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Pre-dialysis predictors for identifying patients who demand dialysis at higher estimated glomerular filtration rate

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Objectives: Current evidences suggest that initiation of maintenance hemodialysis should not be based on a specific glomerular filtration rate (GFR) value, but on symptoms or signs attributable to kidney disease. In addition, planned approach using permanent vascular access is also widely encouraged when starting dialysis. Thus earlier creation of vascular access is needed for the subjects who demand dialysis at higher estimated GFR (eGFR). Therefore, we investigated pre-dialysis characteristics of those who demanded dialysis at higher eGFR.

Methods: From January 2013 to December 2018, 453 incident dialysis patients were included in this analysis. Pre-dialysis characteristics were obtained at the time when eGFR decreased to 20 mL/min/1.73m^2.

Results: Mean age was 60.6 years and 65.7% were male. Overall, median eGFRs at the first dialysis were 5.8 (interquartile range 4.6-7.3) mL/min/1.73m^2 and the first quintile (> 7.8 mL/min/1.73m^2) were defined as early-dialysis. Among pre-dialysis characteristics, heart failure (OR 4.135, 95% CI, p < 0.001), BUN/Cr ratio > 20, (OR 2.055, 95% CI, p = 0.038), hyperuricemia (> 7.0 mg/dL in men and > 6.0 mg/dL in women) (OR 2.068, 95% CI, p = 0.017), and serum albumin < 4.0 mg/dL (OR 2.161, 95% CI, p = 0.006) were independent predictors of early-dialysis. Early-dialysis patients were less likely to initiate dialysis using permanent vascular access compared with late-dialysis patients (24.2% vs. 37.7%, p = 0.016)

Conclusions: For the patients with heart failure, high BUN/Cr ratio, hyperuricemia, or low serum albumin, clinicians can consider early creation of vascular access.