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External Validation of Histologic Chronicity Score + Kidney Failure Risk Equation to Predict Disease Progression in Biopsy Proven IgA Nephropathy in Filipino Patients in a Tertiary Institution in the Philippines

Marcelle Louise Aquino, Eric Chua, Jan Joel Simpauco
Department of Internal Medicine-Nephrology, National Kidney and Transplant Institute, Philippines

Objectives : The International IgAN Prediction Tool (IIGAN-PT) is the most studied prognostic tool for disease progression. The Combined Model (Chronicity Score + Kidney Failure Risk Equation) was developed to predict disease progression in glomerular diseases. This study was conducted to determine the external validity of the Combined Model in Filipino IgAN patients and was compared to the IIGAN-PT.
Methods : A retrospective cohort of 145 IgA nephropathy patients were followed up at 2 and 3 years post biopsy. The end points were ≥ 40% decrease in eGFR from baseline or kidney failure (eGFR <15 mL/min/1.73 m^2 or need for maintenance dialysis or kidney transplant). The Combined Model and IIGAN-PT were compared and analyzed using sensitivity, specificity, and area under the receiving operator curve (AUROC).
Results : The Combined model had a higher sensitivity than the IIGAN-PT for predicting disease progression at 3 years post biopsy. However, the IIGAN-PT had a higher specificity at 2 and 3 years post biopsy. The AUROC of both prediction tools were calculated and results showed that both tools were able to predict disease progression at 2 and 3 years post biopsy.
Conclusions : The combined model (Chronicity Score + Kidney Failure Risk Equation) can predict risk for disease progression of IgA nephropathy at 2 and 3 years post biopsy. Compared to the IIGAN-PT, the combined model was more sensitive at 3 years post biopsy but the IIGAN-PT was more specific at 2 and 3 years. Both tools were able to predict disease progression.

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Comparison of the Accuracy of the Predictive Indices

Prediction Tool	Sensitivity %(95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)
Combined Model Y2	82.14 (64.41, 92.12)	67.42 (58.6, 75.33)	37.7 (26.6, 50.3)	94.1 (86.81, 97.43)
IIGAN-PT 2Y	57.14 (39.07, 73.49)	88.03 (80.91, 92.74)	53.33 (36.14, 69.77)	89.57 (82.64, 93.93)
Combined Model Y3	97.83 (88.66, 99.62)	40.4 (31.27, 50.25)	43.27 (34.15, 52.86)	97.56 (87.4, 99.57)
IIGAN-PT 3Y	71.74 (57.45, 82.68)	77.78 (68.64, 84.84)	60 (46.81, 71.88)	85.56 (76.84, 91.36)

Abbreviation: Combined model Y2, combined model at 2 years; IIGAN-PT 2 yrs, International IgAN Prediction Tool at 2 years; Combined model Y3, combined model at 3 years; IIGAN-PT 3 yrs, International IgAN Prediction Tool at 3 years; PPV, positive predictive value; NPV, negative predictive value

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Performance of Prediction Tools for Predicting Risk of Disease Progression

Test Result Variable(s)	AUC (95% CI)	P-value
Combined model Y2	0.831 (0.757, 0.905)	<0.001
IIGAN-PT 2 yrs	0.821 (0.736, 0.906)	<0.001
Combined model Y3	0.839 (0.774, 0.903)	<0.001
IIGAN-PT 3 yrs	0.840 (0.774, 0.906)	<0.001

Combined model Y2, combined model at 2 years; IIGAN-PT 2 yrs, International IgAN Prediction Tool at 2 years; Combined model Y3, combined model at 3 years; IIGAN-PT 3 yrs, International IgAN Prediction Tool at 3 years