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CLINICAL RESEARCH

Agreement between the EWGSOP2 and SDOC consensuses for sarcopenia in patients receiving hemodialysis: Findings of a cross sectional analysis from the SARC-HD study

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Abstract

Background: Differences in definitions and operational diagnoses for sarcopenia create difficulties in understanding the epidemiology of the disease. We examined the prevalences of sarcopenia using the revised European Working Group on Sarcopenia in Older People (EWGSOP2) and the Sarcopenia Definitions and Outcomes Consortium (SDOC) consensuses and analyzed their level of agreement in patients receiving hemodialysis.

Methods: Data from the SARCopenia trajectories and associations with clinical outcomes in patients receiving hemodialysis (SARC-HD) multicenter study in Brazil were analyzed. Muscle strength was assessed using handgrip strength, muscle mass by calf circumference, and physical performance by the 4-m gait speed test. Sarcopenia was diagnosed according to both the EWGSOP2 (low muscle strength plus low muscle mass) and the SDOC (low muscle

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strength plus low physical performance). The Cohen kappa statistic was used to determine the level of agreement between the consensuses.

Results: 838 patients (57.8 ± 15.0 years; 61% men) from 19 dialysis units were included. We found similar prevalences of sarcopenia between the consensuses (EWGSOP2, $n = 128$, 15.3%; SDOC, $n = 105$, 12.5%) but with weak agreement (50 of 233 patients, 21.5%; $\kappa = 0.34$, 95% CI 0.25–0.43). Agreement was also weak within age categories (≥60 years, $\kappa = 0.34$; <60 years, $\kappa = 0.15$; both $P < 0.001$). Of the 51 patients diagnosed by the EWGSOP2 criterion as having severe sarcopenia, all but 1 (98.0%) met the SDOC criterion for sarcopenia ($\kappa = 0.61$, 95% CI 0.52–0.70). Low muscle strength was more frequently diagnosed using the SDOC than with the EWGSOP2 (52.3% vs 25.9%).

Conclusion: We found a weak agreement between the EWGSOP2 and SDOC consensuses for the diagnosis of sarcopenia in patients receiving hemodialysis. Although still weak, agreement was marginally better for older patients. These findings highlight the importance of a global and standardized conceptual diagnosis of sarcopenia.

KEYWORDS

calf circumference, chronic kidney disease, dialysis, handgrip strength, sarcopenia

INTRODUCTION

Sarcopenia is a musculoskeletal disease characterized by low levels of physical function and muscle mass.[1] One in four patients with chronic kidney disease (CKD) have sarcopenia, which increases the risk of mortality twofold, particularly among those receiving hemodialysis.[2,3] The pathophysiology of sarcopenia in CKD is multifactorial and encompasses factors such as inflammation, malnutrition, sedentary behavior, and hormonal abnormalities.[4,5] Since sarcopenia was first described by Irwin H. Rosenberg in 1989,[6] several consensuses have proposed different operational definitions and diagnostic criteria, including the addition of muscle strength and physical performance to the original concept.[1] Despite increasing clinical interest and recognition of sarcopenia worldwide and multiple efforts toward standardization,[7] there is still no globally accepted definition of sarcopenia that can serve as the gold standard in clinical practice. Notably, different diagnostic approaches and cutoffs have significant impacts on the epidemiology of sarcopenia, with multiple studies showing substantial differences in its prevalence across the CKD population depending on the definition used.[2,8–11]

In 2019, the European Working Group on Sarcopenia in Older People (EWGSOP2) updated its definition and proposed a new diagnostic clinical algorithm[12] that incorporates low muscle strength as the main trait. Confirmed sarcopenia is then diagnosed by the detection of low muscle quantity and quality, whereas the addition of low physical performance characterizes severe sarcopenia.[12] In 2020, the Sarcopenia Definitions and Outcomes Consortium (SDOC) recommended that sarcopenia should be diagnosed on weakness (low handgrip strength) and slowness (low usual gait speed).[13] Importantly, the SDOC did not include an assessment of muscle mass in their criteria, citing the low prognostic value of muscle mass compared with physical function when predicting adverse clinical outcomes.

