



# RELATIONSHIP BETWEEN MALNUTRITION INFLAMMATION SCORE, OVERHYDRATION AND ARTERIAL STIFFNESS IN HEMODIALYSIS PATIENTS



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## INTRODUCTION AND AIMS

MIAC syndrome (malnutrition, inflammation, atherosclerosis, calcification) and overhydration is common in hemodialysis (HD) patients and is associated with high morbidity and mortality. We aimed to assess the relationship between nutritional status, markers of inflammation and fluid volume parameters by bioimpedance analysis (BIA) in HD patients.

## METHODS:

This observational, cross-sectional, single centre study involved 60 stable patients on an HD programme. One years clinical and laboratory data were collected from the records. PWV was measured (PWV1) at the beginning of the study and after 12 months of follow-up (PWV2) (Mobil-O-Graph). Body compositions were analyzed with the BIA technique (BCM, Fresenius) that estimates systolic and diastolic blood pressure, body mass index (BMI) lean tissue index (LTI), extracellular volume (ECW), intracellular volume (ICW), ECW/ICW ratio, lean tissue mass (LTM) and phase angle (phi50) levels and malnutrition-inflammation score (MIS), which was a traditional nutritional parameter for dialysis patients. Patients were divided into two groups according to initial MIS: Group 1 having initial MIS ≤ 5 points and Group 2 having MIS > 5 points.

## RESULTS:

38 patients in group 1 (age; 38.9 ± 10.9 yrs) and 22 subjects in group 2 (age; 40.5 ± 12.6 yrs) were evaluated. Demographic and clinical characteristics and annual mean laboratory data (except for serum sodium, albumin and pre-dialysis creatinine) of two groups were similar. Patients in group 1 had significantly higher sodium, albumin and pre-dialysis levels and lower TBW and ECW compared to Group 2 (p<0.05 for all). At baseline two groups' PWV measurements were similar at the end of the study patients in Group 1 had significantly lower PWV2 (p= 0.008). There was significant positive correlation between MIS and TBW (r =0.227; P = 0.032), ECW (r =0.329; P = 0.01) and PWV2 (r =0.287; P = 0.026). MIS was inversely correlated with serum sodium level (r =-0.336; P = 0.009). Multivariate analysis showed that MIS depend on serum albumin, sodium and TBW (p=0.003, p=0.009 and p<0.019).

## CONCLUSION:

The current study showed that MIS was significantly correlated with both nutritional parameters and fluid overload. Although, it was controversial which of the parameter was triggering this relationship we recommended patients with higher MIS should be closely monitored in terms of fluid overload. We suggested that yearly MIS and BIA evaluation could be a useful guide for HD patients in order to assess the nutritional and hydration status.

