Non-drug methods in the treatment of postpartum depression A.V. Filonenko (FSBEI HPE "Chuvash State University named after I. N. Ulyanov", g. Cheboksary)

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SUMMARY

About 85% of women in childbirth suffer from various forms of postpartum mental disorders. The article discusses modern ideas about the pathophysiology of postpartum depression in mothers, the important role of breastfeeding in children, target organs involved in the process of postpartum depression and the methods of current therapy of the pathological process. Lack of treatment for maternal postpartum depression can lead to significant morbidity in newborns, which affects many organs and systems, and the negative consequences are irreversible if treatment is started too late. Postpartum depression in children can lead to behavioral abnormalities and learning disabilities, disorders of the autonomic nervous system, an increase in morbidity, and impaired physical development. Non-pharmacological methods, in the treatment of mild to moderate postpartum depression, include acupuncture, aromatherapy, music therapy, and light therapy. The effectiveness of these methods in reducing maternal symptoms of depression is similar to that of drugs, but they have minimal risk and are beneficial to the health of both the mother and the breastfed infant. The use of non-drug methods in the treatment of postpartum depression in the maternal-child dyad seems promising already in the early stages of the development of the disease.

Key words: postpartum depression, postpartum women, newborn,non-drug therapy, acupuncture, aromatherapy, music therapy, phototherapy.

RESUME

About 85% of puerperae are suffering from different forms of borderline psychic disorders. In this article, we examine our current understanding of the pathophysiology of postpartum depression (PD) in mothers, the important and evolving role of breastfeeding in children, the end-organ morbidities associated with PD, and the therapies currently available for the disorder. If left untreated, maternal PD may lead to substantial morbidity of newborns that affects multiple target organs and systems, and such deleterious consequences may not be completely reversible with appropriate treatment, if the latter is instituted too late in the course of the disease. PD in children can lead to behavioral disturbances and learning deficits, alterations in autonomic nervous system, growing morbidity, compromised somatic growth. Nonpharmacological interventions in the treatment of easy and middle forms of PD include acupuncture, aromatherapy, musictherapy and chromotherapy. The effectiveness of these modalities in decreasing

maternal depressive symptoms is the same as pharmacological, but these interventions have minimal risks and have health benefits for both mother and breastfeeding infant. The use of nonpharmacological methods in the treatment of PD in maternal-child dyads seems promising while in its early stages of development.

Keywords: postpartum depression, puerpera, newborn, non-pharmacological therapy, acupuncture, aromatherapy, musictherapy, chromotherapy.

INTRODUCTION

Depression is a mental illness characterized by disturbances in monoaminoergic neurotransmission, functions of the hypothalamic-pituitaryadrenocortical system, neurotrophins and cytokines under the influence of stress risk factors [1], one of which is childbirth. In the postpartum period, up to 85% of women experience a variety of mood disorders. In the majority of women (30– 75%), postpartum depression (PU) is accompanied by mild and transient symptoms, but 15–25% of women experience

