Insomnia and Its Comorbidities in Chronic Kidney Disease

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Sleep disorders are among the factors that can reduce the quality of life in patients with chronic kidney disease. Chronic kidney disease patients could benefit from an accurate evaluation and treatment of insomnia because this sleep disorder is associated with a high persistence-relapse rate, poor physical health, and mental disease (anxiety, depression) both in terms of comorbidity and antecedent. A multilayer evaluation of insomnia is possible because of valid and reliable instruments (both objective and subjective). Furthermore, a rational etiologic model of insomnia allows better understanding and treatment as a result of effective cognitive-behavioral techniques.

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Results of many studies indicate that sleep disorders can reduce the quality of life in patients with chronic kidney disease (CKD). The prevalence of sleep disorders among CKD patients has been estimated to be around 41% to 83% by questionnaire-based studies, the most frequent complaints being difficulty in falling asleep, difficulty in maintaining sleep, daytime sleepiness, and fatigue. Laboratory studies, using nocturnal polygraphic recordings, show that uremic patients suffer from sleep fragmentation, sleep apnea, and restless leg syndrome. Furthermore, sleep disorders, especially sleep apnea, could predict mortality in uremic patients. Even if the high prevalence rate of sleep disorders is acknowledged consensually, most of the questionnaire-based and polygraphic-based studies fail to evaluate the severity of the sleep problems. Whether the clinical relevance of the disorder was evaluated or not may to some extent explain the broad estimate of the prevalence of sleep complaints obtained by the different study reports. For example, insomnia symptoms are reported by 36% of the general population; however, when the weekly frequency and duration of symptoms are evaluated, the prevalence decreases to 9%. The need for an accurate evaluation of the presence of all diagnostic criteria for insomnia is not a mere methodologic issue, but has direct clinical relevance, as indicated by Devoto et al who, in a longitudinal study, found that the number of criteria satisfied in the first assessment (t0) predicts the Diagnostic and Statistic Manual of Mental Disorders IV Edition (DSM IV) diagnosis 4 months later. Namely, 80% of the patients who satisfied at least 2 DSM IV criteria at t0 showed a full insomnia syndrome at t1, whereas only 25% of the patients who satisfied 1 DSM IV criterion at t0 showed a full insomnia syndrome at t1.

Insomnia and Its Comorbidities

International classification systems (ie, DSM and International Classification of Sleep Disorders [ICSD]) state that a clinically relevant sleep disorder such as insomnia can be diagnosed if its symptoms occur for at least 1 month, with a weekly frequency greater than 2 instances, and if the symptoms negatively affect diurnal well-being. A full insomnia syndrome disorder has a relevant impact on health because (1) insomnia has a high persistence-relapse rate; (2) it is associated with poor physical health, frequent accidents at work and on the road, and high social and medical costs; and (3) it is associated with mental disease—both in terms of comorbidity and as an antecedent.

Insomnia Has a High Persistence-Relapse Rate

Examining a sample of 7,954 individuals from the general population, Ford and Kamerow® showed that after 1 year the persistence-relapse rate could be estimated at around 40%.

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study conducted in Zurich consisted of a sample of young adults interviewed 3 times (at ages 21, 23, and 28), and showed that 19% of the sample complained about insomnia twice and 4.8% complained about insomnia in all 3 interviews.9

Insomnia Is Associated With Poor Health and Well-Being

Severe insomnia is associated with chronic illness, such as congestive heart failure, obstructive airway disease, prostate problems, systemic hypertension, diabetes, and rheumatic diseases.10 After controlling for other risk factors, reduced or excessive total sleep time is associated with a higher mortality rate.11 Insomnia also is associated with increased accidents and work problems,12,13 is a strong predictor of absenteeism,14 and is associated with poor job satisfaction and work efficiency.13,15 Furthermore, different studies report that insomnia is associated with increased use of medical services.15-17 Compared with good sleepers, insomniacs visit their general practitioners and other health professionals significantly more often, use more medications, and are hospitalized more often.13 In CKD patients, a recent study1 using a questionnaire that considers the DSM IV and ICSD combined criteria for insomnia,18 showed that in a sample of 140 patients in hemodialysis, the prevalence of the full insomnia syndrome is greater than that of the general population (40%), whereas only 15% of the sample declared they had no sleep complaint.

