INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563
eISSN 2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 11, issue 02 (2024)

SOME PHARMACOLOGICAL PRINCIPLES OF INSOMNIA THERAPY

Zagrutdinov Fanil Faridovich

Senior teacher of ASMI

Abstract: Pharmacotherapy of insomnia is an integral part of the treatment of this clinical syndrome. The range of drugs used for sleep disorders is very wide, and not all of them belong to "true" sleeping pills, but are often representatives of different classes of psychotropic drugs. Modern sleeping pills, if the necessary rules are observed, make it possible to obtain the necessary hypnotic effect, not accompanied by negative changes in the structure of sleep and the quality of subsequent wakefulness.

Keywords: Insomnia, pharmacotherapy, hypnotics, cognitive behavioral therapy, benzodiazepine receptor agonists.

INTRODUCTION

Numerous studies conducted in different countries indicate a steady increase in the proportion of people suffering from sleep disorders. Among the various types of sleep disorders, the leader, of course, is insomnia, the prevalence of which in the population is estimated at 9–15% [1]. In addition to the destructive effect on human health, insomnia has a significant negative impact on the socio-economic side of human life [2].

MATERIALS AND METHODS

According to the International Classification of Sleep Disorders, 3rd revision, published in 2023, insomnia is defined as a syndrome characterized by the presence of recurrent disturbances in the initiation, duration, consolidation or quality of sleep, occurring despite the availability of sufficient conditions and amount of time for sleep, and manifested by various disturbances in daytime activities [3].

RESULTS AND DISCUSSION

Despite significant advances in understanding the neurobiology of sleep and wakefulness, treating insomnia remains a challenge. About 40% of patients with chronic insomnia do not achieve stable remission of symptoms [4]. Moreover, insomnia often has the features of a comorbid disease that develops against the background of mental problems (depressive and bipolar, anxiety and panic disorders, disorders after psychological trauma, schizophrenia), somatic diseases (diabetes, chronic obstructive pulmonary disease, chronic kidney disease, HIV infection, tumors, rheumatic diseases, chronic pain, obstructive apnea syndrome), neurological damage (neurodegenerative diseases and consequences of injuries, fatal familial insomnia, cerebrovascular diseases, restless leg syndrome, multiple sclerosis), exposure to recreational agents (caffeine, alcohol , nicotine, marijuana, opiates, cocaine, amphetamines) [2]. A special group consists of insomnia disorders that occur while taking medications. They are not always associated with their direct activating effect on the central nervous system, but the effects they cause may somehow disturb sleep. The most often discussed "culprits" are [3]:

- Psychostimulants (caffeine).
- Nootropics (piracetam, phenylpiracetam, pyritinol).
- Stimulating antidepressants (moclobemide, imipramine, St. John's wort preparations, etc.).

■ Activating antipsychotics (sulpiride, flupentixol, etc.).

■ Hormonal drugs (glucocorticoids), antiarrhythmic drugs (phenytoin), vitamins (high doses of ascorbic acid), high doses of succinic acid, etc.

■ Antihypertensive drugs (alpha and beta blockers).

■ Respiratory medications (theophylline, salbutamol).

■ Decongestants (pseudoephedrine, phenylephrine).

■ Diuretics.

Melatonin and melatonin receptor agonists

Melatonin plays many roles in the body, among which regulation of the process of falling asleep, circadian rhythm and temperature is of great importance. Three types of melatonin receptors have been identified - MT1, MT2 and MT3, belonging to the family of G-protein coupled receptors. Activation of melatonin receptors is associated with inhibition of adenidate cyclase and a decrease in intracellular cAMP levels.

Antidepressants

The most commonly discussed antidepressants for the treatment of insomnia are trazodone and doxepin. Trazodone selectively inhibits serotonin reuptake in the brain and acts as a 5-HT2A/2C serotonin receptor antagonist.

Orexin receptor antagonists

Orexins are neuropeptides of two types (A and B), produced by neurons in the posterior hypothalamus. The level of orexins in the central nervous system varies depending on the circadian rhythm. There are two types of receptors for these protein neurohormones – OX1 and OX2, through which food intake, the sleep-wake cycle and energy expenditure are regulated. Clinical studies of the orexin receptor antagonist suvorexant showed its ability to reduce the latent period of falling asleep by 6–9 minutes and increase the total duration of sleep by 16–22 minutes with a slight improvement in sleep quality [3].

CONCLUSION

Thus, effective correction of night sleep parameters with the help of modern sleeping pills is possible and - if the necessary rules are followed - is not accompanied by negative changes in the structure of sleep and the quality of subsequent wakefulness. The results of domestic and foreign studies suggest that normalizing sleep during insomnia neutralizes its negative impact, increases a person's adaptive capabilities and helps prevent the development of chronic sleep disorders with their serious adverse consequences.

REFERENCES

1. American Academy of Sleep Medicine. Inter- national classification of sleep disorders, 3 ed.: Diagnostic and coding manual. Westchester, Ill.: American Academy of Sleep Medicine, 2014.

2. Riemann D, Nissen C, Palagini L et al. The neu- robiology, investigation, and treatment of chronic insomnia. The Lancet Neurology, 2015, 14(5): 547-558.

3. Riemann D, Baglioni C, Bassetti C et al. Euro- pean guideline for the diagnosis and treatment of insomnia. J Sleep Res, 2017, 26(6): 675-700.

4. Dean GE, Weiss C, Morris JL, Chasens ER. Impaired sleep: A multifaceted geriatric syndrome. Nurs Clin N Am, 2017, 52(3): 387-404.