In this context, Stuck et al. investigated the impact of different consensuses on the prevalence of sarcopenia in a large multinational study that included 1495 community-dwelling older adults.[14] They found that the prevalence of sarcopenia was lower when using the EWGSOP2 compared with the SDOC (0.7% and 2.0%, respectively). In addition, the authors found that among individuals with sarcopenia, only two had the same result from both consensuses.

To the best of our knowledge, no comparison of sarcopenia prevalence using the EWGSOP2 and the SDOC consensuses definition has been conducted in a large sample of patients receiving hemodialysis, nor has the agreement between these criteria been assessed in this scenario. To address this knowledge gap, we compared the prevalence of sarcopenia using the EWGSOP2 and the SDOC and analyzed their level of agreement by using data from a large multicenter study involving patients receiving hemodialysis.

MATERIALS AND METHODS

Study design and patients

This is a cross-sectional analysis of a large national multicenter cohort study named SARCopenia trajectories and associations with clinical outcomes in patients receiving hemodialysis (SARC-HD), conducted at 19 dialysis units in Brazil from October 2022 to April 2023. Details regarding the objectives, design, and methods have been described elsewhere.[15] In brief, adult patients (≥18 years of age) receiving maintenance hemodialysis for ≥3 months were eligible to participate. Exclusion criteria included the presence of musculoskeletal or other abnormalities that impaired physical function tests, medical contraindications for carrying out the battery of physical tests, uncontrolled heart disease, and hospitalization within 1 month before the baseline assessment. Clinical and demographic characteristics were obtained from medical records. All the patients provided written informed consent. This study was approved by the Institutional Review Board of the University Center ICESP (number 5.418.365) and adhered to the Declaration of Helsinki. The institutional review boards of all participating centers reviewed and agreed to the informed consent letter. The SARC-HD study is also registered at the Registro Brasileiro de Ensaios Clínicos platform (RBR-82p87rq). We followed the strengthening the reporting of observational studies in epidemiology (STROBE) statement during manuscript writing.

Sociodemographic and clinical variables

Clinical and demographic information was gathered from electronic health records at each dialysis center. Any missing data were sought from either the patients or the medical staff.

Assessment of physical function

Physical function was evaluated before a midweek dialysis session by an experienced researcher at each dialysis unit. A detailed description of the protocols may be seen elsewhere.[15]

Muscle strength

Handgrip strength was used as the measure of muscle strength and assessed using either the Jamar (Sammons Preston Rolyan) or SAEHAN (SAEHAN Corporation) hydraulic hand dynamometers, depending on the availability of the dialysis unit. These two dynamometers present excellent intraclass correlation coefficient.[16] The highest value from three repetitions in both arms was considered for patients without an arteriovenous fistula or the highest in the arm without an arteriovenous fistula for those with this vascular access.

Physical performance

Gait speed was measured by usual walking on a 4-m course. The shortest time from three attempts was recorded.[17]

Anthropometry

Anthropometry was evaluated after a midweek dialysis session. Body mass index (calculated as weight [kg] divided by height squared [m^2]) was calculated and classified according to the World Health Organization.[18] Arm circumference was measured with an inelastic tape measure and triceps skinfold thickness by a skinfold caliper (Lange Skinfold Caliper). Mid-arm muscle circumference was calculated as described by Frisancho.[19] Measurements were taken in the arm without an arteriovenous fistula or standardized in the right arm for those with catheter access.

Muscle mass

As a marker of muscle mass, calf circumference was measured with the patient in a seated position without muscle contraction, using an inelastic and inextensible measuring tape at the point of maximum circumference of the right lower leg. Two measurements were taken, and the mean value was considered.[20]

Diagnosis of sarcopenia

The diagnostic cutoff points for sarcopenia as proposed by the consensuses are shown in Table 1. The EWGSOP2 classified patients with sarcopenia when presenting low muscle strength and low muscle mass.[12] Severe sarcopenia was indicated when low muscle strength, low muscle mass, and low physical performance were met. The SDOC diagnosed patients with sarcopenia when they presented low muscle strength and low physical performance.[13] Severe staging is not proposed in the SDOC.

