



## Editorial

## Association between chronic insomnia and depression in elderly adults

Insomnia is not just a common symptom of various psychiatric or physical disorders, but is itself categorized as a primary psychiatric disorder. Aside from the manifestations of difficulty initiating sleep, fragmented sleep, early-morning awakenings, and overall poor sleep efficiency, the subjective feeling of inadequate or non-restorative sleep the next morning, as well as psychosocial distress or dysfunction caused, are even more crucial in the diagnosis of insomnia.<sup>1,2</sup> The duration of insomnia required for diagnosis as “chronic” has varied from as little as 1 month to as long as 6 months, depending upon the criteria used. The increased incidence of chronic insomnia has been related to concomitant medical and psychiatric disorders, which are frequently present among the elderly. When insomnia becomes chronic, it will invariably increase medical problems significantly, and impact a patient’s quality of life, cognitive and psychosocial function adversely,<sup>1,2</sup> while further exaggerating the already existing psychiatric or medical conditions. Somatic comorbidities associated with aging are known to be risk factors for insomnia and depression. Therefore, chronic insomnia will further aggravate the heavy burden of medically ill elderly patients and their caregivers.<sup>3,4</sup>

The prevalence of insomnia among the general adult population is approximately 6% to 30%.<sup>2,5</sup> Furthermore, an estimated 50% to 70% of all people aged  $\geq 65$  years have reported at least one condition of chronic sleep disturbances.<sup>4</sup> A study conducted in one district of metropolitan Taipei, Taiwan has shown that nearly half of the elderly reported suffering from insomnia and poor sleep quality, and 22% of elderly subjects used medication for sleep, numbers that are consistent with results of previous studies in other countries.<sup>6</sup> In this study, 7% of the elderly have possible depression. The severity of depression has also been found to be a significant factor related to their insomnia and sleep quality.<sup>6</sup> Major depressive disorder (MDD) and insomnia are closely and multifacetedly related, and they pose a bidirectional relationship.<sup>7</sup> The interplay between these psychopathologies is not fully understood; however, their functional relationship has become a focus of recent investigation.<sup>8,9</sup> By using self-rating scales, epidemiological surveys have demonstrated the significant association between chronic insomnia and depression in young adults, as well as in elderly populations.<sup>3,9</sup> Insomnia is the major complaint among those patients with MDD, and about 40% to 80% of such patients complained of insomnia, or poor

sleep quality. In addition to being a symptom of MDD, insomnia has also been suggested as a primary disorder comorbid with MDD.<sup>7</sup> Conversely, depression has been found to be over-represented in individuals with chronic insomnia, and the severity of depression is significantly associated with nonrestorative sleep and decreased total sleep duration.<sup>8</sup> The severity and duration of depression will be exaggerated if patient depression is combined with chronic insomnia. Several longitudinal studies have shown that insomnia can be a risk factor of, and a precursor to new-onset depression; it can also increase the likelihood of a recurrence or relapse of MDD episodes in the following years.<sup>7,10</sup> The close relationship between insomnia and depression is also observed in the elderly. The insomnic elderly, by a factor of three to seven times, were more likely to develop depression during later years, compared to control subjects who did not suffer from insomnia. Sleep disturbance was also associated with more severe and later onset depression, where elderly patients with depression had longer nocturnal awakenings, poor sleep efficiency, and poor neuro-psychological functioning comparing to the control group.<sup>11</sup> Therefore, patients with insomnia should be carefully evaluated for the presence of comorbid depression, which can facilitate the early detection and management of insomnia as a way to reduce the risk of MDD.<sup>11</sup> When insomnia is comorbid with MDD, the relative improvement seen in both disorders can be enhanced if they are treated with a hypnotic along with an antidepressant. One survey revealed that a greater rate (21%) of patients with chronic insomnia received antidepressants, compared to those patients (8%) who did not suffer from chronic insomnia.<sup>3</sup>

Besides depression, sleep problems are also more prevalent in elderly dementia patients than in controls.<sup>4</sup> In a cohort group of elderly patients suffering from dementia, about one-third suffered from insomnia, and roughly 20% to 25% reported being affected by sleep-related leg cramps, restless leg syndrome, or rapid eye movement sleep behavior disorders. More than 60% of hospitalized patients with dementia of the Alzheimer-type were observed suffering different sleep disorders.<sup>12</sup> These sleep disorders, which occurred at a higher frequencies than in the general elderly population, suggest that neuro-degeneration probably play a crucial role in the pathophysiology of insomnia in the elderly. Among the elderly, sleep disorders were found to be closely associated with depression and anxiety.<sup>4</sup> In a postal community survey of adult

insomniacs, there has been a reported increase in healthcare use, with the primary reason given as “difficulty in falling asleep.” Correspondingly, “wakes up tired” is the reason often given by insomniacs if insomnia is combined with anxiety or depression.<sup>3</sup>

