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Comparison analysis for detection of nutritional status using nutritional scores (GNRI and CI) in hemodialysis patients

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Objectives : Protein-energy malnutrition is prevalent in hemodialysis (HD) patients. However, there are few reliable methods and predictors of outcomes for Korean dialysis patients. The present study aimed to compare geriatric nutritional risk index (GNRI), which is a significant predictor of mortality, and creatinine index (CI), which is an accurate measure for muscle mass estimation.

Methods : The patients (23-90y) on HD for more than 3 months were recruited from a single tertiary center. A clinical dietitian carried out individual interviews of all patients and made a nutritional diagnosis using nutritional diagnostic codes of International Dietetics and Nutrition Terminology (IDNT). Demographic and clinical data were also used to derive GNRI and CI over 7 months.

Results : Thirty-eight out of 88 patients (44%) were diagnosed as normal nutritional status. Twenty-two patients (25%) were categorized as long-term malnutrition group (NI-5.2), 27(31%) had short-term malnutrition (NI-5.3). Compared to the long-term malnutrition group, the normal group and the short-term malnutrition group showed significantly higher levels in the Body Mass Index (BMI) and GNRI. While compared to the normal group, the short-term malnutrition group and the long-term malnutrition group showed significantly lower levels of blood urea nitrogen, creatinine, uric acid, nPCR and CI. There was no significant difference in albumin, total cholesterol and hemoglobin. Moreover, CI (<22) is a better predictor of malnutrition status than GNRI (<100) and longitudinal changes in CI seem to track with the nutritional status over 7 months. Using hierarchical regression analyses, GNRI levels are more increased as the gap between intake energy and recommend energy is smaller, and the weekly weight gain is larger. While CI levels are more increased as the greater energy intake and nPCR which reflects the dietary protein intake.

Conclusions : IDNT is thought to be an effective nutritional diagnostic tool for HD patients. Nutritional scores of CI may allow detecting protein-energy malnutrition for initiating specific nutritional strategies early.

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