LBA001

Title: Behavioral and Psychological Treatments for Chronic Insomnia Disorder in Adults: An American Academy of Sleep Medicine Clinical Practice Guideline

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Introduction: The American Academy of Sleep Medicine (AASM) commissioned a task force of experts in sleep medicine to establish clinical practice recommendations for the use of behavioral and psychological treatments for chronic insomnia disorder in adults. The clinical practice guideline is intended to update the previously published AASM guidelines on the psychological and behavioral treatments of insomnia.

Methods: The task force developed recommendations and assigned strengths based on a systematic review of the literature and an assessment of the evidence using Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology. The AASM Board of Directors approved the final recommendations.

Results: The following recommendations are intended as a guide for clinicians in choosing a specific behavioral and psychological therapy for the treatment of chronic insomnia disorder in adult patients. Each recommendation statement is assigned a strength ("Strong" or "Conditional"). A "Strong" recommendation (i.e., "We recommend…") is one that clinicians should follow under most circumstances. A "Conditional" recommendation is one that requires that the clinician use clinical knowledge and experience, and to strongly consider the patient's values and preferences to determine the best course of action.

1. We recommend that clinicians use multi-component cognitive-behavioral therapy for insomnia for the treatment of chronic insomnia disorder in adults. (STRONG)
2. We suggest that clinicians use multi-component brief therapies for insomnia for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
3. We suggest that clinicians use stimulus control as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
4. We suggest that clinicians use sleep restriction therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
5. We suggest that clinicians use relaxation therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
6. **We suggest that clinicians not use sleep hygiene as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)**

Conclusion: The treatment of chronic insomnia disorder should be based on a diagnosis established using ICSD-3 or DSM-5 criteria, and a comprehensive clinical history. Standard of care should be to provide one of the recommended interventions discussed within the guideline, taking into consideration the accessibility and resource requirements when deciding on the most appropriate treatment for a given patient. The ultimate judgment regarding any specific care must be made by the treating clinician and the patient.

LBA002
Title: Transitioning to Shiftwork Rapidly Alters Overnight Blood Pressure

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Introduction: Cardiovascular disease is a leading cause of death, and the 24-hour blood pressure pattern indicates cardiovascular risk. Specifically, risk for adverse cardiovascular events increases when blood pressure does not decrease at night ("non-dipping", <10% decrease from daytime blood pressure). Shiftwork alters relationships between daily behavioral cycles (e.g., sleep/wake; rest/activity/fasting/feeding) and endogenous circadian rhythms, which can increase cardiovascular disease risk. To determine whether transitioning into shiftwork changes the overnight blood pressure dipping pattern, we leveraged a natural experiment that occurs when newly-hired bus operators transition from a daytime training schedule into either a shiftwork or daywork schedule.

Methods: Twenty bus operators (36.3y±7.1y [mean±SD]) were studied in a 90-day protocol upon new employment. At baseline, participants underwent a battery of cardio-metabolic health assessments in the laboratory, wore an ambulatory blood pressure device for the subsequent 24-48h, and completed sleep-wake diaries for one week. Follow-up measurements were repeated after ~30 and 90 days after transitioning to either schedule. Overnight blood pressure dipping was

derived from the sleeping/waking systolic blood pressure ratio. Percentage of population dipping was analyzed using Fischer's exact test and dipping percentage with an independent t-test.

Results: A majority of participants (16/20) transitioned to shiftwork. 31% of shift workers had the unhealthy non-dipping overnight blood pressure profile at baseline and this increased to 93% at 90-days. In contrast, 50% of dayworkers had a non-dipping profile at baseline and this actually decreased to 0% at 90-days, a significant difference from shiftworkers (p=0.001). At 90-days, the mean overnight blood dipping was ~7% less in shiftworkers than dayworkers (-6.3% [95%CI -3.7 to -8.8%] vs 13.1% [95%CI -10.3 to -15.9%]: p<0.01).

Discussion: These robust changes in overnight blood pressure dipping in newly-hired shiftworkers may be an early warning of increased cardiovascular risk, which if prolonged, may relate to increased cardiovascular events and mortality of shiftworkers.

LBA003
Title: Sleep Efficiency is Associated with Amyloid-Beta Deposition in Adults with Mild Cognitive Impairment Within a Community Sample

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Introduction: Sleep is associated with Alzheimer's disease pathology; better sleep quality is seen among older adults with lower levels of amyloid beta in the precuneus. However, prior studies have had small sample sizes and have mostly used subjective measures of sleep. It is, moreover, unclear whether associations between sleep and amyloid deposition are consistent across clinical factors, such as cognitive status.

Methods: Here we assessed amyloid deposition with Pittsburgh Compound B positron emission tomography (PiB PET) and actigraphy-assessed sleep efficiency in a diverse sample of 129 adults ages 51-89 (68.2% female; 48.8% college degree; 59.1% African American/Black; 48.8% with mild cognitive impairment (MCI)). We examined associations of sleep efficiency with PiB retention measured in the precuneus controlling for age, sex, education, race, cognitive status, and e4 carrier status. We further examined whether these associations were consistent across cognitive status (healthy control (n=63), impaired without complaint (n=22), subjective complaint (n=13), and mild cognitive impairment (MCI) (n=31)).