more persistent forms - postpartum depression (PD), and 0.1–0.2% - postpartum psychosis (PP). ΠУ and ΠД code according to ICD-10 - F 53.0. PP code - F 53.1 [2]. PMD is initially seen as a group of behavioral syndromes directly related to pregnancy and childbirth, which distinguishes them from other types of mental disorders. More recent studies indicate that PMD is virtually indistinguishable from psychiatric disorders that occur during a woman's life at other times, and is interpreted as a form of clinical depression, also called major depressive disorder or unipolar depression, developing within 4 weeks after childbirth [15]. This is confirmed by the revealed neuroanatomical profile of the brain systems involved in the regulation of emotions and behavior of puerperas in the postpartum period [16]. Negative emotional effects are mediated through the hypothalamus, tonsils, or striatum. The structures of the striatum involved in the development of AP are characterized by a rapid attenuation of activity in response to emotional reward [17]. The significantly reduced activity of the dorsomedial prefrontal cortex and the amygdala on the left in response to negative emotions is an important neural mechanism for postpartum depression. The lack of activity of the amygdala is due to a violation of the hypothalamic-pituitary-adrenal system of the puerpera. The severity of the decrease in the activity of the amygdala is associated with the severity of PD and the degree of maternal negativity towards the child [18]. characterized by a rapid attenuation of activity in response to emotional reward [17]. The significantly reduced activity of the dorsomedial prefrontal cortex and the amygdala on the left in response to negative emotions is an important neural mechanism for postpartum depression. The lack of activity of the amygdala is due to a violation of the hypothalamic-pituitary-adrenal system of the puerpera. The severity of the decrease in the activity of the amygdala is associated with the severity of PD and the degree of maternal negativity towards the child [18]. characterized by a rapid attenuation of activity in response to emotional reward [17]. The significantly reduced activity of the dorsomedial prefrontal cortex and the amygdala on the left in response to negative emotions is an important neural mechanism for postpartum depression. The lack of activity of the amygdala is due to a violation of the hypothalamic-pituitary-adrenal system of the puerpera. The severity of the decrease in the activity of the amygdala is associated with the severity of PD and the degree of maternal negativity towards the child [18]. The lack of activity of the amygdala is due to a violation of the hypothalamic-pituitary-adrenal system of the puerpera. The severity of the decrease in the activity of the amygdala is associated with the severity of PD and the degree of maternal negativity towards the child [18]. The lack of activity of the amygdala is due to a violation of the hypothalamic-pituitary-adrenal system of the puerpera. The severity of the decrease in the activity of the amygdala is associated with the severity of PD and the degree of maternal negativity towards the child [18].

PD is a debilitating condition of the postpartum woman, causing severe and long-term consequences for the mother, newborn and the entire family. Breastfeeding throughout the year contributes to the best neuropsychic development of the infant by the age of 14 months [19]. However, the composition of colostrum and breast milk in deprived women differs from that in healthy women. PD of the mother, changing the composition of breast milk, in children leads to physical disorders development, behavioral deviations, disorders of the autonomic nervous system, increased morbidity, a decrease in the quality of life and an increase in health-related material costs in the future [3]. Treatment of depression includes the appointment of antidepressant drugs [20], non-pharmacological methods of correction [21] and psychotherapy [22] for mild and moderate forms, electroconvulsive therapy for PP [23].

The use of antidepressants in the treatment of PD in postpartum women is limited to the excretion of drugs in the mother's milk and negative consequences for the newborn [24]. For a newborn, there is a high risk of developing adverse consequences, both from the pharmacological effects of antidepressants taken by the mother and excreted in breast milk, and from the consequences of the mother's refusal of treatment [25]. Mothers, perceiving the use of antidepressants as a stigma of mental illness, refuse psychiatric help, or, assuming the physiological nature of the condition, do not seek help [26]. Unlike pharmacological therapies, non-drug treatments have minimal risk and are beneficial to the health of both the mother and the breastfed infant.

The purpose of this article is to highlight the methods of nonpharmacological therapy used as alternative treatment options for PD with antidepressants.

NON-PHARMACOLOGICAL THERAPY METHODS

The widespread introduction of non-drug therapy methods with a changed psychoemotional profile of puerperas and its dynamics in women with PD is very promising. Some methods of non-drug therapy are presented, such as: acupuncture, aromatherapy, music therapy, chromotherapy, which are actively used to treat PD.

Acupuncture

Neuroendocrine Immuneinteractionis consideredhowMorphofunctional Substrateacupuncturesystem [4], imbalancemorphological structures of which takes part in the development andimplementation of PD. The use of acupuncture (IRT) is on the rise amongpsychiatric patients. IRT is considered an effective treatment method thatincreases the concentration of central nervous system hormones (ACTH, beta-endorphins, serotonin and norepinephrine), having a positive effect on

depression and anxiety [27]. More than 50% of patients with depressive disorders are either intolerant or unresponsive to antidepressant treatment. Preliminary studies have shown the benefits of RTIs in the treatment of major depressive disorders [28]. IRT is safe in the treatment of major depressive disorders and post-stroke depression. The effectiveness of RTI in improving the clinical picture and relieving symptoms of the severity of depression as monotherapy is comparable to that of antidepressants, and the incidence of side effects is significantly lower [29].