Statistical analysis

Data are presented as mean and standard deviation (SD) unless otherwise stated. Sarcopenia and no sarcopenia groups were defined separately according to the EWGSOP2 and the SDOC. Differences in demographic and clinical characteristics between the groups were compared. Continuous data were compared using unpaired Student *t* test or the Mann-Whitney U test, depending on the normality of their distribution. Categorical data were compared using the chi-square test and presented as valid percentages. Details of missing data are provided in Table S1 and no imputation has been done.

Cohen's kappa was used to determine the level of agreement between the EWGSOP2 and the SDOC consensuses and classified into poor to fair (<0.40), moderate (0.41–0.60), substantial (0.61–0.80), and perfect (0.81–1.00).[21] Comparisons between older (≥60 years) and younger adults and between men and women were conducted as subgroup analyses. Statistical analyses were conducted using the SPSS (IBM version 29.0), and statistical significance was set at $P < 0.05$.

TABLE 1 Revised European Working Group on Sarcopenia in Older People and Sarcopenia Definition and Outcomes Consortium cutoff points for sarcopenia diagnosis.

Sarcopenia traits	EWGSOP2 cutoff points	SDOC cutoff points
Low handgrip strength, kg		
Men	<27	<35.5
Women	<16	<20
Low calf circumference, cm		No recommendation
Men	≤34	
Women	≤33	
Low gait speed, m/s	≤0.8	<0.8

Abbreviations: EWGSOP2, revised European Working Group on Sarcopenia in Older People; SDOC, Sarcopenia Definitions and Outcomes Consortium.

RESULTS

Patients' characteristics

A total of 1525 patients were assessed for eligibility in this multicenter study, of whom 838 were included in the final analysis (Figure 1). Demographic and clinical