Insomnia Is Associated With Mental Disease Both in Terms of Comorbidity and as an Antecedent

Cross-sectional studies indicate that insomnia is associated highly with affective disorders (14%-31%), anxiety (26%-36%), and psychosomatic diseases.8,10,20 Prospective epidemiologic studies indicate that disturbed sleep is a risk factor for depression and anxiety disorders.8,20,21

The Evaluation and Treatment of Insomnia

“Getting a good night’s sleep is as important for our patients as we think it is important for our children.”22 However, insomnia often is overlooked by both patients and health professionals. In the Italian general population, most patients reporting insomnia symptoms consider them personal characteristics rather than a disease.23 In the United States, few general practitioners inquire about their patients’ sleep and most of them do not inquire about potential causes, perhaps because of a lack in basic knowledge, training, and updates on sleep disorders.24,25

Notwithstanding this, the diagnosis and treatment of insomnia is not very difficult because brief and valid questionnaires and computer aided interviews are available for the screening, and ICSD-based clinical interviews, sleep diaries, and actigraphic or polysomnographic ambulatory recordings are available for an accurate multilayer evaluation and diagnosis.18,26 Furthermore, the understanding and treatment of insomnia now is improved by a better knowledge of the physiologic mechanisms regulating sleep. A rational etiologic model for primary insomnia27,28 indicates that insomnia stems from the interaction of 3 main factors: predisposing factors (eg, an insomniac parent, hyperarousability), precipitating factors (eg, work and family stress), and perpetuating factors (eg, irregular sleep-wake schedules).

With regard to the role of perpetuating factors of insomnia on CKD patients, Lucidi et al29 studied 70 CKD patients in hemodialytic treatment with regular schedules (18 had dialysis in the morning, 19 in the afternoon) and asked them to report their sleep parameters (time in bed, light off, final awakening, and so forth) in a sleep log for 14 consecutive days. Results showed that patients enrolled in the dialytic treatment in the morning reported greater wakefulness after sleep onset, shorter total sleep time, and a lower sleep efficiency index compared with those who received dialysis in the afternoon. Comparing the sleep parameters of the nights before, after, and free from dialysis, the results indicated that the dialytic schedule, similar to shift work, negatively affects the sleep/wake cycle and thus increases the risk for developing a chronic sleep disorder. For the treatment of chronic insomnia, beside effective pharmacologic treatments, a wide range of behavioral-cognitive treatments (BCTs) have been developed such as stimulus control,30 sleep restriction,31 sleep hygiene,32 and behavioral-cognitive techniques.27 There is a consensus agreement that these techniques are the most suitable treatment for chronic primary insomnia33 and their effectiveness is documented by both randomized clinical trials and meta-analyses.34-36 The results of a recent meta-analysis37 comparing BCTs and pharmacologic treatments showed that BCT is more effective than pharmacologic treatments in reducing sleep-onset latency. Furthermore, long-term results obtained through BCTs are better than pharmacologic treatment as indicated by experimental studies.38,39

Conclusions

The results of the literature reviewed earlier indicate that BCTs for primary insomnia are effective, and sometimes even more effective than pharmacologic treatments. However, the question of whether BCT also is effective for insomnias secondary to medical or psychiatric disorders still must be studied. Outcome studies and case reports showed positive results in reducing insomnia symptoms secondary to chronic pain.40-42 Lichstein et al43 reported that elderly patients with insomnia secondary to medical and psychiatric disorders showed significant improvements both in objective sleep-onset latency and sleep efficiency index and in the subjective quality of sleep. Thus, even if to our knowledge no data are available on the effectiveness of BCT for sleep disorders in CKD patients, the results of the studies reviewed earlier are encouraging.
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