diagnosis of AH was set according to the recommendations of the International Society of Hypertension (ISH), 2020. The diagnosis of T2DM and obesity was based on clinical, instrumental, and biochemical criteria according to the recommendations of WHO experts and the European Society of Endocrinology. A comparative analysis of the use of different treatment regimens for patients with hypertension, concomitant type 2 diabetes and obesity using the angiotensin-converting enzyme inhibitor ramipril and the angiotensin II receptor blocker telmisartan was conducted.

**Results.** It was found that following antihypertensive treatment for three months, the levels of systolic blood pressure (SBP) (by 19.6%), diastolic blood pressure (DBP) (by 15%), and heart rate (HR) (by 9%) decreased significantly. As for echocardiographic characteristics, the following levels decreased: EDV by 25.5%, ESV by 17.3%, EDD by 24.0%, LVMM by 8.3%; EF increased by 6% compared to the pretreatment values.

**Conclusions.** Treatment of arterial hypertension in patients with type 2 diabetes mellitus and obesity with ramipril or telmisartan as standard therapy has demonstrated a positive effect on the structural and functional parameters of the left ventricle and ejection fraction, which may subsequently prevent the development and progression of vascular complications.

**Key words:** arterial hypertension, type 2 diabetes mellitus, obesity, ramipril, telmisartan.

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**Conflicts of interest:** Author has no conflict of interest to declare.

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Received 20.11.2022
Accepted 03.05.2023

**DOI** 10.29254/2077-4214-2023-2-169-215-220
**UDC** 616.891.6:616.8-009.836

**Zhyvotovska A. I., Isakov R. I.**

**PECULIARITIES OF CLINICO-PSYCHOPATHOLOGICAL MANIFESTATIONS AND SLEEP QUALITY IN PATIENTS WITH ANXIETY DISORDERS DEPENDING ON THE LEVEL OF STRESS LOAD**

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**Modern scientific studies indicate a close connection between psychological distress, anxiety and impaired sleep quality.** The assessment of psychopathological symptoms and components of sleep disorders in 81 patients with anxiety disorders of neurotic origin was carried out using clinical-psychopathological, psychodiagnostic and statistical methods. The psychodiagnostic method included the use of the Psychological stress measure (PSM-25), the Symptom Check List-90-Revised (SCL-90-R) and the Pittsburgh Sleep Quality Index (PSQI). All respondents, depending on the level of psychological stress, were divided into 3 groups, representative by age and gender: 1st group (n=25) – patients with a low level of stress, 2nd group (n=29) – with an average level, 3rd group (n=27) – with a high level of stress. In patients of group 1, indicators on all scales of the SCL-90-R questionnaire were significantly lower than in group 2 (p<0,05) and group 3 (p<0,01). Significant differences were found between group 1 and groups 2 and 3 on the PSQI total score and on the scales of subjective sleep quality, sleep latency, sleep duration, and sleep efficiency. Significantly higher indicators were found in group 3 compared to group 1 on the daily dysfunction scale. The severity of obsessive-compulsive symptoms, additional symptoms, hostility, interpersonal sensitivity, and phobic anxiety had a positive correlation with deterioration in sleep duration, subjective sleep quality, sleep efficiency, sleep latency, and daytime dysfunction according to the PSQI (p<0,01). Disturbances during sleep were positively correlated with the somatization index. The obtained data should be taken into account when conducting personalized pharmacotherapy and psychocorrection of this cohort of patients.

**Key words:** anxiety disorders, sleep disturbances, the level of stress load, psychopathological symptoms.
Connection of the publication with planned research works.

The paper is an excerpt from the initiative scientific research project of the Department of Psychiatry, Narcology and Medical Psychology at PSMU, entitled “Clinical and Psychopathological Investigations and Optimization of Therapeutic and Rehabilitation Measures for Major Mental Pathologies and Comorbid Disorders” (State registration number 0121U108235).

Introduction.

Stressful events are common in our everyday lives; however, they have an adverse impact on the brain and behavior, neuroendocrine and immune systems, leading to complex changes in the body. Anxiety is a prevalent neurobehavioral correlate of various stressors [1, 2].

