



# AGE-RELATED DIFFERENCES IN THE HYDRATION, NUTRITIONAL STATUS AND ARTERIAL STIFFNESS IN MAINTENANCE HEMODIALYSIS PATIENTS



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## BACKGROUND:

The number of elderly people on dialysis is increasing rapidly. Fluid overload and malnutrition status are serious problems in elderly dialysis patients. Phase angle (PhA), is a useful method for identifying dialysis patients at high risk for overhydration and malnutrition. We aimed to compare hydration and nutritional status as well as the pulse wave velocity measurements (PWv) between young and elderly hemodialysis (HD) patients.

## METHOD:

We conducted a cross-sectional study, in which 426 HD (males 299, mean age 55.6 ±13.8 years) patients were enrolled. We collected laboratory data. 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 (PhA) levels. PWv, pulse pressure, CI, CO, systolic pressure augmentation (Alx) and total vascular resistance (TVR) were evaluated with PWv analysis monitor (Mobil-O-Graph). All patients were classified into two groups according to their age: young (<65 years [n=322]) and elderly (≥65 years [n=104]).

## RESULTS:

Serum ferritin, parathyroid hormone, alkaline phosphatase, albumin levels, pre-dialysis creatinine and Kt/V measurements were significantly lower in elderly HD patients than in young HD patients (p<0.05, for all). Moreover, C- reactive protein (CRP) levels, white blood count (WBC) and post-dialysis blood urea nitrogen were significantly higher in elderly HD patients than in young HD patients (p<0.05, for all). Also, interdialytic weight gain, LTI and PhA measured by BIA were significantly lower (p<0.001, for all). We found PhA was positively correlated with serum albumin and total cholesterol level however inversely correlated with CRP and WBC (p<0.001 for all). Elderly patients had significantly higher PWv measurements compared to young HD patients (9.3 ± 2.1 m/sn vs. 8.2 ± 2.1m/sn, p<0.001).

## CONCLUSION:

We found that inflammation, over hydration and malnutrition status were more common in elderly HD patients compared with young HD patients. Present study concluded that PhA is associated with nutritional and inflammation markers. We recommend that routine body composition analysis with BIA should be performed in elderly HD patients and they should be monitored more closely for malnutrition, inflammation, atherosclerosis, calcification syndrome.

