

Frailty, Physical Function Impairment, Comorbidity Burden, and Falls are Predictive of Mortality Among Middle-Aged Adults with HIV

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Background:

Higher than expected rates of frailty and functional impairment are described among people with HIV (PWH). Whether these impairments, particularly among middle-aged persons, are predictive of poor outcomes including death are not well established.

Methods:

PWH ages 45-65 with ART-suppressed HIV-1 RNA were evaluated in 2010-2011 (baseline) using the Fried Frailty Phenotype (composite, grip alone), Short Physical Performance Battery ([SPPB] composite, chair rise alone), 400-m walk, Veterans Aging Cohort Study (VACS) Index, and fall history. Medical records were reviewed in 2018 to determine participant vital status. Hazard ratios were used to estimate survival by baseline frailty, function, comorbidity burden, or falls, stratified by age \geq / $<$ 50 years of age. Patients without confirmed date of death were censored at last follow-up visit.

Results:

Of 351 participants, 299 (85%) identified as male, 52 (15%) as female, 16% were Black and 19% Hispanic. At baseline, the mean (SD) age was 51.5 (5.2) years and the majority (58%) had a CD4 count of >500 cells/ μ L. 23 (7%) were frail and 164 (47%) pre-frail, 103 (29%) had ≥ 1 fall in the prior year, 74 (21%) had an SPPB score of ≤ 10 , 33 (9%) had a weak grip by frailty definition. The mean time to complete 5 chair stands was 10.5 (4.5) seconds and 400m walk was 284 (78) seconds. All physical function measures except weak grip were associated with mortality (Table).

Conclusions:

Frailty, physical function, falls, and comorbidity burden (VACS Index) are associated with long-term mortality even among middle-aged adults with suppressed HIV.

Baseline Test	Hazard Ratio (95% CI)
Frailty/pre-frailty (vs nonfrail)	3.16 (1.40, 7.32)*
Weak grip	1.24 (0.43, 3.55)
400-m walk time/30 sec	1.13 (1.50, 1.20)**
Chair rise score ≤ 3 (vs 4)^	2.80 (1.37, 5.76)*
SPPB (per 1 unit)	1.23 (1.07, 1.41)*
VACS Index/10 points	1.61 (1.28, 2.02)**
Falls in prior year	2.79 (1.38, 5.65)*

* $p < 0.05$; ** $p < 0.001$; ^ ≤ 3 points corresponds to 11.2 seconds or slower