According to epidemiological studies, 1.0-5.2% of the population suffers from anxiety disorders, and within the structure of mental and behavioral disorders, the prevalence of anxiety disorders accounts for 13.6% [3]. American researchers have reported that anxiety disorders are observed in approximately 34% of adult population in the United States throughout their lifetime and are associated with significant distress and dysfunction [4].

Recent research shows that stress in early life is associated with an increased risk of developing affective disorders, including anxiety disorders, in adulthood. The relationship between stress, the hypothalamic-pituitary-adrenal axis function, and generalized anxiety disorder, panic disorder, and phobias has been investigated, as well as the role of early-life stress as an important risk factor for hypothalamic-pituitary-adrenal axis dysfunction [5]. Disorders associated with anxiety range from limitations in role functioning to disability, for example, where a patient is unable to return home [6]. Common mental health disorders, including anxiety, depression and sleep disorders are among the major components of the global economic burden [7].

Insomnia is the second most prevalent psycho-neurological disorder. British researchers report that the prevalence of insomnia has nearly doubled in the past 15 years, and this increase is supported by other longitudinal studies. In individuals, who are prone to sleep disturbances in response to stressful situations, a heightened sleep reactivity and the development of insomnia is noted. People with high sleep reactivity are also more susceptible to experiencing depression and anxiety disorders [8].

It has been found that fragmented sleep interferes with the restorative processing that underlies the adaptation to emotional distress during the night. Pronounced sleep fragmentation can lead to nocturnal amplification of emotional distress and activation of the amygdala [9]. Stressful life events for which individuals feel responsible are more likely to result in sleep disturbances compared to events that are beyond their control. This indicates that emotions such as guilt, shame and embarrassment are more sensitive in investigating emotional processing in sleep disorders than basic emotions [10].

Sleep disorders, especially insomnia, occur in approximately 50% of individuals with anxiety, and insomnia can either trigger or further intensify anxiety [11]. Sleep and circadian rhythm disturbances fundamentally impact the body’s homeostatic systems at the inter-section of the peripheral and central regulatory pathways, similar to acute or chronic stress, and, therefore, may play a significant role in the development of psychoemotional disorders [12, 13]. Insomnia significantly increases the risk of mental disorders, including anxiety disorders. The prognostic effect of poor sleep quality on health problems is stronger than the prognostic effect of short sleep duration [14, 15]. While sleep performs important regulatory functions for mental health, sleep disturbances result in a state of allostatic load, disrupting brain neuroplasticity and stress resilience pathways, and becoming a risk factor for psychiatric disorders [16].

The aim of the study.

The paper was aimed at the assessment of psycho-pathological symptoms and components of sleep disturbances in patients with anxiety disorders and varying levels of stress load for optimizing therapeutic and psychocorrectional approaches.

Object and research methods.

81 patients, including 41 females and 40 males, with anxiety disorders of neurotic origin and sleep disturbances have been involved into the study, made at the Municipal enterprise “Regional institution for providing psychiatric assistance of Poltava regional council” during 2021-2022. The study was conducted in accordance with the Helsinki Declaration of the World Medical Association on ethical principles for medical research involving human subjects (2008). The inclusion criteria for participation in the study were as follows: informed consent from the patients to undergo clinico-psycho-pathological and psychodiagnostic examinations, age between 21 and 59 years, a diagnosed anxiety disorder of neurotic origin, and a Pittsburgh Sleep Quality Index (PSQI) score above 5. The study did not include patients with severe somatic pathology or at the stage of decompensation, individuals with mental and behavioral disorders due to use of psychoactive drugs, patients with organic CNS lesions and a diagnosed post-traumatic stress disorder. According to the ICD-10, adaptation disorders (F43.22, F43.23) were diagnosed in 18 subjects, panic disorder (F41.0) in 8 subjects, generalized anxiety disorder (F41.1) in 14 subjects, mixed anxiety and depressive disorder (F41.2) in 29 subjects, other anxiety and phobic disorders (F40.8) in 5 subjects, other mixed anxiety disorders (F41.3, F41.8) in 7 subjects. The duration of the illness ranged from 2 months to 5 years.

