P227

BIOELECTRICAL IMPEDANCE AND ANTHROPOMETRIC MEASUREMENTS FOR DIAGNOSIS OF SARCOPENIA, SARCOPENIC OBESITY AND ITS COMPONENTS IN PATIENTS WITH CHRONIC KIDNEY DISEASE.

N. T. Bellafronte[1,*], L. Vega-Piris[2], G. B. Cuadrado[3], P. G. Chiarello[4]

[1]Health Science, University of São Paulo, Ribeirão Preto Faculty of Medicine, Ribeirão Preto, Brazil, [2]Methodology Unit, Instituto de Investigación Sanitaria del Hospital Universitario de la Princesa, [3]Nephrology Department, Hospital Universitario La Princesa, Madrid, Spain, [4]Department of Health Sciences, University of São Paulo, Ribeirão Preto Faculty of Medicine, Ribeirão Preto, Brazil

Rationale: Obesity and muscle impairment are related to a higher morbimortality risk in chronic kidney disease (CKD). The reference method for diagnosis, dual energy X-ray absorptiometry (DXA), is rarely feasible in clinical practice. So, we aim to evaluate the diagnostic capacity of bed-side measures/indexes associated with low muscle mass, sarcopenia, obesity, and sarcopenic obesity in CKD.

Methods: Sarcopenia was diagnosed according to the European Working Group on Sarcopenia in Older People revised consensus applying DXA (Hologic, GE) and hand grip strength (HGS) (Charder, MG 4800), and obesity according to the International Society for Clinical Densitometry. Cross-sectional and prospective analyses were carried out. Anthropometric parameters including arm and mid-arm muscle circumference, arm and corrected arm muscle area, triceps skin fold, adductor pollicis muscle thickness, calf (CC) and waist (WC) circumferences, WC/height (WC/H), conicity index and a body shape index were evaluated. Spectroscopy bioelectrical impedance (Body Composition Monitor, FMC) data including appendicular fat free mass (AFFM) and fat mass index (FMI) were assessed. Measurements were performed in 265 CKD patients in non-dialysis-dependent (ND), hemodialysis (HD), peritoneal dialysis (PD) and renal transplantation (KTx) treatment, consecutively, after 8-hour fast, drainage of the peritoneal dialysate and just after the midweek hemodialysis session. ROC and area under the curve (AUC) were applied for performance analyses and kappa coefficient for agreement analysis. Unpaired Student t-test was applied for comparison between groups ($p \leq 0.05$).

Results: Patients had a mean age of 48±10 years old, 51% (n=136) men, 31% in NDD (n = 83), 29% in HD (n = 78), 9% in PD (n = 23) and 31% in KTx (n = 81) groups. Prevalence of dynapenia, low muscle mass, sarcopenia, obesity and sarcopenic obesity was 15, 63, 10, 18 and 6% in women and 7, 37, 4, 30 and 6% in men, respectively. Dynapenia was present in 14, 13, 13 and 4% of NDD, HD, PD, and KTx patients, respectively. Low muscle mass was present in 28, 69, 52, and 52% of NDD, HD, PD, and KTx patients, respectively. Sarcopenia was present in 5, 12, 9, and 4% of NDD, HD, PD and KTx patients, respectively. Obesity was present in 35, 17, 4, and 26% of NDD, HD, PD, and KTx patients, respectively. Sarcopenic obesity was present in 1, 10, and 9% of NDD, HD,

and KTx patients, respectively. AFFM and CC presented the best performances for low muscle mass diagnosis (AFFM AUC: women = 0.96, men = 0.94; CC AUC: women = 0.89, men = 0.85). FMI and WC/H were the best parameters for obesity diagnosis (FMI AUC: women = 0.99, men = 0.96; WC/H AUC: women = 0.94, men = 0.95). The cutoffs (sensibility and specificity, respectively) for women were AFFM≤15.87 (90%; 96%), CC≤35.5 (76%; 94%), FMI>12.58 (100%; 93%), and WC/H>0.66 (91%; 84%); and for men, AFFM≤21.43 (98%; 84%), CC≤37 (88%; 69%), FMI>8.82 (93%; 88%), and WC/H>0.60 (95%; 80%). Sensibility and specificity for sarcopenia diagnosis were for AFFM+HGS in women 85% and 99% and in men, 100% and 99%; for CC+HGS in women 85% and 99% and in men, 100% and 100%; and for sarcopenic obesity were for FMI+AFFM in women 75% and 97% and in men, 75% and 95%. Kappa analysis was: for low muscle mass applying AFFM, 0.82 in women and 0.76 in men and applying CC, 0.64 in women and 0.53 in men; for sarcopenia applying AFFM+HGS, 0.86 in women and 0.80 in men and applying CC+HGS, 0.71 in women and 0.59 in men; for obesity applying FMI, 0.83 in women and 0.77 in men and applying WC/H, 0.60 in women and 0.67 in men; for sarcopenic obesity applying FMI+AFFM, 0.78 in women and 0.71 in men. In the prospective analysis, 87 patients were reevaluated after 10±2 months. Both sexes tended to lose weight, HGS, and muscle mass and gain total and central adiposity with time. In prospective evaluation, all patients lost muscle mass. The ones with preexisting low muscle mass also lost fat mass. All the others patients gained total and central adiposity.

Conclusion: The tested bed-side measures/indexes presented excellent performance and could be applied in routine care of adult CKD patients for evaluation of the sarcopenia, sarcopenic obesity and its components.

Disclosure of Interest: None declared