Results: Better sleep efficiency was associated with lower PiB retention in the precuneus, R^2 change = 0.07, *p*=0.002. Analyses stratified by cognitive status demonstrated that the association between

sleep efficiency and PiB was significant only in those with MCI, R^2 change = 0.2, p=0.002, though a similarly large effect size was found for those with subjective complaints, R^2 change = 0.38, p > 0.1.

Conclusion: These results may reflect a higher degree of disease progression in those with poor sleep efficiency, higher PiB retention, and MCI. Better sleep efficiency may additionally play a role in staving off Alzheimer's disease pathology particularly in those at higher risk of Alzheimer's disease. Intervention studies are needed to determine the directionality of these findings.

LBA004
Title: Treatment of Central Disorders of Hypersomnolence: An American Academy of Sleep Medicine Clinical Practice Guideline

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Introduction: This guideline establishes clinical practice recommendations for the treatment of central disorders of hypersomnolence in adults and children. This clinical practice guideline updates the previously published American Academy of Sleep Medicine (AASM) guidelines on the treatment of narcolepsy and other hypersomnias of central origin. The clinical practice guideline focused on prescription medications with United States Food and Drug Administration (FDA) approval and non-pharmacologic interventions studied for the treatment of symptoms caused by central disorders of hypersomnolence

Results: The following recommendations are intended as a guide for clinicians in choosing a specific treatment for central disorders of hypersomnolence in adults and children. Each recommendation statement is assigned a strength ("Strong" or "Conditional"). A "Strong" recommendation (i.e., "We recommend…") is one that clinicians should follow under most circumstances. A "Conditional" recommendation (i.e. "We suggest…") is one that requires that the clinician use clinical knowledge and experience, and strongly considers the individual patient's values and preferences to determine the best course of action. The section on adult patients with hypersomnia due to medical conditions is categorized based on the clinical and pathological subtypes identified in ICSD-3. All recommendations and suggestions are versus no treatment.
<u>Adult patients with narcolepsy</u>
1. We recommend that clinicians use modafinil for the treatment of narcolepsy in adults. (Strong)
2. We recommend that clinicians use intolerant for the treatment of narcolepsy in adults. (Strong)

3. We recommend that clinicians use sodium oxybate for the treatment of narcolepsy in adults. (Strong)
4. We recommend that clinicians use solriamfetol for the treatment of narcolepsy in adults. (Strong)
5. We suggest that clinicians use armodafinil for the treatment of narcolepsy in adults. (Conditional)
6. We suggest that clinicians use dextroamphetamine for the treatment of narcolepsy in adults. (Conditional)
7. We suggest that clinicians use methylphenidate for the treatment of narcolepsy in adults. (Conditional)

Adult patients with idiopathic hypersomnia
8. We recommend that clinicians use modafinil for the treatment of idiopathic hypersomnia in adults. (Strong)
9. We suggest that clinicians use clarithromycin for the treatment of idiopathic hypersomnia in adults. (Conditional)
10. We suggest that clinicians use methylphenidate for the treatment of idiopathic hypersomnia in adults. (Conditional)
11. We suggest that clinicians use pitolisant for the treatment of idiopathic hypersomnia in adults. (Conditional)
12. We suggest that clinicians use sodium oxybate for the treatment of idiopathic hypersomnia in adults. (Conditional)

Adult patients with Kleine-Levin Syndrome
13. We suggest that clinicians use lithium for the treatment of Kleine-Levin syndrome in adults. (Conditional)

Adult patients with hypersomnia due to medical conditions
Hypersomnia secondary to alpha-synucleinopathies
14. We suggest that clinicians use armodafinil for the treatment of hypersomnia secondary to dementia with Lewy bodies in adults. (Conditional)
15. We suggest that clinicians use modafinil for the treatment of hypersomnia secondary to Parkinson's disease in adults. (Conditional)
16. We suggest that clinicians use sodium oxybate for the treatment of hypersomnia secondary to Parkinson's disease in adults. (Conditional)

Posttraumatic hypersomnia
17. We suggest that clinicians use armodafinil for the treatment of hypersomnia secondary to traumatic brain injury in adults. (Conditional)
18. We suggest that clinicians use modafinil for the treatment of hypersomnia secondary to traumatic brain injury in adults. (Conditional)

Adult patients with genetic disorders associated with primary central nervous system somnolence
19. We suggest that clinicians use modafinil for the treatment of hypersomnia secondary to myotonic dystrophy in adults. (Conditional)

<u>Adult patients with hypersomnia secondary to brain tumors, infections, or other central nervous system lesions</u>

20. We suggest that clinicians use modafinil for the treatment of hypersomnia secondary to multiple sclerosis in adults (Conditional)

<u>Pediatric patients with narcolepsy</u>

21. We suggest that clinicians use modafinil for the treatment of narcolepsy in pediatric patients. (Conditional)
22. We suggest that clinicians use sodium oxybate for the treatment of narcolepsy in pediatric patients. (Conditional)