The examination was conducted using the clinico-psychopathological, psychodiagnostic and statistical methods. The clinico-psychopathological method was used to analyze anamnestic data, to assess the mental state, to establish the peculiarities of the clinical picture and the course of the pathological process. The study of the phenomenological structure of stress experiences was carried out using the Psychological Stress Measure (PSM-25) scale, developed by L. Lemire, R. Tessier, and L. Fillion in 1990 [17]. The questionnaire consists of 25 items that characterize a person’s mental state and are evaluated on a Likert scale ranging from 1 (“never”) to 8 (“every time” or “daily”). The sum of all responses determines the integral indicator of psychological stress (IPS), where the IPS scores above 155 show a high level of stress, indicating maladaptation and psychological discomfort; scores between 100 and 154 indicate a moderate level of stress; and scores below 100 indicate a low level of stress and psychological adaptability to the de-
To assess the severity and structure of the patients’ psychopathological symptoms, the Symptom Checklist-90-Revised (SCL-90-R), developed by L.R. Derogatis in 1994, was used. It consists of 90 items that are evaluated on a 5-point scale ranging from 0 (“not at all”) to 4 (“extremely”). All questionnaire items are grouped into several scales: the global severity index, the distress severity index, positive symptom distress index, somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychotism, and additional symptoms [18].

The Pittsburgh Sleep Quality Index (PSQI, 1989) was used to analyze seven components: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication and daytime dysfunction. Each component was evaluated on a scale from 0 to 3, reflecting the degree of disturbance for each component, and a total score above 5 indicates poor sleep quality [19]. Differences in the distribution of variables in the independent groups were analyzed using non-parametric tests (Wilcoxon’s W test, Spearman’s correlation, Kruskal-Wallis H test) and parametric tests (Student’s t-test). The critical level of statistical significance for all types of analysis was set at p<0.05. Data analysis was performed using the IBM SPSS Statistics V.27.0 software.

**Research results and their discussion.**

All respondents have been divided into 3 groups based on the IPS scores obtained from the PSM-25 scale, representative of age and gender. Group 1 included 31% individuals (25/81) with a low level of stress, Group 2 included 36 individuals (29/81) with a moderate level of stress, and Group 3 included 33 individuals (27/81) with a high level of stress. All patients exhibited manifestations of unexplained anxiety, feelings of internal tension, discomfort, irritability, somatic-vegetative symptoms, sleep disturbances. Among the examined individuals, 36% (29/81) showed symptoms of anxiety-phobic disorders, and 12% (10/81) experienced panic attacks accompanied by increased blood pressure, tachycardia, shortness of breath and fear of death or loss of control.

Significant differences were observed in the intergroup comparisons for almost all psychopathological symptoms according to the SCL-90-R questionnaire. The scale ratings based on the SCL-90-R questionnaire in patients with anxiety disorders, depending on the level of stress load, are shown in figure. In the majority of individuals in Group 3, moderate or elevated scores were observed across most scales, while patients in Groups 1 and 2 predominantly showed low to moderate levels of symptom expression. The lowest scores for the global severity index (GSI) were found in patients in Group 1 compared to Groups 2 and 3 (p<0,001), and the GSI score was significantly higher in Group 3 compared to Group 2 (p=0,02). Positive symptom index (PSI), which reflects the number of positive responses, was the lowest in Group 1 patients (27,12±4,9) compared to Group 2 (35,28±7,3) and Group 3 (36,11±4,6) patients (p<0,001). The positive symptom distress index (PSDI) which measures the intensity of psychopathological manifestations, was significantly lower in Group 1 patients compared to Group 2 (p=0,002) and Group 3 (p=0,001), while the difference between Groups 2 and 3 was less pronounced (p=0,041).

