

## Sleep Disorders in Patients with Arterial Hypertension

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**Annotation:** The review is devoted to a relevant and socially significant problem of modern healthcare. As a result of studying 25 literary sources, the state of the issue of how healthy sleep affects blood pressure, and what is the connection between poor quality sleep and arterial hypertension, was analyzed. With sleep disturbance, full, healthy wakefulness is impossible, since the body simply does not have enough strength for normal life. Increased blood pressure (IB) is one of the first disorders that result from poor quality night sleep.

**Objective:** To study the structure and characteristics of sleep disorders in patients with arterial hypertension and to develop optimal treatment.

**Keywords:** sleep disorder; sleep neurophysiology; brain structures, arterial hypertension, treatment correction.

**Subject of the study.** An in-depth study of neurological symptoms will be conducted, scales for assessing the psychoemotional and cognitive status, neurophysiological (EEG, polysomnography) and neuroimaging (MRI of the brain, with centralization of the hippocampus and hypothalamic region, MRA of the cerebral vessels) studies will be used, ways of optimal correction of sleep disorders in hypertension will be developed depending on the obtained research results.

**Conclusion:** The study of the clinical structure of sleep disorders and its impact on the neurological aspects of symptom development in hypertension, the study of neurophysiological features of changes in sleep structure in hypertension in comparison with conditionally healthy people, a comparative analysis of neurophysiological, psychoemotional, cognitive changes in sleep disorders in patients with hypertension will allow developing ways to optimally correct dysomnia in hypertension.

**Relevance of the topic.** Sleep disturbance is one of the main causes of deterioration in the quality of life, not only in the presence of pathology, but also in healthy people. According to the results of a WHO study (2016), chronic and frequent sleep disturbances lead to the development of moderate and later severe cognitive impairment. Chronic lack of sleep, inadequate or defective sleep, disruption of sleep structure can also significantly worsen general health, psycho-emotional state, and also aggravate the existing pathological condition in any patient. Sleep disorders can be primary or secondary, resulting from various psychiatric and medical conditions.

Primary is the result of endogenous disorders that generate sleep-wake cycles, biorhythms, and is often complicated by behavioral conditions that are more common in women than in men (3:2). An example of this is hormonal changes in women - during the menstrual cycle, in addition, menopause leads to disruptions in sleep patterns. An example of this is hormonal changes in women - during the menstrual cycle, in addition, menopause leads to disruptions in sleep patterns. Obstructive sleep apnea syndrome (OSA) is more common in men (4%) than in women (2.5%). The International Classification of Sleep Disorders (ICSD-2) presents more than 100 different causes and variants of sleep disorders, including insomnia, sleep breathing disorders, hypersomnia, circadian rhythm sleep disorder, parasomnias, sleep movement disorders and others (2017).

Arterial hypertension (AH) is one of the most common cardiovascular diseases. The overall prevalence of AH among the adult population is about 30-45% and has a constant tendency to increase. To date, a large number of well-tolerated, reliable and effective measures have been developed that are aimed at modifying lifestyle and using drugs to correct blood pressure and treat AH. However, blood pressure control remains inadequate worldwide, and is far from perfect in European countries. Despite the

existing effective recommendations for the introduction of patients with AH, it remains the leader among modifiable causes of cardiovascular and general mortality worldwide. Therefore, there is a need for ongoing study of the problem of prevention and correction of arterial hypertension. The development of AH is a complex process of interaction of a huge number of factors, both external and internal in the body. The unknown number of these factors, as well as the dynamism of many of them, do not currently allow creating a full-fledged concept of the development of this disease. However, with the emergence of new directions in medicine, a re-evaluation of known but previously poorly studied conditions, it became possible to come closer to understanding this complex process and subsequently develop methods that will help improve the quality of life of patients with this pathology.

Sleep is a complex set of brain processes that supports human physiological needs, part of the sleep-wake cycle, consisting of 8-hour night sleep and 16-hour daytime wakefulness, and controlled by a combination of two internal influences: sleep homeostasis and circadian rhythms. For many years, the problem of sleep disorders in healthy people and in patients with various diseases has been studied, but the true physiology of sleep in various diseases, how and for what reason the sleep structure changes in cerebrovascular pathology, what differentiating criteria are there when studying the sleep structure in patients with hypertension, whether the duration of the disease, the level of blood pressure increase, the stages of hypertension development affect the sleep structure, and how the cognitive function of the brain changes in these conditions. There are no specific methods for studying the structure of sleep that would assess the essence of its pathology, and criteria that could draw a clear line between the physiology and pathology of sleep. It has been proven worldwide that age predisposes to sleep disorders (at the age of 30-50 years - 5%, from 50 years and older, the number of people suffering from insomnia reaches 30%). This is due to a decrease in the total sleep time, more frequent awakenings at night, the presence of somatic pathology, the use of various medications. Stressful or tragic situations, shift work, change of time zones, changes in the altitude of residence can disrupt the sleep cycle and cause insomnia even in young people.

According to the National Institutes of Health (NIH), the incidence of sleep disorders in the US population is 6-10%, and among patients with neurological pathology it reaches 40-83%, depending on the form of the disease. One third of Americans report sleep disorders - from 20% to 40% of adults complain of sleep problems annually, of which about 17% consider it a serious condition.