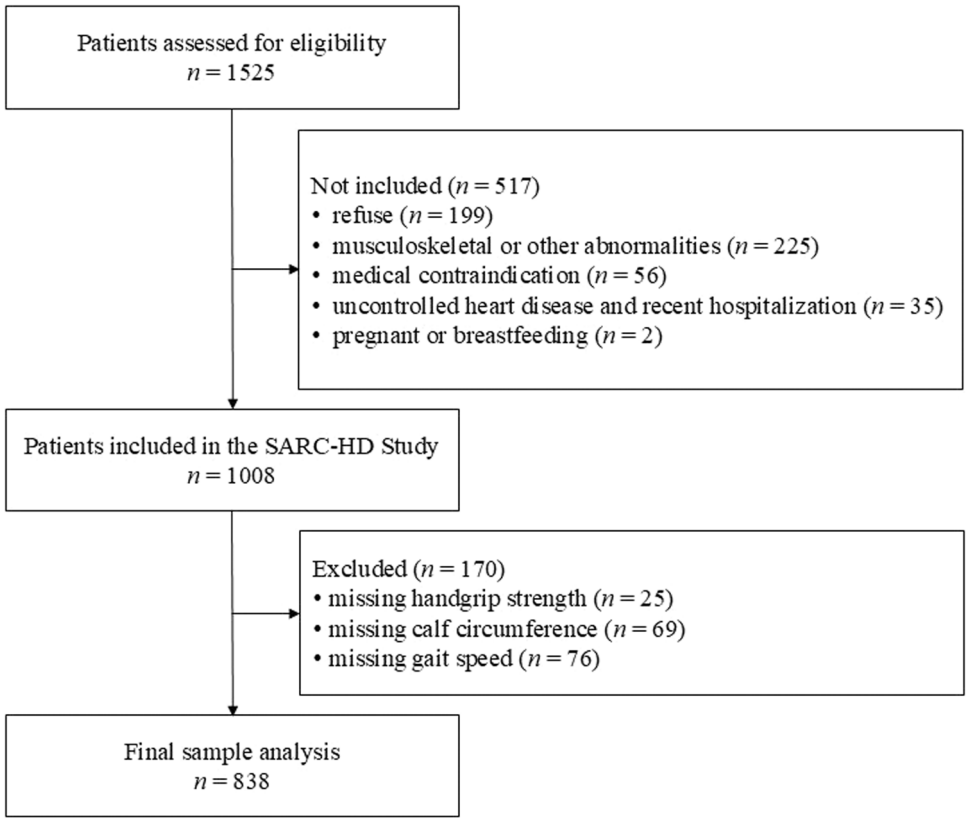

FIGURE 1 Study flowchart of patients' enrollment. SARC-HD, SARCopenia trajectories and associations with clinical outcomes in patients receiving hemodialysis.

TABLE 2 Characteristics of the patients according to the presence of sarcopenia based on the revised European Working Group on Sarcopenia in Older People and the Sarcopenia Definitions and Outcomes Consortium consensus.

		EWGSOP2			SDOC		
	All patients ($n = 838$)	**No sarcopenia ($n = 710$)**	**Sarcopenia ($n = 128$)**	***P* value**	**No sarcopenia ($n = 733$)**	**Sarcopenia ($n = 105$)**	***P* value**
Age, mean ± SD, years	57.8 ± 15.0	56.1 ± 14.6	67.1 ± 14.3	<0.001	56.0 ± 14.6	70.1 ± 12.3	<0.001
Female, *n* (%)	326 (39)	290 (41)	36 (28)	0.007	288 (39)	38 (36)	0.542
Hemodialysis vintage, median (IQR), months	32 (13–63)	32 (14–63)	30 (11–70)	0.635	35 (33–62)	35 (18–76)	0.126
Ethnicity, *n* (%)				0.010			0.012
White	417 (50)	341 (48)	76 (60)		355 (48)	62 (60)	
Black	386 (46)	339 (48)	47 (37)		348 (48)	38 (36)	
Asian	26 (3)	25 (3)	1 (1)		25 (3)	1 (1)	
Other	8 (1)	5 (1)	3 (2)		5 (1)	3 (3)	
Treatment method, *n* (%)				0.006			<0.001
Hemodialysis	577 (69)	502 (71)	75 (59)		527 (72)	50 (48)	
Hemodiafiltration	261 (31)	208 (29)	53 (41)		206 (28)	55 (52)	
Weekly frequency, *n* (%)				0.423			0.004
Conventional (3 sessions)	588 (70)	502 (60)	86 (10)		527 (63)	61 (7)	
Short daily (≥4 sessions)	250 (30)	208 (25)	42 (5)		206 (25)	44 (5)	
Current smoker, *n* (%)	61 (7)	48 (7)	13 (10)	0.222	54 (7)	7 (7)	0.903
Current alcohol consumption, *n* (%)	141 (17)	120 (17)	21 (16)	0.714	123 (17)	18 (18)	0.475
Etiology of chronic kidney disease, *n* (%)				0.003			<0.001
Diabetes	187 (22)	146 (21)	41 (32)		158 (22)	29 (28)	
Hypertension	222 (27)	182 (26)	40 (32)		186 (26)	36 (34)	
Glomerulonephritis	83 (10)	80 (11)	3 (2)		80 (11)	3 (3)	
Polycystic kidney disease	59 (7)	52 (7)	7 (6)		58 (8)	1 (1)	
Other cause	145 (17)	115 (16)	21 (16)		112 (15)	24 (23)	
Unknown	142 (17)	127 (18)	15 (12)		139 (18)	12 (11)	
Laboratory values							
Serum creatinine, mean ± SD, mg/dl	9.9 ± 8.0	10.3 ± 8.6	7.5 ± 2.6	<0.001	10.2 ± 8.4	7.0 ± 2.4	<0.001

(Continues)

TABLE 2 (Continued)

