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Geriatric nutritional risk index and early mortality in incident hemodialysis patients

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Objectives: Malnutrition is common in patients with late-stage chronic kidney disease and is associated with mortality and morbidity. The nutrition status at initiation of hemodialysis (HD) might be associated with early mortality in patients undergoing HD. The Geriatric Nutritional Risk Index (GNRI) is a simple and useful nutritional screening method, and this study aimed to investigate the association between the initial GNRI and mortality in incident patients in the first year after initiation of HD.

Methods: A nationwide retrospective cohort study was conducted based on the Korean Renal Data System database. Patients who underwent HD from January 2016 to December 2019 and were eligible for GNRI screening were included. They were followed up until the end of 2020 or study departure. The primary outcome was all-cause mortality, and a Cox proportional hazard model was used to analyze the association between GNRI and mortality.

Results: A total of 10,350 patients were included, and the mean age was 63.9 ± 3.7 years. Patients with GNRI < 96.8 (median value of the GNRI) at the initiation of HD were older, were more often female, and a lower proportion of them had arteriovenous fistula for vascular access. A high GNRI value at the initiation of HD was associated with low all-cause mortality (hazard ratio (HR) 0.93; 95% confidence interval (95%CI) 0.92–0.94; p <0.001), and the group with GNRI ³ 96.8 showed 58% survival benefit for all-cause mortality (HR 0.42; 95%CI 0.34–0.53; p <0.001) compared with the group with GNRI < 96.8. In addition, the areas under the curve of GNRI and body mass index for all-cause mortality were significantly different.

Conclusions: These findings suggest that GNRI is associated with early mortality in incident HD patients and could be a simple and useful tool in predicting survival in this population.

Figure2. survival probability