KSN 2016 Abstract Submission

Dialysis

KSN2016ABS-1391

THE ASSOCIATION OF CLINICAL PARAMETERS OF HEMODIALYSIS PATIENTS WITH BIOIMPEDANCE MEASUREMENTS PROFILE: IMPLICATIONS TO MALNOURISHED PATIENTS

Jong Cheol Jeong*[1], Sunah Hyun[1], In-Whee Park[1], Heungsoo Kim[1], Gyu-Tae Shin[1]

[1]Department of Nephrology, Ajou University Hospital, Suwon, Korea, Republic Of

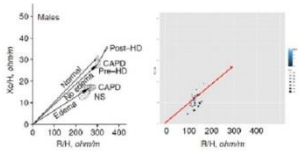
Background: Bioimpedance assessment (BIA) is widely used for the nutritional status assessment in epidemiology studies. Phase angle can be a representative index of BIA, which can be used as a nutritional surrogate index. Whether BIA index is associated with clinical profile of maintenance hemodialysis patients have not been investigated.

Methods: We prospectively measured BIA of 63 maintenance hemodialysis patients by using Inbody S10 (Inbody, Korea). Nutritional status assessment was performed by using 3 day recall methods and Patient-Generated Subjective Global Assessment (PG-SGA). Handgrip strength was measured by Jamar plus dynamometer (Patterson Medical, USA)

Results: Phase angle was inversely associated with aging. (ρ = -0.656, p<0.001) High PG-SGA score was associated with low phase angle (ρ = -0.611, p<0.001) Phase angle was associated with normalized protein catabolic rate, however its linearity was more blunted (ρ = 0.415, p<0.001). Patients with good phase angle showed better handgrip power (ρ = 0.651, p<0.001). However, phase angle was not associated with dialysis vintage (ρ = - 0.163 , p=0.206), nor 25-OH-vitamin D level (ρ = 0.225 , p=0.074) Extracellular water per total body water (ECW/TBW) was highly associated with reduced phase angle (ρ = -0.850 , p<0.001), leading to suggestion of mathematical corelation by derivatation : $Vecw/Vtbw = (p*A^{-1} - (p-1)*A^{-1/3})^{-2/3}$; $A = R_{Inf} / R_E$, $p = \rho_{icw} / \rho_{ecw}$. Bioelectrical impedance vector analysis (BIVA) plot showed reduced impedance of our study population compared to published data of Italian population (Figure)

Conclusion: BIA index showed good correlation with nutritional index among hemodialysis patients. Caution are needed to interpret ECW/TBW index among malnourished / aged hemodialysis population. Population-specific standard of impedance values are needed.

Figures:



Keywords: bioimpedance, hemodialysis, Nutritional status