

Prevalence and Factors Associated with Rapid Progression of Chronic Kidney Disease: A Primary Care Facility-based Retrospective Study

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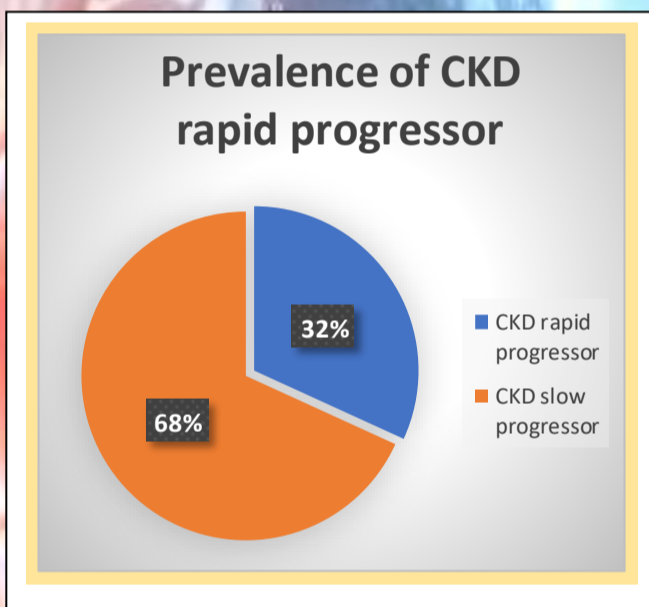
Introduction

- CKD is defined as eGFR <60 ml/min/1.73 m², present more than 3 months with or without evidence of kidney damage or evidence of kidney damage that is present >3 months with or without eGFR <60 ml/min/1.73 m².¹
- Malaysian guideline defines rapid decline in renal function as loss of eGFR > 5 ml/min/1.73 m² in one year or >10 ml/min/1.73 m² within five years.¹
- Patients with rapidly declining renal function are at increased risk of adverse outcomes, including increased risk of ESRD as well as increased risk of mortality prior to ESRD due to various complications.
- In Malaysia, the number of prevalent dialysis patients showed an increase to 49,770 in 2021 from 26,480 in 2011.²
- Although multiple studies were carried out on prevalence of CKD and the associated factors, however it is important to note that there are actually few studies devoted to study on clinical profile of CKD patients at risk of rapid progression especially in primary care settings.
- Thus, the aim of this study was to **identify the prevalence of CKD rapid progression as well as to ascertain sociodemographic and clinical profiles that act as significant factors contributing to rapid progression of CKD** in primary care setting.

Methods

- Data were collected retrospectively from 176 CKD patients with estimated glomerular filtration rate (eGFR) ≤ 60 ml/min/1.73m² in a university-based primary care clinic.
- Sociodemographic information, comorbidities, investigation results and medications were collected from patient's case notes and laboratory information system.
- eGFR was calculated using CKD-EPI 2021 equation over a period of one year and a decline in eGFR > 5ml/min/1.73m² over one year was defined as rapid progressors.
- Multiple logistic regression was used to identify factors that were independently associated with CKD rapid progression.

Results



| Comorbidities | Frequency, n (%) |
|-----------------------------|------------------|
| Hypertension | 175 (99.4) |
| Dyslipidemia | 165 (93.8) |
| Diabetes Mellitus | 151 (85.8) |
| Benign Prostate Hyperplasia | 39 (22.2) |
| Coronary Artery Disease | 29 (16.5) |
| Diabetic Retinopathy | 21 (15.0) |

Discussion and Conclusion

- The CKD patients' mean age was 71.2 years (SD= 9.0 years). The patients were predominantly male (59.7%) and of Chinese descent (50%).
- Factors independently associated with CKD rapid progression included diastolic blood pressure (BP) (aOR 1.41, 95% CI 1.06, 1.87 p = 0.019) and diabetic retinopathy (aOR 78.51, 95% CI 1.55, 3982.71, p-value = 0.029).
- Presence of diabetic retinopathy and every one-unit mmHg increment in diastolic BP increased the risk of CKD rapid progression.

- The prevalence of CKD rapid progressor in this study accords with another retrospective study done at tertiary hospital in Malaysia however 1.8 times higher in comparison to a study done at 32 primary care centres at United Kingdom. It could be attributed to increasing prevalence of non-communicable diseases, such as hypertension and diabetes in Malaysia.^{3,4}
- There was mixed evidence on association between diastolic BP and CKD progression in previous studies whereby most of the studies highlighted the significant association of systolic blood pressure with CKD progression. Interestingly, this study found significant association between diastolic BP and CKD progression. This finding may provide the primary care health providers an idea on importance of diastolic BP monitoring and treatment according to target in addition to systolic BP to delay CKD progression.
- Consistent with the literature, this study found significant association between diabetic retinopathy and CKD rapid progression. Extensive screening for diabetic retinopathy is crucial as it aids in risk stratification of diabetic CKD patients and implementation of optimal care to prevent further deterioration of renal function. Yearly screening as recommended and timely repeat of funduscopy should be done based on the degree of severity of retinopathy. Besides that, intensive control of comorbidities should take place in presence of diabetic retinopathy to delay the progression of CKD.

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