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Sleep and Cognitive Function: Examining How Sleep Impacts Cognition in Older Adults Living With HIV

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Introduction: Poor sleep is recognized as a serious problem for older adults living with HIV (Byun, Gay, & Lee, 2016; Wilson et al., 2016). Research has indicated that over half of adults with HIV suffer from a variety of sleep problems which negatively impact health and quality of life (Allavena et al., 2016; Faraut et al., 2018). Prior research suggests the prevalence of sleep disorders is even higher in older adults living with HIV, and these sleep problems contribute to the high prevalence of mild cognitive impairment found in this population (Byun et al., 2016; Mahmood, Hammond, Nunez, Irwin, & Thames, 2018). This pilot study examined the association between sleep and cognitive function in a sample of older adults living with HIV, where their HIV was well controlled on antiretroviral therapy.

Methods: Forty six adults living with HIV and aged 50 years and older were enrolled in this study. Participants provided demographic and health history information at study entry. Participants completed cognitive testing at study entry and after wearing an actigraph watch for one week. A sleep diary, fatigue survey and daytime sleepiness survey were also completed each day the actigraph watch was worn. After one week participants returned to the clinic and completed the Pittsburgh Sleep Quality Index (PSQI), and depression and fatigue surveys. They then performed cognitive testing using the NIH Toolbox Cognition Battery and the Montreal Cognitive Assessment (MoCA).

Currently, 42 persons have completed this study with patient participation anticipated to end by January 31, 2018. Complete data analysis will be performed at that time.

Results: Preliminary results of study data (n = 28) reveal a statistically significant negative relationship of moderate strength between global sleep and cognitive function (r = -.47, p = .015). In addition the relationships between cognitive function and sleep latency (r = -.43, p = .030), and cognitive function and sleep efficiency (r -.44, p = .025) were also moderate in strength and statistically significant, suggesting that poorer sleep correlated with lower cognitive function. Preliminary results found 86% of study participants had poor sleep (PSQI score >5), and 58% displayed mild cognitive impairment. These results were in older adults whose HIV was well-controlled with antiretroviral therapy. Further analysis will be performed on the complete data set after the final study participants have completed their study visits.

Conclusion/Discussion: Preliminary findings provide evidence that poor sleep negatively impacts cognitive function. Mild cognitive impairment decreases a person’s ability to manage their medications, which is vital to successfully managing HIV disease (Frain et al., 2014). Poor medication management can result in a decreased quality of
life, limiting the opportunity to age successfully while living with HIV. Since declines in
cognitive function negatively impact a person’s ability to manage their medications,
routine assessment and treatment of sleep problems has the potential to improve
medication adherence, a vital component of successfully managing HIV disease.

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Abstract Summary:
Participants will learn how older adults living with HIV experience poor sleep despite effective
use of antiretroviral therapy to control their HIV virus. The correlation between poor sleep and
cognitive function will be examined and the detrimental effect this has on successfully aging while living with HIV will be discussed.

Content Outline:

Poor sleep is recognized as a serious problem for older adults living with HIV. Research has indicated that over 75% of this population suffer from a variety of sleep problems which negatively impact health and quality of life. This pilot study examined the association between sleep and cognitive function in a sample of older adults living with HIV, where their HIV was well controlled with antiretroviral therapy.

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Author Summary: Dr. Frain's areas of expertise include HIV care, aging, and cognition. A graduate of the postdoctoral program at Washington University, Dr. Frain's program of research focuses on improving the health and quality of life for older adults living with HIV. Her current work involves the study of nonpharmacological interventions to improve debilitating symptoms experienced by older patients living with HIV.