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Navigating the landscape of Postpartum Depression: a comprehensive review

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ABSTRACT**Introduction and purpose:**

The joyous occasion of childbirth is often overshadowed by the prevalence of postpartum depression (PPD), a complex mental health condition affecting mothers globally. This paper reviews the current state of knowledge on PPD, exploring its frequency, risk factors, pathogenesis, symptoms, and impact on maternal and child health.

Description of the State of Knowledge:

Recent studies indicate an alarming increase in PPD rates, with notable racial and socioeconomic disparities. Symptoms of PPD, ranging from mild to severe include mood disturbances, cognitive impairments, and self-harm ideation. The repercussions extend beyond the postpartum period, affecting long-term child development, breastfeeding practices, and the mother-infant bond. Advancements in screening tools, particularly the Edinburgh Postnatal Depression Scale (EPDS), have facilitated early detection. However, creating an environment conducive to open communication about mental health remains a significant challenge. Interventions for PPD include psychotherapeutic approaches, pharmacological interventions, and complementary therapies. Brexanolone, the first FDA-approved drug for PPD, represents a significant breakthrough. Community-based and peer support programs, alongside a multidisciplinary approach involving healthcare professionals and support networks, have shown promise in alleviating PPD symptoms.

Summary:

In conclusion, PPD remains a substantial public health concern. Increased awareness of its multifaceted nature has led to improved screening, diagnosis, and intervention strategies. Ongoing dialogue, supportive environments, and refined treatments are essential for enhancing the well-being of both mothers and their infants in the postpartum period.

Keywords: postpartum depression; infant development; brexanolone; Psychiatric Status Rating Scales; postpartum period

INTRODUCTION

The joyous occasion of childbirth is frequently considered a momentous and fulfilling experience in a woman's life. However, for some mothers, the postpartum period brings not only the expected challenges of caring for a newborn, but also the shadows of a mental illness called postpartum depression (PPD). PPD is a complex and generally misunderstood mental health condition that affects mothers after giving birth. In recent years, an increasing amount of literature has appeared on various aspects of postpartum depression, shedding light on its incidence, risk factors, impact on maternal and child health, and effective treatment methods.

DESCRIPTION OF THE STATE OF KNOWLEDGE

Frequency of occurrence:

Postpartum depression is a common mental illness affecting women globally. Most studies indicate that approximately 10–15% of mothers experience PPD [1,2]. However, in recent years there has been an increasingly upward trend. A good confirmation of this thesis is the study conducted by Getahun et al., who, using the electronic health records of Kaiser Permanente Southern California, examined trends in PPD in 2010–2021 among births over the 20th week of pregnancy. According to their results, the incidence increased from 9.4% in 2010 to 19.3% in 2021. Worth emphasizing are the racial differences they observed. In relation to whites, this rate increased from 13.5% to 21.8% (a relative increase of 60%), among Latinos from 8.9% to 18.8% (an increase of 110%), and among black races from 9.2% to 22.0% (an increase of 140%). Additionally, an increased incidence of PPD was observed among all body mass index (BMI) categories, with a particularly high incidence among obese women [3]. Moreover, this is consistent with the study by Fraga et al., which showed that women with pre-pregnancy obesity are 23% more likely to develop PPD compared to women with normal body weight [4]. Although evident racial differences in PPD rates persist, their causes remain unclear and require further research.

Risk factors:

Understanding the various risk factors associated with PPD is crucial. Susceptibility includes psychological, social, biological, obstetric risk and lifestyle factors. Among the psychological aspects, the main ones include mental health disorders in personal or family history, poor relationship with a partner, psychological aggression, negative approach to a child, or a history of sexual abuse. Constant social determinants include lack of family support, living in urban centers and domestic violence. It has been proven that smoking cigarettes during pregnancy also increases the risk of developing PPD. Referring to biological aspects, hormonal fluctuations and genetic predispositions are frequently mentioned. In turn, among the obstetric risk group, the main ones are: risky pregnancy including emergency cesarean section, multiparity, fewer prenatal visits, umbilical cord prolapse, or giving birth to a child before the 36th week of pregnancy. In the context of minimizing the risk of PPD, lifestyle factors are equally important. It has been shown that appropriate eating habits, optimal amount and quality of sleep, and proper physical activity (increasing endogenous endorphins) can reduce the risk of this disease [4-8]. This was confirmed, among others, in a study by Baattaiah et al., who, examining a group of 1,409 women, proved that a high level of fatigue, poor sleep quality and low level of immunity are responsible for a high risk of developing postpartum depression [9]. Moreover, the importance of lifestyle factors has recently been strongly emphasized by the World Health Organization (WHO), which characterizes them as ensuring positive experiences related to pregnancy and childbirth [10-12]. It is worth mentioning that family income is also important in terms of PPD, as demonstrated in a recent study by Zedan et al. In it, out of a group of 550 women, 75% obtained results within the risk of developing PPD. Women with income below SAR 10,000 had a disease risk rate of 83-88%, in contrast to women with a better financial situation with a risk of 48-77% [13]. In turn, in the study by Shuman et al. involving 670 women, 1 in 3 showed a positive screening result for postpartum depression. Participants, who fed their babies with formula were 92% more likely to test positive compared to those who breastfed or bottle-fed with their own milk. Participants with infants admitted to the Infant Intensive Care Unit (IICU) were 74% more likely to test positive, with each 1-week increase in length of stay increasing the chance of a positive test result by 4%. Relative to the last pandemic, participants who were worried about themselves and their infants being infected with Covid-19 were 71% more likely to have a result indicating postpartum depression [14]. Although many factors of proven importance have been mentioned, new research continues to be published, showing that there is still much to be investigated on this topic. It is presumed that even a low level of vitamin D, younger

