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Predialysis Urea Nitrogen is a Nutritional Marker of Hemodialysis Patients

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Objectives: ESRD Patients have many malnutrition associated problems such as inflammation and sarcopenia. Blood urea nitrogen (UN) is an important representative of uremic toxins, and urea reduction is a marker of hemodialysis efficacy. However, low pretein diet for lower UN could aggravate malnutrition of patients and optimal predialysis UN is not defined. We investigated the association between predialysis UN with patients' comorbidities, and correlation of predialysis UN and serum albumin as a nutrient marker.

Methods: We evaluated laboratory parameters of 73 ESRD patients which performed in every months of 2019, and investigated risk factors via medical record review. Blood levels were presented as average of 12 months which compared means by risk factors. Pearson's correlation was used for comparing correlation among risk factors and blood tests.

Results:
Among the 67 patients 33 were male and 34 were female, and average age was 61.7 years old. 36 (54%) were diabetes, 22 (33%) had coronary artery disease, 7 (10%) had congestive heart failure, and 11 (16%) had cerebrovascular disease. Average pre- and postdialysis UN were 59.2 and 15.0 mg/dL, serum creatinine was 10.1 mg/dL, average serum albumin and hemoglobin were 4.0 and 10.2 g/dL, respectively. Patients' age was negatively correlated with serum Cr (r=-0.277, $p<0.05$) and albumin (r=-0.453, $p<0.001$). Predialysis UN showed significant positive correlation with serum albumin (r=0.287, $p<0.05$) and Cr (r=0.454, $p<0.001$) which represent muscle mass and nutritional status. However, the predialysis UN had no statistical difference among diabetes, coronary artery disease, congestive heart failure, and cerebrovascular disease. Serum Cr was decreased in the patients with diabetes (9.25 vs. 11.04 mg/dL, $p<0.001$) and CAD (9.24 vs. 10.49 mg/dL, $p<0.05$).

Conclusions: Hemodialysis patients with higher predialysis UN and higher serum creatinine could be regarded that had better nutritional status. Liberal protein intake might be recommended to adeuqately dialyzed patients.