materials and Methods:** This retrospective study included all patients with biopsy proven IgAN from January 2008 to May 2019 in Hospital Sultan Idris Shah, Serdang. Patients with kidney failure and lost follow-up were excluded. The primary outcome was 50% reduction in eGFR or kidney failure. We used discrimination and calibration as principles method to evaluate the IIGAN-RPT model and compared it with clinical model includes age, proteinuria, eGFR at diagnosis and mean arterial pressure (MAP). **Results:** Seventy patients were analysed over a median follow-up period of 5 years. The cohort was predominantly female (65.7%) with a mean age of 32 years, a median eGFR of 76 ml/min/1.73m² (IQR: 41–109), and a median UPCI of 2.65 g/day (IQR: 1.7–5.7). The median 5-year IIgAN-RPT risk score was 23.1% (IQR: 11.3–53.5), with 38.6% reaching the primary outcome. The IIgAN-RPT demonstrated reasonable discrimination with an AUC of 0.893 ($p<0.05$; CI: 0.819–0.968) but tended to underestimate progression risk. In contrast, the clinical predictor model exhibited superior discrimination with an AUC of 0.952 ($p<0.05$; CI: 0.905–0.999). **Conclusion:** Our study has demonstrated comparable predictive utility between IIgAN-RPT and clinical predictors (eGFR at diagnosis, MAP, age and proteinuria). Although IIgAN-RPT is a widely validated tool in predicting IgAN disease progression, their value for everyday clinical practice is limited. Ideally, prediction tools should consist clinically practical markers that readily accessible, easy to interpret, and suitable for routine clinical practice.