Does the Kidney Failure Risk Equation (KFRE) accurately predict progression from Chronic to End Stage Kidney Disease in an Australian Metropolitan population – a retrospective clinical audit.

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Background:
Patients with Chronic Kidney Disease (CKD) want information on disease trajectory and prognosis. Furthermore, risk prognosis can guide and facilitate shared decision making and enable us to specifically ‘target’ care appropriately and for many may also reduce appointment burden. However, prognosis is often hard to predict due to disease heterogeneity and variable progression rates.

Tangiri reports on a 4 and 8 variable equation (KFRE) to predict 2 and 5-year probability of progression from CKD to End Stage Kidney Disease (ESKD) for patients CKD stage 3 to 4. The KFRE has been validated in 31 multinational cohorts but to date not in Australia.

Aim:
To determine whether the KFRE 4 and 8 variable equations accurately predict progression to ESKD.

Method:
A retrospective audit was conducted on patients referred to a Nurse-Led Multi-disciplinary adult CKD clinic between 2008-2013 (n=431). The 4 and 8 variable equations were applied using the on-line KFRE calculator and risk of progression from CKD to ESKD at 2 and 5-years determined.

Results:
19.7% of the sample population progressed to ESKD (n=80). Progression was more prevalent in males (61.25% versus 47.32%) and those with diabetes (58.75% versus 46.34%) when compared to those who did not progress to ESKD. 40.9% of those identified by the KFRE as ‘high risk’ progressed to ESKD versus 2.8% of those classified as low risk. However, in this cohort, the risk of non-renal death (29.8%) was far greater than that of progression to ESKD. Further statistical analysis is currently being undertaken to determine calibration and discrimination.

Conclusion:
KFRE predicted outcomes appear to correlate highly with observed outcomes in all categories. Whilst the KFRE rates highly on clinical usability, clinical utility within the patient’s journey requires further examination. Across the total cohort, the risk of death is far greater than progression to ESKD particularly in the KFRE low and intermediate categories.