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Coexistence of malnutrition and sarcopenia and its impact on mortality in patients on hemodialysis: results from the SARC-HD study

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Background and Aims: Malnutrition and sarcopenia share similarities and overlap some associated factors in patients on hemodialysis, but its coexistence and its impact on adverse outcomes remains to be further explored. Therefore, we evaluated the prevalence and factors associated with the coexistence of malnutrition and sarcopenia in patients on hemodialysis and investigated its impact on all-cause mortality.

Method: This is a prospective cohort with data from the multicenter SARC-HD study that included 19 dialysis units across Brazil. Patients were evaluated for handgrip strength, calf circumference and gait speed. The diagnosis of malnutrition and sarcopenia was based on the Global Leadership Initiative on Malnutrition (GLIM) criteria and the revised European Working Group on Sarcopenia in Older People (EWGSOP2), respectively. The all-cause mortality was assessed through a 12-month follow-up and compared by Kaplan–Meier analysis. Multinomial logistic regression identified the factors associated with the coexistence of malnutrition and sarcopenia, while Cox proportional hazard model tested the impact on mortality (reference = no malnutrition and no sarcopenia).

Results: A total of 903 patients were analyzed (61% male; 49% aged ≥ 60 years), with 322 cases of malnutrition (36%), 151 cases of sarcopenia (17%), 62 cases (10%) of malnutrition and sarcopenia combined and 398 cases (37%) of no malnutrition and no sarcopenia. The multinomial logistic regression showed that older age (adjusted odds ratio [aOR] = 6.86; 95% confidence interval [CI]: 3.17 to 14.85), hemodiafiltration as a dialysis modality (aOR = 5.58; 95% CI: 2.66 to 11.72), use of catheter as vascular access (aOR = 2.15; 95% CI: 1.17 to 3.97) and hypoalbuminemia (aOR = 4.16; 95% CI: 1.90 to 9.10) were significantly associated with the coexistence of malnutrition and sarcopenia. The Kaplan–Meier analysis revealed a lower survival rate in the group with the coexistence of malnutrition and sarcopenia (Log-rank $P = 0.002$). Coexistence of malnutrition and sarcopenia was significantly associated with all-cause mortality (adjusted hazard ratio = 2.26; 95% CI: 1.10 to 4.62) compared to the no malnutrition and no sarcopenia group.

Conclusion: In a large sample of patients on hemodialysis in Brazil, the prevalence of the coexistence of malnutrition and sarcopenia was 10%, and it was independently associated with a higher mortality risk. These findings highlight the importance of assessing both conditions to provide timely and adequate treatment.

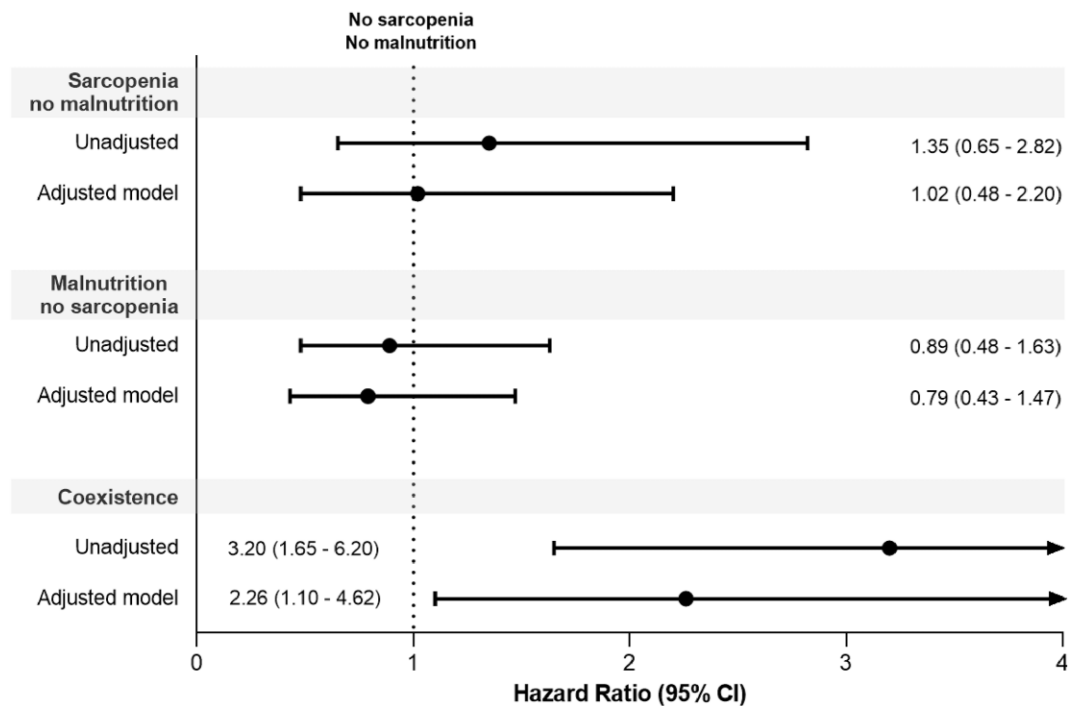


Figure 1: Cox proportional hazard model for all-cause mortality according to sarcopenia, malnutrition, and their coexistence. Adjusted model included sex (reference = female), older age (reference = <60 years), dialysis modality (reference = conventional hemodialysis), ethnicity (reference = non-white), and vascular access (reference = arteriovenous fistula). The sample analyzed included 659 patients, as cases lost to follow-up were excluded from the analysis.