00116 Validation of Predictive Model for Progression of CKD to ESRF in Singapore

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Aims: Risk stratification of chronic kidney disease (CKD) patients allow clinicians to individualize treatment and educate patients of their risk of kidney failure. Tangri et al (JAMA. 2011 Apr 20;305(15):1553-1559) proposed and validated a predictive model for progression of CKD to kidney failure in a Canadian population and subsequently in a meta - analysis of multinational cohorts. We aim to validate this predictive model in a Singapore CKD cohort and to determine if a calibration factor is required.

Methodology: The study population was derived from patients newly referred to Department of Renal Medicine at Singapore General Hospital (SGH), Singapore in 2009. Eight variables based on the most accurate model in the Tangri et al study were obtained within 90 days of the initial visit. Primary outcome is kidney failure (defined as need for dialysis or kidney transplantation) in 5 years.

Result: Of 2216 patients reviewed, 796 were included in the analysis. Mean age is 65.8 years old and mean estimated glomerular filtration rate (CKD - EPI) (eGFR) is 34.5ml/min/1.73m2. Majority are Chinese (74.6%) with 15.5% Malay, 6.2% Indian, 1.1% Eurasian and 0.6% other ethnicities. 640 (80.4%) are on angiotensin converting enzyme inhibitor (ACEi) or angiotensin receptor blocker (ARB). 497 (62.4%) have diabetes mellitus. 212 (26.7%) reached kidney failure in 5 years.

Both the 8 - factor (age, gender, eGFR, albuminuria (ACR), serum albumin, serum phosphate, serum bicarbonate and serum calcium) (C - index 0.863) and 4 - factor (age, gender, eGFR and ACR) (C - index 0.865) models are accurate in predicting risk of kidney failure with the 8 - factor model outperforming the 4 - factor model (adequacy index of 98.8% vs 97.2%).

Conclusion: The predictive model developed by Tangri et al using routine laboratory tests is accurate in predicting the progression of CKD to kidney failure in 5 years in the Singapore CKD cohort without a need for calibration factor.