

# Outcomes of Nutritional Support Modalities in Maintenance Hemodialysis Patients

Bahar Gurlek Demirci<sup>1</sup>, Zeynep Bal<sup>1</sup>, Mehtap Erkmen<sup>1</sup>, Siren Sezer<sup>1</sup>

<sup>1</sup> Baskent University Faculty of Medicine, Department of Nephrology, Ankara, Turkey

**Introduction:** Patients with chronic kidney disease often have poor appetite and this in combination with limited dietary intake can lead to the development of malnutrition. It is well known that there is a close relationship between malnutrition, inflammation, atherosclerosis and secondary hyperparathyroidism in maintenance hemodialysis (MHD) patients that results in poor clinical outcomes. The aim of this study was to compare the outcomes of nutritional support (NS) modalities in MHD patients.

**Materials and Methods:** We designed a prospective study with 38 malnourished MHD patients (mean age:  $61.8 \pm 12.3$  years, duration of hemodialysis:  $7.9 \pm 5.1$  years). Patients were divided into 3 groups according to nutritional support (NS) modalities as group 1 (patients received only oral NS; n: 14), group 2 (patients received only parenteral NS; n: 14) and group 3 (patients received both oral and parenteral NS; n: 10) for 6 months. Biochemical parameters were assessed from monthly clinical visits. Normalized protein catabolic rate (nPCR), malnutrition-inflammation score (MIS), body composition (fat mass [FM], fat-free mass (FFM) muscle mass (MM, body mass index (BMI)) by multifrequency bioimpedance analysis (BCM, Fresenius).

**Results:** Demographic characteristics (age, gender and duration of dialysis) of patients were similar in 3 groups. Mean serum albumin (17.7% vs 31.2%) (p: 0.001) and nPCR (14.7% vs 33.5%) (p: 0.001) levels were increased in group 2 and 3 respectively. In body composition analysis; FM (18.5% vs 18.3%) (p: 0.006), FFM (16.0% vs 33.5%) (p: 0.0049), MM (19.5% vs 32.5%) (p: 0.001) and BMI (22.5 % vs 23.2%) (p:0.001) levels were significantly increased in group 2 and 3, respectively. In addition, MIS value was decreased in all 3 groups (33%, 14.7% and 14.2%, respectively), however the most significant decrease was detected in group 3 (p: 0.001). Mean serum hemoglobin levels were increased 10.6%, 18.9% and 32.7% in group 1, 2 and 3, respectively (p: 0.001), thus mean required EPO dose was significantly decreased in all groups. Although serum C-Reactive protein was similar in group 1 and 2; it was significantly decreased in group 3 (p: 0.001).

**Conclusion:** Our findings indicate that combined NS solutions improves biochemical parameters and body composition analysis as well as reduces requirement of EPO and vitamin D in MHD patients. Thus, effective treatment of malnutrition contributes to enhance clinical outcomes as anemia and secondary hyperparathyroidism.