	All patients ($n = 838$)	EWGSOP2			SDOC		
		No sarcopenia ($n = 710$)	Sarcopenia ($n = 128$)	*P* value	No sarcopenia ($n = 733$)	Sarcopenia ($n = 105$)	*P* value
25-Hydroxyvitamin D, mean ± SD, ng/ml	36.6 ± 13.8	36.9 ± 14.1	35.0 ± 11.3	0.137	36.8 ± 13.5	35.2 ± 15.1	0.100
Kt/V, mean ± SD	1.5 ± 0.6	1.5 ± 0.6	1.6 ± 0.6	0.133	1.5 ± 0.6	1.5 ± 0.6	0.353
Vascular access, *n* (%)				0.001			<0.001
Arteriovenous fistula	566 (67)	497 (70)	69 (54)		512 (70)	54 (51)	
Catheter	214 (26)	164 (23)	50 (39)		170 (23)	44 (42)	
Graft	58 (7)	49 (7)	9 (7)		51 (7)	7 (7)	
Body composition							
Height, mean ± SD, cm	166.3 ± 9.1	167.0 ± 9.6	162.5 ± 9.5	<0.001	166.6 ± 9.4	164.1 ± 11.2	0.030
Body weight, mean ± SD, kg	71.8 ± 15.8	73.7 ± 15.8	61.3 ± 11.1	<0.001	72.1 ± 15.8	70.0 ± 15.6	0.211
Body mass index, mean ± SD, kg/m^2	25.9 ± 5.1	26.4 ± 5.1	23.2 ± 3.9	<0.001	25.9 ± 5.0	26.0 ± 5.4	0.750
Calf circumference, median (IQR), cm	34.5 (32.0–37.0)	35.2 (33.0–37.5)	35.2 (28.9–32.8)	<0.001	34.9 (32.5–37.0)	32.5 (29.0–35.0)	<0.001
Female	33.5 (31.5–36.6)	34.2 (32.0–37.0)	29.1 (27.3–32.0)	<0.001	34.0 (32.0–37.0)	32.1 (29.0–34.0)	0.004
Male	35.0 (32.5–37.1)	36.0 (34.0–38.0)	31.0 (29.0–33.0)	<0.001	35.0 (33.0–37.5)	32.8 (29.0–35.9)	<0.001
Midarm muscle circumference, mean ± SD, cm	23.9 ± 3.6	24.2 ± 3.6	22.3 ± 2.9	<0.001	24.1 ± 3.6	23.0 ± 3.5	0.004
Triceps skinfold thickness, mean ± SD, mm	18.6 ± 9.4	19.4 ± 9.6	14.3 ± 6.8	<0.001	18.8 ± 9.4	17.5 ± 9.3	0.145
Physical function, mean ± SD							
Handgrip strength, kg	27.8 ± 10.0	29.6 ± 9.5	17.8 ± 5.8	<0.001	29.1 ± 9.6	18.5 ± 7.2	<0.001
Female	21.6 ± 6.4	22.8 ± 5.7	12.2 ± 2.6	<0.001	22.6 ± 6.0	14.0 ± 3.5	<0.001
Male	31.8 ± 9.9	34.4 ± 8.7	20.0 ± 5.3	<0.001	33.4 ± 9.1	21.0 ± 7.6	<0.001
Gait speed, m/s	1.11 ± 0.3	1.15 ± 0.3	0.91 ± 0.3	<0.001	1.19 ± 0.3	0.59 ± 0.2	<0.001

Note: Sarcopenia group is a combination of confirmed and severe sarcopenia.

Abbreviations: EWGSOP2, revised European Working Group on Sarcopenia in Older People; IQR, interquartile range; SD, standard deviation; SDOC, Sarcopenia Definitions and Outcomes Consortium.

characteristics of the patients are shown in Table 2. The sample was predominantly comprised of men (61%) and patients undergoing conventional hemodialysis regimen (69%). Patients with sarcopenia by both consensuses were significantly older and had poorer performance in all physical function tests in comparison with patients without sarcopenia (all $P < 0.001$). Regarding body composition, those with sarcopenia, according to the EWGSOP2 and SDOC, had significantly lower calf and mid-arm muscle circumferences (all $P < 0.05$).