The possibilities of IRT for depression during pregnancy were assessed. A short course causes a faster and more significant reduction in the severity of symptoms

compared with standard treatments [30]. IRT and hypnosis are recommended for use in relieving pain in women in labor [31].

The antidepressant property of IRT was confirmed. The psychohemopionalPD. stress of puerperas, which persists in the first month, is reliably leveled by course therapy in 5 sessions. Fears and anxiety disappear. Positive emotions prevail. The levels of neurotization, character accentuation, the level of depression on the Pishaud scale, and Spielberger's anxiety decrease. The profile of the Mini-Mult test is leveled. High (up to 83%) positive effect [5]. The study of electrocutaneous conduction (ECP) of parturient women under the influence of the course exposure of IRT of the mother-child dyad in the early recovery period showed that its inclusion in complex rehabilitation ensures the optimization of the mother's ECP. There was a statistically significant change in the ECP and the functional state of puerperas, the presence of correlations with the psychoemotional profile and the state of their newborns [6].

The psychoemotional status of women in childbirth in the first 30 days after childbirth changes in parallel with indicators of anxiety and normalization of cerebral hemodynamics, autonomic homeostasis of the child against the background of RTI. The identification of a reliable and high correlation dependence of the studied indicators of rheoencephalo and cardiointervalograms on the level of most tests of the psychoemotional state of the mother confirms maternal participation in changes in cerebral hemodynamics and autonomic status of the newborn. Emotional stress in the postpartum period, representing a powerful pathogenetic complex, affects the course of the neonatal period, changing the functional state of the child, causing a violation of the adaptation of these children to postnatal life. In women with a weakened psycho-vegetative state, a high level of emotional stress was noted with a change in attitude towards the child, which is reflected in the features of the cerebral circulation, the autonomic status of the newborn, which vary depending on the severity of the mother's PD. The psychoemotional component of the mother is one of the components of the pathogenesis of the somatovegetative abnormalities of the newborn. Restoring the psychological compatibility of mother and child seems to be the most important component of the rehabilitation of newborn children [7]. The psychoemotional component of the mother is one of the components of the pathogenesis of the somatovegetative abnormalities of the newborn. Restoring the psychological compatibility of mother and child seems to be the most important component of the rehabilitation of newborn children [7]. The psychoemotional component of the mother is one of the components of the pathogenesis of the somatovegetative abnormalities of the newborn. Restoring the psychological compatibility of mother and child seems to be the most important component of the rehabilitation of newborn children [7].

Self-assessment of the dynamics of the state according to the scale of the level of neurotization and psychopathization (character accentuation) showed that the proportion of women in childbirth with clinically pronounced signs of neurotization (minus 18.1) significantly decreases against the background of RTI, and the result is achieved already on the 4th procedure. The dynamics profile of results in the control group of women who did not receive IRT was completely different, and no significant improvement was found even at discharge. In the dynamics of the study, all mothers of the control group retain their previous psychoemotional status without significant changes by the end of the early recovery period. Decreased mood, sleep disturbances, and anxiety persist. In the main group, changes statistically significantly (p <0.05) differ from the severity of mothers of newborns in the comparison group. Psycho-emotional

the sphere is reliably optimized. Fears and anxiety disappear. Positive emotions prevail, a feeling of joy appears, new emotions of lightness and airiness arise. The efficiency increases, the vegetative balance is harmonized. The level of stress decreases, indicating a decrease in PD symptoms [8].

Aromatherapy

Aromatherapy (AT) is an effective treatment for a number of mental disorders. The method is recommended for use in the treatment of chronic pain, depression, anxiety, some cognitive disorders, insomnia, and stress-related conditions [32]. For various diseases associated with mental disorders, essential oils (EO) of rose, tea tree, chamomile, vitever, violet are used [9]. Smells determine the psycho-emotional state of depressed patients. Chemosensory evoked potentials in the primary olfactory cortex and the spectrum of emotion converge or diverge depending on the nature of the odor used [33]. Harmonization of vegetative homeostasis under the influence of odors has been noted [34].

