Benzodiazepine Use and Cognition in the Elderly

Abstract: *Benzodiazepines are commonly prescribed to treat insomnia in the elderly. The use of benzodiazepines in this population has been associated with various risks, including the potential to cause cognitive decline. The purpose of this article is to discuss the relationship between the use of benzodiazepines and cognitive decline, the importance of patient education when prescribing benzodiazepines in this population, and lifestyle modifications that can be used to help treat insomnia in older adults.*

Keywords: insomnia; cognition; benzodiazepine; geriatric

Benzodiazepines (BZDs) are commonly prescribed to alleviate symptoms of anxiety and treat sleep disorders.¹ The prevalence of sleep disorders, including insomnia, increases as the population ages.² This is not due to the expected phenomenon of aging but rather an increased use of medications and psychosocial comorbidities in the elderly population. In a population-level retrospective observational study of BZD use in the United States among adults aged 65 to 80 years, 6.1% of men and 10.8% of women used BZDs.¹ The highest rate of use at 11.9% was observed among 80-year-old women.

Use of BZDs in older individuals has been shown to increase risk of falls, reduce mobility and driving skills, and impair cognitive functioning. Due to changes in pharmacodynamics and pharmacokinetics combined with the age-related decrease in the reserve of the central nervous system, elderly patients using BZDs can be particularly sensitive to the cognitive side effects of the

application of the criteria by providers specific for individual patient needs.⁴

Despite this caution, prescriptions written for BZDs are on the rise, with an increase from 4.1% to 5.6% in 2013.⁵ This article will describe the relationship between the use of BZDs and dementia. In addition, approaches to reducing inappropriate BZD use including patient education and

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medication.³ With alterations in cognitive function as well as risk of fall, fracture, delirium, and motor vehicle crashes, the American Geriatrics Society (AGS) Beers criteria include BZDs as a drug to avoid in geriatric patients. The AGS notes that all BZDs should be avoided and makes special mention that shorter-acting BZDs are not safer than long-acting BZDs in the elderly. The AGS recommendations are intended for use in all clinical settings outside of palliative or hospice care and support clinical judgement of careful

promotion of lifestyle modifications will be discussed.

Benzodiazepines and Long-Term Cognitive Impairment

The relationship between the use of BZDs and dementia has been the subject of a variety of studies, which have yielded mixed results. A recent clinical review analyzed 17 publications related to the topic.⁶ Of the 9 prospective

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clinical trials included in the review, just 3 demonstrated a negative cognitive effect in patients who used BZDs compared to nonusers. Five of the 7 case-control studies found significant difference, and the only reviewed meta-analysis found an increased risk of dementia with BZD use. The authors found that stronger associations were identified in studies evaluating long-acting BZDs (as opposed to short-acting formulations), extended durations of use (as opposed to short durations of use), and early exposure (as opposed to exposure later in life).

Approaches to Decrease the Inappropriate Use of Benzodiazepines in the Elderly

Patients should play a key role in making decisions related to their health. A study by Tannenbaum et al found that patients educated on the potential risk of BZD therapy were more likely to discontinue the medication than patients who did not receive education.⁷ Specifically, the study randomized 261 community-dwelling patients aged 65 to 95 years to receive either a patient empowerment intervention or usual care. The patient empowerment intervention consisted of an educational booklet describing the risks of BZD use; suggestions for effective, alternative therapies for insomnia; and stepwise tapering recommendations. There was an 8-fold higher likelihood of BZD discontinuation at 6 months among those who received the empowerment intervention compared to controls (odds ratio = 8.1; 95% confidence interval = 3.5-18.5). An additional 11% of individuals who received education achieved dose reductions.

An informed patient can better advocate for their best interests and may opt for a trial of lifestyle modifications in lieu of BZD therapy for their insomnia. The AGS recommends using a person-centered nonpharmacological approach to treatment of insomnia in the elderly population.⁴ Nonpharmacological therapies such as sleep restriction-sleep

compression, cognitive behavioral therapy for insomnia (CBT-I), or sleep hygiene should be first-line treatment for the management of insomnia in older adults.⁸ CBT-I incorporates sleep education including sleep hygiene instructions with behavioral interventions on stimulus and/or sleep restrictions.⁹⁻¹¹ CBT-I trials have shown to resolve insomnia for a period of up to 2 years.⁹ Sleep hygiene education should address a patient's bedtime routine, specifically what behaviors, habits, and environmental factors in a routine that can interfere with sleep and how to avoid them.²

Sleep restriction-sleep compression focuses on patients restricting the time they are in bed to actual sleep time.¹¹ The amount of time spent in bed should correlate closely with the amount the patient actually sleeps. If a patient spends 8.5 hours in bed but only sleeps for 5.5 hours, the patient would be counseled to limit the time in bed to 5.5 to 6 hours. The amount of time is gradually increased once every 5 days by 15 to 20 minutes as sleep efficiency increases until optimal sleep time is achieved. The patient could also opt to gradually decrease the amount of time spent in bed to match that of their actual sleep time. Multiple studies have shown that sleep restriction-sleep compression is efficacious in treating older patients with chronic insomnia.¹²⁻¹⁴

Conclusion

While evidence exists linking BZD use to cognitive decline, in the elderly, study findings are inconsistent and additional research is needed to better understand the relationship. Despite these inconsistencies, it is important for providers to educate patients about the potential risks of BZD therapy. In addition to the potential for cognitive decline, BZD use is associated with increased risk for fall, fracture, delirium, and motor vehicle crashes—all of which increase morbidity and mortality in the geriatric population. Data suggest that patients informed of the potential risks of BZDs are more likely to discontinue therapy. Informed patients may be more apt to attempt lifestyle

modifications to manage their insomnia. Providers should be familiar with the nonpharmacological approaches recommended for older adults. These include sleep hygiene, sleep restriction-sleep compression, and CBT-I. If BZD therapy is deemed necessary, it should be initiated, with caution, at the lowest effective dose for the shortest duration possible under careful monitoring.

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Trial Registration

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