Frequent causes of sleep disorders are somatic diseases, the most significant of which are cardiovascular diseases (hypertension, ischemic myocardial disease and chronic heart failure). Pathological conditions of the heart, accompanied by rhythm disturbances and leading to serious insomnia are a separate major problem that should be studied under an independent category. In this research work, we plan to study the current problem of insomnia in a common pathology that neurologists encounter due to the development of various neurological complications - encephalopathy, acute and chronic cerebral blood flow disorders, cognitive dysfunction, etc., and which should be considered in matters of etiopathogenesis, clinical course, diagnosis and therapy together with therapists and cardiologists - this is hypertension. According to WHO reports (2016), cardiovascular diseases (CVD) still remain the leading cause of death worldwide - more than 17 million deaths from the total number of chronic non-communicable diseases (NCD), of which more than 7 million are associated with coronary heart disease (CHD) and more than 6 million are caused by stroke. In order to achieve a 25% reduction in the risk of premature death from noncommunicable diseases by 2025, as the WHO global goal, it is necessary to identify modifiable factors, one of which is high-quality healthy sleep.

Based on the above data, at present, in the period of globalization and rapid development of the material and technical medical base and modernization, the growth of NCDs, including CVD, the chosen topic is of significant relevance in the scientific and medical world, and its study in the Bukhara region gives an even more significant level, due to unstable weather and environmental conditions. In recent decades, there have been significant changes in the health status and nature of the pathology of the population of most economically developed countries. There is a steady trend towards a decrease in mortality from a number of infectious and parasitic diseases, a significant increase in the

proportion of so-called chronic non-communicable diseases: coronary heart disease (CHD), stroke, cancer, bronchopulmonary pathology, diabetes mellitus (DM). Another steady trend in recent decades has been a decrease in overall mortality (OM) in many countries of the world, a decrease in mortality from diseases of the circulatory system (DSC) and especially from stroke. The following evolution of vascular lesions of the brain is noted: at the beginning of the previous century, stroke was a more frequent pathology than heart disease, and cerebral hemorrhages predominated in its structure. Later, the proportion of ischemic stroke (IS) began to increase, the number of patients with IHD increased, and became more numerous than those with acute cerebrovascular accidents (ACVA). An analysis of the mortality structure of the population of the Republic of Uzbekistan (RU) in 2008 shows that it corresponds to that in other economically developed countries. In RU, the dominant place is currently occupied by 3 groups (gr.) of diseases: vascular lesions of the heart, cerebrovascular diseases (CVD), external causes (poisoning, injuries, etc.) and malignant neoplasms, which together account for  $\frac{3}{4}$  of all deaths. According to official statistics, the mortality rate from CVA remains high - 56% of all deaths. Of these, among other cardiovascular diseases (CVD), ischemic heart disease accounts for 47%, the proportion of mortality from CVD is 38%. It is known that arterial hypertension (AH) and excess body weight (OBW) play a decisive role in the development of severe complications of CVD. These factors are triggers for the development of the cardiovascular continuum, and their inadequate correction leads to the occurrence of acute forms of ischemic heart disease and cerebral stroke (CS). AH is the most important, well-studied and correctable risk factor (WHO). Epidemiological studies conducted in various regions of the Republic of Uzbekistan over the past 20 years indicate an extremely high prevalence of AH. According to a survey of a representative sample, the age-standardized prevalence rate of AH in Uzbekistan is 38.6% among men and 44.8% among women. In men and women, there is a clear increase in the frequency of hypertension with age, although hypertension is more often observed in men before the age of 40, and in women after the age of 50. There is a direct continuous relationship between the level of arterial pressure (BP) and the risk of CVD: the higher the systolic (SBP) and/or diastolic BP (DBP) (in all ranges of their value, starting from 115/75 mm Hg), the higher the risk of developing myocardial infarction (MI). In this regard, determining the threshold level of BP, below which there is no risk, is in principle impossible. Therefore, the criteria for diagnosing hypertension by BP level are conditional, based mainly on the results of studies on the prevention of cardiovascular complications (CVC) and are periodically corrected. Excessive MT is associated with increased BP, carbohydrate and lipid metabolism disorders. According to WHO recommendations, excess weight should be assessed by the BMI index, which is calculated using the formula: weight (kg) divided by height (m<sup>2</sup>). A BMI of 20-25 kg/m<sup>2</sup> is considered normal, the initial form of obesity (Obesity) (overweight) is indicated by a BMI of 26-29 kg/m<sup>2</sup>, and the clinical form of Obesity is indicated by a BMI > 30 kg/m<sup>2</sup>. Knowledge of the topography of adipose tissue in the body is important for prognosis. Central (abdominal) and peripheral (gluteal-femoral) obesity are distinguished. Central obesity (AO) with fat deposition in the abdominal cavity is especially unfavorable in terms of the prognosis of CVD development. Unlike peripheral obesity, it is characterized by high intensity of lipolysis, which leads to an increased concentration of free fatty acids (FFA) in the plasma. AO is determined by the ratio of waist circumference (WC) to hip circumference (HC). AO is defined as  $WC/OB > 0.85$  in women and  $> 1.0$  in men ( $WC > 102$  cm in men and  $> 88$  cm in women). The best method for assessing the distribution of adipose tissue in the body is X-ray or magnetic resonance imaging (MRI) of the abdominal cavity. It should be recognized that the clinical picture and course of these pathologies have been well studied, and existing recommendations imply continuous drug correction aimed at achieving the target.

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