In the parahipocampal gyrus and the hook, included in the limbic system, the fibers of the lateral bundle of the olfactory nerve end, where the olfactory stimuli are switched to the system of regulation of autonomic functions and emotions, realizing the body's response to olfactory stimuli [10]. EOs of lavender and bergamot have a vagotonic calming effect, reducing the level of depression and anxiety [35]. Rose oil has a relaxing effect [36].

Aromatic massage with jasmine oil, exerting a stimulating effect on the autonomic nervous system (ANS), provides the dynamics of autonomic reactivity according to the sympathicotonic variant [37]. AT and massage are successfully used to reduce antenatal anxiety in pregnant women [38], are effective methods of improving the physical and mental state of the postpartum woman, facilitating the nature of the relationship between the postpartum woman and the newborn [39]. AT is used in the reduction of maternal anxiety, fear, and pain during childbirth. The analgesic effect is achieved by the use of clary sage and chamomile essential oils [40]. The well-developed aromatherapy service of some maternity hospitals is quite effective in ensuring and satisfaction of mothers during childbirth and the postpartum period [41].

Music therapy

Synchronization of brain rhythms is associated with the improvement of human cognitive abilities [42]. Found electroencephalographic (EEG) confirmation of the influence of Mozart's works on the processes of nervous excitement. Frequency modulation of the author's sonatas changes the brain's α -rhythm associated with attention processes, synchronizing it with other brain rhythms [43]. Music, varying in power and style, affects human recognition. The performance of visual recognition is enhanced by the accompaniment of classical and rock music. This increases the coherence potentials of the frontal areas. EEG changes in intercentral relations correlate with the formation of a dominant at the behavioral level [11]. Listening to music relaxes patients on artificial lung ventilation, which helps to synchronize breathing with the device and avoids disturbances in central and peripheral hemodynamics. There has been a positive effect on heart rate, respiration rate and anxiety [44].

The relaxing effect of music is associated with an increase in the plasma level of oxytocin [45], a decrease in the concentration of cytokines (in particular, interleukin-6) and catecholamines (adrenaline and norepinephrine) [46]. Emotions caused by listening to music are accompanied by changes in the ECP: fear and happiness - high, and sadness and peace - low values [47]. Listening to music at a fast pace modulates the emotional uplift and concentration of attention, and then, during pauses or a slow rhythm, causes relaxation, affecting the system of hemodynamics and external respiration [48]. Classical music leads to a significant decrease in the level of anxiety, anger and arousal of the sympathetic nervous system, distracts attention from negative experiences, thereby helping a person to cope with emotional stress through relaxation [49].

The problem of the corrective influence of music therapy (MT) on the psychological state of pregnant women is disclosed. The revealed significant differences in the dynamics of the state of pregnant women in the experimental and control groups confirm the improvement in well-being and mood in the experimental group. The effectiveness of musical correction depends on the correspondence of the music to the condition of pregnant women and their personal characteristics. The peculiarities of musical perception of pregnant women serve as a musical diagnostic tool.

Musical correction of the condition of pregnant women affects the success of the delivery. The characterological dependence of the musical preferences of pregnant women on their psychological state and personal characteristics is reflected in individual musical recommendations. The use of MT in corrective methods of helping pregnant women is a mild and effective way to improve their condition, which also has a positive effect on the psychophysiological development of children before and after their birth [12].

The use of routine methods of pharmacological analgesia - opioids and benzodiazepines - after caesarean section surgery can lead to disruption of contact between the mother and the newborn due to their sedative effect. Postoperative use of specially selected music relieves pain and reduces the need for analgesics, thereby improving early mother-child contact [50]. The severity of PU in puerperas participating in music therapy is lower (T = 4.828, p <0.001), and the degree of maternal attachment to the child is higher (T = 4.350, p <0.001) than in women in the control group [51].

Listening to the music of the harp, recommended as an adjuvant therapy for mothers of premature babies during their stay in the neonatal intensive care unit, has a beneficial effect, significantly reducing the level of anxiety [52]. Randomized controlled research shows that the condition of premature newborns improves, neurological symptoms are stopped in parallel with a decrease in the anxiety of mothers when listening to lullaby music [53].