In patients of Group 1, the scores on all scales were significantly lower compared to patients in Group 2.
According to the Pittsburgh Sleep Quality Index, the total PSQI score (p<0.001), additional symptoms (r=0.713, p<0.001), global severity index (r=0.692, p<0.001), positive symptom distress index (r=0.642, p<0.001), phobic anxiety (r=0.613, p<0.001), hostility (r=0.595, p<0.001), interpersonal sensitivity (r=0.549, p<0.001) and depression (r=0.535, p<0.001) were significantly higher in patients of Group 1 compared to individuals in Group 2 and Group 3. The highest number of positive correlations was observed between the scores of O-C, ADD, HOS, INT and sleep quality indices such as sleep duration (p<0.01), subjective sleep quality (p<0.01), sleep efficiency (p<0.01), sleep latency (p<0.05), daytime dysfunction (p<0.05) and use of sleeping medications (p<0.05). The significant positive correlations were observed between PHOB and sleep duration, subjective sleep quality, sleep latency, sleep efficiency, and daytime dysfunction (p<0.01), as well as the moderate correlation between DEP and daytime dysfunction, use of sleeping medications, sleep duration, sleep efficiency and subjective sleep quality (p<0.01). Weak positive correlations were found between SOM and the total PSQI score (p=0.002), sleep disturbances (p=0.007), daytime dysfunction (p=0.008), subjective sleep quality (p=0.009) and sleep duration (p=0.016).

A study conducted by Chinese researchers demonstrated that psychological distress was more pronounced in patients with insomnia than in controls. When comparing scores on the SCL-90-R scale, it was found that somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, and global severity index were significantly higher in the insomnia group compared to the control group [20]. Similar results were obtained during our study in the group of patients with anxiety disorders and sleep disturbances, where an increase in the level of stress load was associated with intensified symptoms of O-C, ADD, HOS, INT, PHOB and DEP. Similarly, research conducted among healthcare workers during the COVID-19 pandemic in 2019 showed that approximately one-third of the

| Table 2 – Correlation between the sleep quality scores and psychopathological symptoms in patients with neurotic anxiety disorders |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Score                           | Subjective sleep quality         | Sleep latency                    | Sleep efficiency                | Sleep disturbances              | Use of sleeping medication        | Daytime dysfunction              | Total PSQI Score                  |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| GSI                             | 0.559**                          | 0.408**                          | 0.549**                          | 0.418**                          | 0.131                           | 0.348**                          | 0.402**                          | 0.692**                          |
| PST                             | 0.418**                          | 0.357**                          | 0.408**                          | 0.247**                          | 0.101                           | 0.317**                          | 0.341**                          | 0.540**                          |
| PSDI                            | 0.533**                          | 0.350**                          | 0.536**                          | 0.469**                          | 0.111                           | 0.281**                          | 0.300**                          | 0.642**                          |
| SOM                             | 0.287**                          | 0.123                           | 0.267**                          | 0.188                           | 0.297**                          | 0.082                           | 0.291**                          | 0.339**                          |
| O-C                             | 0.606**                          | 0.358**                          | 0.619**                          | 0.496**                          | 0.118                           | 0.314**                          | 0.530**                          | 0.748**                          |
| INT                             | 0.456**                          | 0.238**                          | 0.473**                          | 0.361**                          | 0.119                           | 0.265**                          | 0.480**                          | 0.595**                          |
| DEP                             | 0.327**                          | 0.210                           | 0.342**                          | 0.329**                          | 0.112                           | 0.398**                          | 0.417**                          | 0.555**                          |
| ANX                             | 0.479**                          | 0.458**                          | 0.357**                          | 0.275**                          | -0.201                          | 0.271**                          | 0.152                           | 0.454**                          |
| HOS                             | 0.476**                          | 0.364**                          | 0.503**                          | 0.392**                          | 0.190                           | 0.300**                          | 0.219**                          | 0.600**                          |
| PHOB                            | 0.522**                          | 0.440**                          | 0.547**                          | 0.407**                          | 0.031                           | 0.196                           | 0.288**                          | 0.610**                          |
| PAR                             | 0.310**                          | 0.346**                          | 0.382**                          | 0.264**                          | 0.071                           | 0.257**                          | 0.139                           | 0.440**                          |
| PSI                             | 0.265**                          | 0.257**                          | 0.157                            | 0.220**                          | -0.016                          | 0.135                           | 0.260**                          | 0.325**                          |
| ADD                             | 0.516**                          | 0.483**                          | 0.587**                          | 0.502**                          | 0.017                           | 0.332**                          | 0.348**                          | 0.713**                          |

Notes: ** – at p<0.05; *** – at p<0.01; GSI – global severity index, PSDI – positive symptom distress index, SOM – somatization, O-C – obsession-compulsion, INT – interpersonal sensitivity, DEP – depression, ANX – anxiety; HOS – hostility; PHOB – phobic anxiety, PAR – paranoid ideation, PSY – psychotism, ADD – additional items.
respondents suffered from sleep problems and mental disorders, predominantly in the form of obsession-compulsion and additional symptoms according to the SCL-90-R scale [21].