Prevalence of sarcopenia traits

The prevalence of sarcopenia traits according to each consensus is reported in Figure 2. The percentage of patients with low muscle strength was twice as high using the SDOC in comparison with EWGSOP2 (52.3% vs 25.9%, respectively). Low calf circumference was observed in 361 patients (43.1%), as defined in the EWGSOP2.

Prevalence of sarcopenia, according to the EWGSOP2 and SDOC consensuses

Figure 3 displays a Venn diagram showing the agreement between the EWGSOP2 and SDOC consensuses. The prevalence of sarcopenia was 15.3% ($n = 128$) and 12.5% ($n = 105$) according to the EWGSOP2 and SDOC, respectively. Agreement on the presence of sarcopenia was observed for 50 of 233 patients (21.5%). Of 51 patients diagnosed with severe sarcopenia according to the EWGSOP2, only one (2.0%) was not diagnosed with sarcopenia by the SDOC.

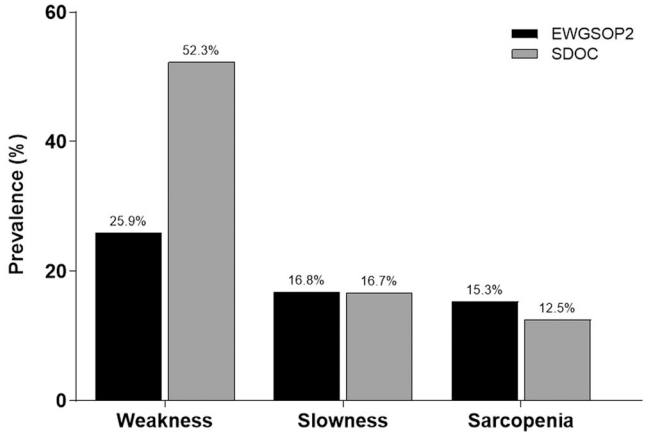

FIGURE 2 Prevalence of sarcopenia traits using the revised European Working Group on Sarcopenia in Older People (EWGSOP2) and Sarcopenia Definitions and Outcomes Consortium (SDOC) consensuses.

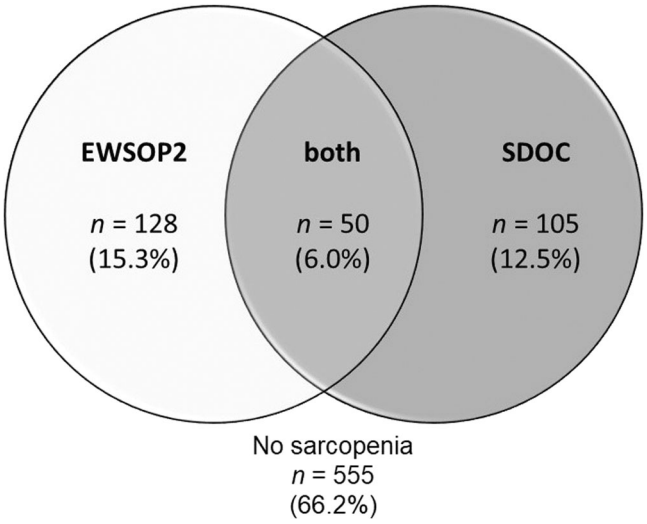

FIGURE 3 Venn diagram of sarcopenia diagnosed according to the revised European Working Group on Sarcopenia in Older People (EWGSOP2) and Sarcopenia Definitions and Outcomes Consortium (SDOC) consensuses ($n = 838$).

Agreement between the EWGSOP2 and SDOC consensuses

Table 3 shows the kappa coefficients for agreement between the EWGSOP2 and SDOC consensuses, demonstrating a weak agreement ($\kappa = 0.34$, 95% CI 0.25–0.43; $P < 0.00$). When considering patients diagnosed with severe sarcopenia by the EWGSOP2, magnitude of agreement improved to substantial ($\kappa = 0.61$; $P < 0.001$) with the SDOC. Based on subgroup analyses, older patients (≥60 years) had kappa agreement of 0.34 ($P < 0.001$), whereas younger patients had kappa agreement of 0.15 ($P < 0.001$). Regarding sex, similar results were observed.