Light therapy

Within the framework of the study of brain activity and ANS, psychologists and doctors have proved the influence of light and color effects on the psychological and physiological state of a person. Different shades of colors cause certain psychoemotional reactions, and, therefore, provide changes in the internal status of the body. Color stimuli contribute to changes in the tone of the ANS and vice versa, a change in the tone of the ANS affects color vision [13]. A Cochrane review confirms the effectiveness of light therapy (CT) in the treatment of depression [54].

Adverse changes in circadian rhythms are an integral part of the development of clinical signs of endogenous depression [55]. ST is based on the ability of light with different frequencies to influence the production of neurohormones, namely melatonin and serotonin in the brain. The visible light spectrum affects the circadian rhythm of physiological and biological processes. A person's biological clock is located in a specialized group of brain cells called the suprachiasmatic nucleus in the anterior hypothalamus. Any shift in the rhythm of the neurohormonal balance leads to mental disorders. Sleep disturbances, depression, seasonal affective disorder and post-traumatic stress disorder are due to the noted changes in the content of melatonin and serotonin.

One of the links in the pathogenesis of depression is a decrease in the activity of the dopaminergic system. Disruption of dopaminergic transmission of nerve impulses in the retina also plays a role in reducing the contrast sensitivity of vision, increasing its threshold [57].

Bright green light has been used successfully to treat depression [58]. Green light has a better healing effect than red. It is believed that retinal photoreceptors mediate the production of antidepressants in mood disorders. Determining the optimal wavelength for CT plays an important role in optimizing the effectiveness of phototherapy [59]. In a situation of psychological deprivation, the antidepressant effect of blue color, stimulating melanopsin-containing ganglion cells in the retina, has been established [60]. The use of yellow-green chromotherapy (565–570 nm) is recommended for psychoorganic correction in the treatment of macular degeneration [61].

White light is also effective in reducing the symptoms of endogenous depression, but brightness is recommended for maximum therapeutic effect [62]. The bright white light used in the treatment of depression during pregnancy significantly improves a woman's psychological well-being for 5 weeks. CT is an effective treatment for the mother with no risk to the fetus [63]. The antinociceptive effect of white polarized color when exposed to biologically active points was found. Red is more

effective in illuminating the wound surface [64]. Depending on the wavelength and the irradiation mode, taking into account the intensity and duration of exposure, the revealed analgesic effect of light-emitting diodes [65] can be used in situations for anesthesia of women in labor, postoperative analgesia of cesarean section of puerperas and in newborns with traumatic lesions obtained in childbirth, which are factors the risk of developing PD [14].

The active introduction of CT into the practice of PD therapy showed a 50% decrease in the severity of symptoms after 3-5 weeks of bright light treatment. Further development of the ST method in postpartum affective disorders has been recommended [66]. CT is similar in effectiveness to fluoxetine treatment. It is proposed to use light-emitting diodes, which provide significant advantages over lightboxes based on fluorescent lamps or incandescent sources. The circadian rhythm of human systems is most sensitive to light with a wavelength in the range of 450-480 nm. The generated LED blue light (468nm) is more efficient than red (654nm). LEDs can be selected that emit light of the required range, while fluorescent lamps emit the entire visible spectrum [67].

Methodfunctionalmagnetic resonancetomographybrainthe participation of the temporal cortex and hippocampus, tonsils and hypothalamus in the
emotional response to the spectral qualities of the applied light was confirmed [68].

CONCLUSION

In recent years, maternal PD has become known as a common pathology with potentially serious clinical manifestations and consequences for all family members, and is an important public health problem. The organization of reflexology services in perinatal centers will restore the health of the postpartum woman and the newborn, and ensure perinatal programming of the health status of growing children in adulthood [69].

The presented review does not claim to be broad in scope, but reflects the depth of the possibilities of non-drug methods in the treatment of mild and moderate forms of PPR in postpartum women, alternative to antidepressant treatment while maintaining breastfeeding of the newborn, and the prospect of being included in the standards of care for postpartum women.

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