A study of Swedish adolescents aged 15 to 19 years demonstrated moderate correlations between the overall sleep quality (PSQI) and psychological symptoms (GSI) (p=0.44), as well as perceived stress (PSS-14) (p=0.48). In our study, which involved adult participants, a significant positive correlation between the total PSQI score and GSI (r=0.692, p<0.001) was found [22].

Conclusions.
Thus, patients with anxiety disorders and sleep disturbances showed significant differences in the expression of clinical and psychopathological manifestations depending on the level of psychological stress. As the level of stress increased, the severity of psychopathological symptoms increased across all scales of the SCL-90-R questionnaire. Patients with high levels of psychological stress had significantly higher scores than individuals with low and moderate levels on the total PSQI score and scales of subjective sleep quality, sleep latency, sleep duration and sleep efficiency (p<0.05).

Significant worsening of sleep duration, subjective sleep quality, sleep efficiency and daytime dysfunction was observed with the expression of psychopathological symptoms such as obsession-compulsion, additional symptoms, hostility, interpersonal sensitivity and phobic anxiety according to the PSQI (p<0.01). Sleep disturbances were positively correlated (p<0.01) with the somatization score. The findings of the study should be taken into account when implementing personalized pharmacotherapy and psychocorrection strategies for this cohort of patients.

Prospects for further research.
The perspectives of further research will encompass the study of predictors of sleep disturbances in anxiety disorders to improve therapeutic and preventive interventions.

References
PECULIARITIES OF CLINICO-PSYCHOPATHOLOGICAL MANIFESTATIONS AND SLEEP QUALITY IN PATIENTS WITH ANXIETY DISORDERS DEPENDING ON THE LEVEL OF STRESS LOAD

Zhyvotovska A. I., Isakov R. I.

Abstract. Modern scientific studies indicate a close connection between psychological distress, anxiety and impaired sleep quality. The purpose of the study was to assess psychopathological symptoms and components of sleep disorders in patients with anxiety disorders with varying degrees of stress in order to optimize treatment and prevention measures.

An examination of 81 patients with anxiety disorders of neurotic origin and sleep disorders was conducted using clinical-psychopathological, psychodiagnostic and statistical methods. The study of the phenomenological structure of stress experiences was carried out using the Psychological stress measure (PSM-25, 1990), the Symptom Check List-90-Revised (SCL-90-R, 1994) questionnaire was used to assess the severity and structure of psychopathological symptoms, the study of sleep quality disorders was conducted according to the Pittsburgh Sleep Quality Index (PSQI, 1989). All respondents, depending on the level of psychological stress on the PSM-25 scale, were divided into 3 groups, representative of age and gender. Group 1 included 25 people with a low level of stress, Group 2 – 29 people with an average level, Group 3 – 27 people with a high level of stress.

Significant differences were found in the severity of clinical and psychopathological manifestations depending on the level of psychological stress. As the stress level increased, the severity of psychopathological symptoms increased on all scales of the SCL-90-R questionnaire. Patients with a high level of stress load had significantly higher scores than those with a low and medium level on the PSQI total score and the scales of subjective sleep quality, sleep latency, duration and efficiency of sleep (p<0,05). According to correlation analysis (r-Spearman coefficient), a significant deterioriation of sleep duration, subjective sleep quality, sleep latency and daytime dysfunction was noted according to PSQI (p<0,01). Sleep disturbances were positively correlated (p<0,01) with the somatization index. The obtained data are important to take into account when conducting complex therapy for this cohort of patients.

Key words: anxiety disorders, sleep disturbances, the level of stress load, psychopathological symptoms.

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Conflict of interest:
The Authors declare no conflict of interest.

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Received 15.11.2022
Accepted 02.05.2023