DISCUSSION

This cross-sectional analysis of the SARC-HD, a multicenter cohort study involving patients receiving hemodialysis, aimed to compare the prevalences of sarcopenia between the EWGSOP2 and SDOC consensuses and to analyze their level of agreement. Our salient findings indicated that the prevalence of sarcopenia according to the two consensuses was similar (15% and 13%, respectively). However, our hypothesis of a weak agreement between the two consensuses was

TABLE 3 Agreement between the revised European Working Group on Sarcopenia in Older People and Sarcopenia Definitions and Outcomes Consortium consensuses.

Definition	Agreement category	κ value (95% CI)	*P* value
SDOC	EWGSOP2 (confirmed + severe)	0.34 (0.25–0.43)	<0.001
	Older	0.34 (0.19–0.49)	<0.001
	Younger	0.15 (0.04–0.26)	0.001
	EWGSOP2 (severe)	0.61 (0.52–0.70)	<0.001
	Older	0.63 (0.38–0.98)	<0.001
	Younger	0.41 (0.31–0.51)	<0.001
Sex			
Female	EWGSOP2 (confirmed + severe)	0.36 (0.21–0.51)	<0.001
	Older	0.37 (0.19–0.55)	<0.001
	Younger	0.20 (−0.08 to 0.48)	0.009
	EWGSOP2 (severe)	0.55 (0.39–0.71)	<0.001
	Older	0.58 (0.40–0.76)	<0.001
	Younger	0.35 (−0.01 to 0.71)	<0.001
Male	EWGSOP2 (confirmed + severe)	0.33 (0.22–0.44)	<0.001
	Older	0.33 (0.10–0.46)	<0.001
	Younger	0.14 (−0.04 to 0.32)	0.016
	EWGSOP2 (severe)	0.64 (0.53–0.75)	<0.001
	Older	0.65 (0.30–0.98)	<0.001
	Younger	0.45 (0.33–0.57)	<0.001

Note: We considered those aged ≥60 years as "older people".

Abbreviations: CI, confidence interval; EWGSOP2, revised European Working Group on Sarcopenia in Older People; SDOC, Sarcopenia Definitions and Outcomes Consortium.

confirmed. Notably, the addition of low gait speed into the EWGSOP2 criterion greatly improved the magnitude of agreement for patients diagnosed with severe sarcopenia.

Many studies on older people have explored the impact of diagnosing sarcopenia using different established consensuses.[22] According to these studies, the significant impact of applying different consensuses may be explained by the heterogeneous methods of assessing sarcopenia traits, cutoff points, and algorithm diagnosis. A recent meta-analysis of 140 studies with 42,041 patients with CKD found an overall prevalence of sarcopenia of 24.5% (95% CI 20.9–28.3) but with variation from 10.6% ($I^2 = 98.8\%$, 95% CI 1.4%–26.5%) to 29.7% ($I^2 = 93.7\%$, 95% CI 24.3%–35.4%) depending on the consensus criteria used.[2] Few studies have compared the prevalence of sarcopenia between the EWGSOP2 and the SDOC consensuses.[14,23,24] A study comprising four large, multinational cohorts of community-dwelling White men showed similar prevalence rates between the EWGSOP2 and the SDOC (1.1% and 1.7%, respectively).[24] This aligns with our finding of similar sarcopenia prevalence between the SDOC (12.5%) and EWGSOP2 (15.3%) in patients receiving hemodialysis.

