Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care
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Functional Decline Outpaces Muscle Loss With Aging in Maintenance Hemodialysis Patients

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Objectives : The Asian Working Group for Sarcopenia (AWGS) 2025 consensus expanded sarcopenia diagnosis to middle-aged adults and simplified the algorithm by requiring only low muscle mass (MM) and strength (MS) for diagnosis, with physical performance (PP) considered as outcome measure. Despite this updated framework, sarcopenia-related parameters in HD patients remain insufficiently characterized. We aimed to evaluate differences in sarcopenia-related parameters according to age and sex in cohort of maintenance HD patients.
Methods : This cross-sectional study included 81 HD patients (mean 59.7±12.5 years old, male 46.9%, vintage 8.8±5.8 years), stratified into three age groups: <55, 55–65, and >65 years (Table 1). MM was assessed using bioelectrical impedance analysis, MS by handgrip strength (HGS), and PP by the 5-time chair stand test (STS) and 4-meter gait speed (GS) after HD session.
Results : Age was significantly associated with HGS, STS, and GS (all $p<0.001$), while sex was independently associated with MM and MS (both $p<0.001$). Although the age–sex interaction was not significant, older women exhibited more pronounced decline in PP (Figure 1). Discordance between STS and GS varied by age and sex, being most frequent in younger women and older men, while absent among older women, in whom functional impairment appeared generalized. Overall, low MM was present in 36% of patients, whereas low MS, impaired chair stand performance, and low gait speed were observed in 64%, 58%, and 41% of patients, respectively. The prevalence of sarcopenia was 35.8%.
Conclusions : In HD patients, PP declines with age, and older women show the greatest degree of functional impairment. MM alone does not adequately reflect age-related functional decline in this population. These findings underscore the importance of age- and sex-specific assessment of sarcopenia and support targeted screening and intervention strategies, particularly for older female HD patients, in line with the AWGS 2025 framework.

Table1.jpg

Variables	<55	55~65	>65	p-value
N	25	29	27	
Male, n (%)	10 (40.0)	14 (48.3)	14 (51.9)	0.682
DM, n(%)	9 (36.0)	12 (41.4)	15 (55.6)	0.336
Dyslipdemia, n(%)	11 (44.0)	19 (65.5)	14 (51.9)	0.272
CVA, n (%)	8 (32.0)	13 (44.8)	17 (63.0)	0.079
HF, n (%)	9 (36.0)	10 (34.5)	13 (48.1)	0.528
HTN, n (%)	22 (88.0)	27 (93.1)	26 (96.3)	0.517
Malignancy, n (%)	6 (24.0)	9 (31.0)	7 (25.9)	0.832
RAASi, n (%)	17 (68.0)	15 (51.7)	18 (66.7)	0.382
BB, n (%)	17 (68.0)	19 (65.5)	21 (77.8)	0.575
CCB, n (%)	16 (64.0)	20 (69.0)	23 (85.2)	0.193
Statin, n (%)	12 (48.0)	20 (69.0)	15 (55.6)	0.283
Creatinine, n (%)	**11.21 ± 2.74**	**10.71 ± 2.31**	**8.38 ± 1.16**	**<0.001**
eGFR_C, n (%)	**4.54 ± 1.25**	**4.36 ± 0.87**	**5.58 ± 1.14**	**<0.001**
Cystatin, n (%)	6.97 ± 0.73	7.08 ± 0.40	6.70 ± 0.67	0.118
eGFR_Cys, n (%)	**6.13 ± 0.92**	**5.50 ± 0.51**	**5.77 ± 0.91**	**0.033**
BUN (g/dL)	61.86 ± 14.53	62.94 ± 15.95	53.16 ± 16.68	0.054
Albumin (mg/dL)	**4.00 ± 0.33**	**3.98 ± 0.33**	**3.76 ± 0.35**	**0.018**
Calcium (mg/dL)	9.18 ± 0.74	9.13 ± 0.58	8.90 ± 0.73	0.323
Phosphorus (mg/dL)	5.55 ± 1.29	5.14 ± 1.74	4.58 ± 1.37	0.051
Uric acid (mg/dL)	6.26 ± 1.27	6.19 ± 1.46	6.44 ± 1.50	0.814
Hb (g/dL)	10.27 ± 1.09	10.70 ± 1.12	10.16 ± 1.25	0.551
PTH (pg/dL)	**411.04 ± 348.12**	**268.37 ± 185.87**	**213.91 ± 184.52**	**0.036**
LDL(mg/dL)	62.48 ± 18.65	59.70 ± 19.39	58.44 ± 21.23	0.825
ASM index (kg/m^2)	6.60 ± 1.32	6.89 ± 1.21	6.45 ± 0.81	0.481
Handgrip strength (kg)	**21.83 ± 7.78**	**21.12 ± 6.77**	**16.28 ± 5.48**	**0.016**
5-time chair stand (sec)	**10.41 ± 3.33**	**11.09 ± 2.85**	**16.36 ± 5.03**	**<0.001**
Gait speed (m/sec)	**1.32 ± 0.22**	**1.15 ± 0.30**	**0.93 ± 0.22**	**<0.001**

Table1.jpg

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