Sleep and Frailty Among Men with and Without HIV

Poster #0620

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BACKGROUND

- **Persons with HIV (PWH) experience earlier onset and increased rates of frailty compared to persons without HIV.**
- **Poor sleep has been associated with frailty in the general population.**
- **The goal of the current study was to examine associations between objective sleep measures and the existence of frailty among PWH.**

METHODS

Study Participants

- **The Multicenter AIDS Cohort Study (MACS) has been a large ongoing prospective observational cohort study of men living with HIV (MLWH) and demographically similar HIV-uninfected men who have sex with men.**
- **All MACS participants underwent semi-annual Fried Frailty phenotype assessments (grip strength, gait speed, activity, exhaustion, and weight loss).**
- **In 2018, a subset of MACS participants underwent in-home polysomnography using the Nox A1 sleep monitor.**

Evaluations and Definitions

- **Frailty is defined as simultaneously having ≥ 3 Fried criteria.**
- **Sleep measures:**
  - **Total sleep time**
  - **Sleep efficiency (i.e., total sleep time/time in bed)**
  - **Wake after sleep onset (i.e., time awake after sleep onset).**
  - **Sleep measures were dichotomized by median cut-point.**

Data Analysis

- **Cross-sectional associations between sleep measures and temporally nearest measure of frailty (median [IQR] difference = 1 day [0-21 days]) were examined using Poisson regression models with robust variance estimates and adjusted for age, BMI, and type 2 diabetes.**
- **Models were also adjusted for HIV serostatus.**

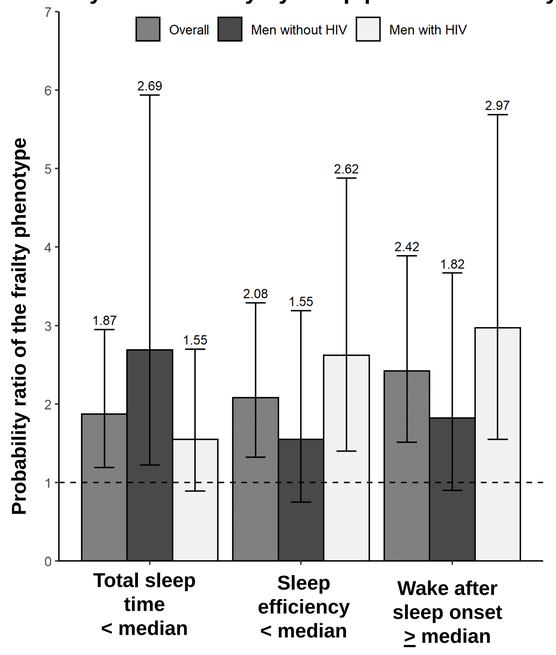
Objective measures of poor sleep were associated with greater frailty prevalence regardless of HIV serostatus. Associations between specific sleep parameters and frailty differed by HIV serostatus.

RESULTS

Table. Participant Characteristics by HIV Serostatus

Characteristic	Men without HIV (N = 356)	Men living with HIV (N = 446)
Frailty phenotype	30 (8%)	49 (11%)
Age in years, median (IQR)	63.0 (56.5-68.7)	56.3 (49.2-63.6)
BMI (kg/m^2), median (IQR)	27.0 (24.1-30.7)	26.5 (23.4-30.2)
Type 2 diabetes	130 (38%)	187 (44%)
Suppressed HIV viral load		423 (96%)
Current CD4 cell count, median (IQR)		704.5 (526.0-912.0)
Total sleep time	162 (46%)	236 (53%)
< Median, 382 minutes		
Sleep efficiency	163 (46%)	224 (50%)
< Median, 93%		
Wake after sleep onset	179 (50%)	224 (50%)
≥ Median, 33 minutes		

Figure. Probability ratio of frailty by sleep parameter and by HIV serostatus



Vertical bars are 95% CIs

CONCLUSIONS

- **Objective measures of poor sleep were associated with greater frailty prevalence.**
- **Shorter total sleep time was associated with greater frailty prevalence among men without HIV, but not MLWH.**
- **Lower sleep efficiency and more nighttime awakening were associated with frailty among MLWH but not men without HIV.**
- **Interventions to improve sleep efficiency and reduce sleep fragmentation may represent approaches to prevent or treat frailty among MLWH.**

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