However, we also found that the different definitions exhibited only a weak agreement on which patients were affected. This may be attributable to the different cutoff points adopted for low handgrip strength and the absence of the low muscle mass trait in the SDOC. Specifically, the SDOC definition uses low muscle strength and low gait speed to focus solely on physical dysfunction–associated sarcopenia, whereas the EWGSOP2 uses muscle strength and muscle mass to also focus on body composition–associated sarcopenia. The EWGSOP2 also proposed an algorithm to include gait speed as a measure of physical performance for identifying severe sarcopenia. Notably, patients with severe sarcopenia showed the highest level of agreement between the SDOC and the EWGSOP2, supporting the importance of assessing physical performance when diagnosing sarcopenia. Indeed, low physical function has emerged as a better

predictor than muscle mass of adverse clinical outcomes in the population with CKD.[3] Especially in patients receiving hemodialysis, hypervolemia is a common feature[25] and may affect calf circumference but does not necessarily directly affect gait speed performance. Thus, in confirming a diagnosis of sarcopenia, gait speed appears to be a more reliable marker than calf circumference, favoring the algorithm proposed by the SDOC.

Although the cutoff points for identifying low physical performance using the gait speed test are virtually identical between consensuses, the diagnosis of low muscle strength through handgrip strength is highly discrepant. The SDOC tends to be a less conservative approach compared with the EWGSOP2, with higher cutoff points for low handgrip strength in both sexes. This results in a higher prevalence of low muscle strength, a pivotal sarcopenia trait. Of relevant note, the cutoff for diagnosing low muscle strength in the EWGSOP2 might not detect those individuals in whom early intervention (eg, strength training and adequate diet) could improve physical function and decrease the rate of sarcopenia progression. This disadvantage is among the issues driving the large debate about the gold standard consensus for the diagnosis of sarcopenia. Recent evidence highlights the need for a global definition of sarcopenia, as well as the need for operational parameters to diagnose the disease more accurately. The misunderstanding and potential confusion with the operationalization of sarcopenia definitions can interfere with clinical practice as well as in clinical trials aimed at treating the disease.[26–28]

From a practical or clinical viewpoint, our results highlight the weak agreement between the EWGSOP2 and SDOC consensuses for diagnosing sarcopenia. Therefore, clinicians must employ the same operational criteria and consensus over time to preserve methodological homogeneity when diagnosing sarcopenia. Also, the lower cutoff points for low muscle strength in the EWGSOP2 may be too conservative and delay diagnosis, allowing this sarcopenia trait to become irreversible in the patient. Future longitudinal studies should compare the impact of sarcopenia diagnosed by different consensuses on adverse clinical outcomes, such as falls, fractures, hospitalizations, and death.

To our knowledge, our study is the first to investigate the agreement between the EWGSOP2 and SDOC consensuses definition in patients undergoing hemodialysis. Key strengths of our study include the large number of patients and the multicenter design. However, the study has several limitations. Although we included objective measurements as suggested by both consensuses (despite calf circumference being considered a diagnostic proxy), the cutoff points used to classify low levels may not be appropriate for our population, for which normative values have yet to merge. Our sample consisted of different dialysis regimens but was mostly composed of conventional dialysis regimens; therefore, caution should be exercised when generalizing the findings to all dialysis regimens. Finally, as this was a multicenter study with data collected simultaneously in different units, inconsistencies between evaluators may have occurred, even with an established training protocol and standard operational procedures.

CONCLUSION

In this multicenter study of patients receiving hemodialysis, we found similar prevalence rates of sarcopenia using the EWGSOP2 and SDOC consensuses but only a weak agreement between them. Although weak, a greater magnitude of agreement was found for older patients and for those with severe sarcopenia. These findings highlight the clinical and research importance of a global consensus on the definition and diagnosis of sarcopenia to be incorporated into clinical practice, which will help to improve the treatment and health outcomes of patients undergoing hemodialysis.

AUTHOR CONTRIBUTIONS

Marvery P. Duarte, Maycon M. Reboredo, and Heitor S. Ribeiro designed the study. Marvery P. Duarte and Heitor S. Ribeiro wrote the manuscript. All authors substantively revised the content, methodology, results of the manuscript, and read, reviewed, and approved the final version.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data are available on reasonable request to the corresponding author.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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