



HÔPITAUX UNIVERSITAIRES
PITIÉ SALPÊTRIÈRE
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DEVELOPING PREVENTIVE
ACTIONS IN GERIATRICS

Association between actigraphy sleep parameters and recovery of walking ability after hip fracture

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CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

Introduction

- Several studies had shown an association between sleep disorders and:
 - sarcopenia
 - cognitive function
 - mood disorders

Hu X et al. Medicine (Baltimore). 2017

Diem SJ et al. Am J Geriatr Psychiatry. 2016

Paudel M et al. Sleep. 2013

- Recovery of walking after hip fracture is influenced by many of these factors

Shahab S et al. Arch Phys Med Rehabil. 2017

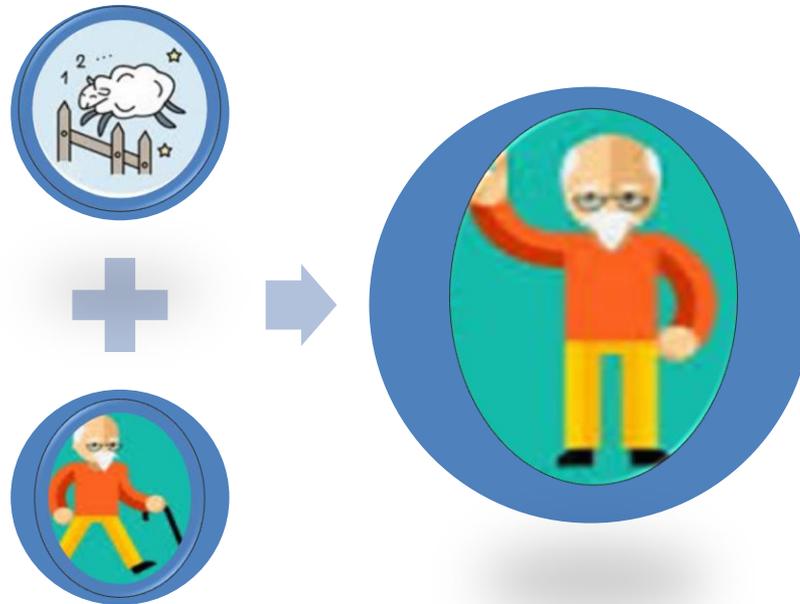
Ariza-Vega P et al. Am J Phys Med Rehabil. 2017

Pioli G et al. Osteoporos Int. 2016

Objective

- To examine the association between objective sleep parameters and recovery of walking ability in acute care after hip fracture.

- Hypothesis :



Methods

- Population :
 - all patients admitted within 3 days after hip fracture surgery (HFS) into a dedicated unit of peri-operative geriatric (UPOG) care
 - who completed wrist actigraphy



Methods

- Population :
 - all patients admitted within 3 days after hip fracture surgery (HFS) into a dedicated unit of peri-operative geriatric (UPOG) care
 - who completed wrist actigraphy
- Demographic and medical data were also collected and especially if patient had or not a walking disability prior to the fracture.
- Statistical analysis: mean comparisons by T Test or Welch if variances were unequal

Results

- From 06/2015 to 03/2017, 133 patients were included:
 - Mean (sd) age: 87 (6) years
 - Men: 17.3%
 - Dementia: 39%
 - Mean (sd) CIRS score: 10 (4)
 - Previous walking disability: 65%
- After discharge, 68% patients recovered previous ambulation status:
 - 95.4% with previous walking disability
 - 15.2% without previous walking disability

CIRS : Cumulative Illness Rating Scale

Results

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- Patients with previous walking disability

| Actigraphy sleep data (on 3 days) | Recovery of prior walking ability (n=83) | No recovery of prior walking ability (n=4) | p |
|--|---|---|---------------------|
| Total sleep time per night(min) | 294.9± 196.9 | 377.4± 349.8 | 0.43 [‡] |
| 24 hours sleep duration | 379.9± 268.4 | 546.9± 477.8 | 0.24 [‡] |
| Daytime sleep duration | 84.9±80.9 | 169.6± 128.6 | 0.047 [‡] |
| Circadian rhythm | 0.4±0.3 | 0.2±0.1 | 0.002 ^μ |
| Daytime activity | 6.4±5.2 | 2.7±1.9 | 0.16 [‡] |
| Nighttime activity | 3.5±2.6 | 1.4 ±0.1 | <0.001 ^μ |

[‡]Two Sample t-test ^μWelch Two Sample t-test

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Discussion

- To our knowledge, first study to evaluate the association between sleep parameters and recovery after HFS
- Wrist actigraphy is a validated method to assess sleep disturbances

van Hees VT et al. PLoS ONE. 2015

Discussion

- Interpretation of these results are limited because of the lack of multivariate analysis

Discussion

- Yet, association between sleep parameters and recovery of walking ability could be explain by:
 - Daytime long sleep duration: might reflect underling health conditions, low level of physical activity
 - Nighttime activity: better level of physical activity
 - Particularly in patients with previous walking disability

Related to sarcopenia

Conclusion

- In older patients with HFS managed in UPOG care pathway, recovery of previous ambulation status at discharge is associated with daytime sleep duration and physical activity assessed by actigraphy at admission.