About 9% to 26% of those patients with insomnia used sleep medications, which included subjects in the Taiwan survey.<sup>5,6,13,14</sup> At present, pharmacological intervention remains the treatment of choice, and the use of hypnotics is significantly associated with elderly female patients with depression-like symptoms, suffering from poor sleep quality and complaining of difficulty falling asleep.<sup>5,15</sup> Elderly status and poor sleep control were the strongest predictors for the use of medication, and for subsequent difficulty in quitting sleep medications.<sup>15</sup> Both benzodiazepine and nonbenzodiazepine hypnotics have been the most frequently used drugs for treating insomnia in the elderly in Taiwan.<sup>14</sup> Most of the clinical trials of hypnotics in insomnia are of short duration, and the long-term effects, tolerance, and abuse liability of hypnotics require further study. The potential for abuse liability from these benzodiazepine hypnotics appears to be minimal in the elderly, and nonbenzodiazepine hypnotics also may have diminished abuse liability potential as well. In Taiwan, older individuals are less likely to receive a higher dosage benzodiazepine therapy, but more likely to receive more prolonged therapy.<sup>13</sup> Furthermore, elderly patients with concomitant anxiety or depression consumed more hypnotics.<sup>13</sup>

Elderly patients are at risk for a variety of sleep disorders that are most often comorbid with other medical and psychiatric illnesses. Chronic insomnia has a complex relationship with depression, such that sleep disturbance, cognitive decline, and late-onset depression may share common neurobiological underpinnings. In elderly patients with chronic insomnia, the early detection and treatment of depression must be promoted. If insomnia coexists with depression, both symptoms or disorders may be highly associated with the constant use of hypnotics. Therefore, a combined use of antidepressants should be considered for achieving a more satisfactory improvement in elderly patients.

## References

1. Sarsour K, Van Brunt DL, Johnston JA, Foley KA, Morin CM, Walsh JK. Associations of nonrestorative sleep with insomnia, depression, and daytime function. *Sleep Med* 2010;**11**:965–72.
2. Ohayon MM, Reynolds 3rd CF. Epidemiological and clinical relevance of insomnia diagnosis algorithms according to the DSM-IV and the International Classification of Sleep Disorders (ICSD). *Sleep Med* 2009;**10**:952–60.
3. Hayward R, Jordan KP, Croft P. Healthcare use in adults with insomnia: a longitudinal study. *Br J Gen Pract* 2010;**60**:334–40.
4. Rongve A, Boeve BF, Aarsland D. Correlates of caregiver-reported sleep disturbances in a sample of persons with early dementia. *J Am Geriatr Soc* 2010;**58**:480–6.
5. Komada Y, Nomura T, Kusumi M, Nakashima K, Okajima I, Sasai T, et al. Correlations among insomnia symptoms, sleep medication use and depressive symptoms. *Psychiat Clin Neurosci* 2011;**65**:20–9.
6. Wu CY, Su TP, Fang CL, Chang MY. Sleep quality among community-dwelling elderly people and its demographic, mental and physical correlates. *J Chin Med Assoc* 2012;**75**:75–80.
7. Manber R, Chambers AS. Insomnia and depression: a multifaceted interplay. *Curr Psychiat Rep* 2009;**11**:437–42.
8. Kaneita Y, Ohida T, Uchiyama M, Takemura S, Kawahara K, Yokoyama E, et al. The relationship between depression and sleep disturbances: a Japanese nationwide general population survey. *J Clin Psychiat* 2006;**67**:196–203.
9. Yokoyama E, Kaneita Y, Saito Y, Uchiyama M, Matsuzaki Y, Tamaki T, et al. Association between depression and insomnia subtypes: a longitudinal study on the elderly in Japan. *Sleep* 2010;**33**:1693–702.
10. Jansson-Fröjmark M, Lindblom K. A bidirectional relationship between anxiety and depression, and insomnia? A prospective study in the general population. *J Psychosom Res* 2008;**64**:443–9.
11. Naismith SL, Rogers NL, Lewis SJ, Terpening Z, Ip T, Diamond K, et al. Sleep disturbance relates to neuropsychological functioning in late-life depression. *J Affect Disord* 2011;**132**:139–45.
12. Hwang JP, Yang CH, Tsai SJ, Liu KM. Behavioural disturbances in psychiatric inpatients with dementia of the Alzheimer's type in Taiwan. *Int J Geriatr Psychiatry* 1997;**12**:902–6.
13. Cheng JS, Huang WF, Lin KM, Shih YT. Characteristics associated with benzodiazepine usage in elderly outpatients in Taiwan. *Int J Geriatr Psychiat* 2008;**23**:618–24.
14. Huang WF, Lai IC. Patterns of sleep-related medications prescribed to elderly outpatients with insomnia in Taiwan. *Drugs Aging* 2005;**22**:957–65.
15. Omvik S, Pallesen S, Bjorvatn B, Sivertsen B, Havik OE, Nordhus IH. Patient characteristics and predictors of sleep medication use. *Int Clin Psychopharmacol* 2010;**25**:91–100.

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