mother's age or child's gender (as related to cultural influences in some countries) may increase the risk of PDD, however, the data on this subject are controversial and require further research [15].

Pathogenesis:

Despite many studies, the exact mechanism of the development of postpartum depression has still not been presented, however, it is suggested that neuroendocrine etiology may play a role. There is evidence that in susceptible women, dysregulation of the hypothalamic-pituitary-adrenal axis has a significant impact on the development of PPD. This occurs through the release of cortisol during stressful situations. If the balance between this hormone and the rest of the axis is disturbed, the release of ketacholamines is reduced, and thus the person loses adequate resistance to stress, which translates into the risk of developing postpartum depression. In turn, in the correct pattern, the level of hormones in this axis increases during pregnancy and remains at an increased level even up to three months after delivery [5]. However, this is not the only axis of significant importance. The second one is related to the release of estradiol and progesterone. Their rapid changes in concentration after childbirth may be a valid stress factor for women that they may lead to the development of the disease. In turn, oxytocin and prolactin, influencing the synthesis and flow of milk, also play a role. It has been proven that low oxytocin levels in the third trimester are associated with increased depressive symptoms both during pregnancy and after childbirth [5,16].

Symptoms:

They most often appear up to six weeks after delivery [15]. They can be mild, moderate or severe, depending on their severity and quantity. Common symptoms include inability to enjoy pleasure, low mood, loss of appetite, insomnia or hypersomnia, racing thoughts, difficulty concentrating, trouble making decisions, feelings of guilt or worthlessness, excessive irritability and anger, self-blame, loss of energy, fatigue or fear. Weight loss, loss of libido, and marked psychomotor retardation are also typical. Symptoms vary slightly from day to day and do not respond to circumstances. Additionally, mothers may feel that they are not proper enough for their children, have thoughts of harming their child, or experience suicidal thoughts or attempts. In the context of diagnosis, it is important that these symptoms cannot be attributed to any substance or disease. If at least 5 similar symptoms persist for more than 2 weeks after delivery, postpartum depression should be suspected [5,13]. On

average, a PPD episode lasts from 3 to 9 months, however, if not treated properly, symptoms may persist for up to a year after delivery [1].

Impact on mother and child health:

Postpartum depression not only affects mothers' mental health, but also has significant consequences for the well-being of infants and children. Recent literature highlights the importance of early detection and intervention to mitigate potential long-term impacts on child development. In cases of PPD, the mother–infant bond, breastfeeding practices, and overall care may be endangered, highlighting the need for a holistic approach that addresses the well-being of both mother and child [5,8,17]. Additionally, it is worth mentioning that PPD affects not only the initial period of a child's life. Its consequences may also manifest themselves in later childhood and adolescence. Then there may also be problems with attention, hyperactivity, emotional regulation and social interactions. The consequences may be long-term, affecting academic performance, social relationships and mental health problems [5,8]. In the context of breastfeeding, mothers with PPD may experience difficulties in starting and maintaining breastfeeding, resulting from decreased motivation, lower energy and negative emotions that translate into their commitment [18]. As a result, their satisfaction with feeding decreases, as evidenced by a study conducted by Avilla et al. By using structured scenarios, in a group of women with a negative test result for PPD, they showed that the incidence of satisfaction with breastfeeding was 47% higher than among women with symptoms suggesting postpartum depression [19]. Equally important seems to be the study by Saharoy et al., where the authors synthesized existing literature from fields such as psychology, psychiatry, obstetrics and pediatrics. It showed that mothers experiencing PPD are characterized by a reduced response to their child's needs, which may make it difficult for them to respond properly. This may translate into inconsistency in meeting the child's needs in terms of comfort, feeding and interaction, consequently leading to breaking the bond between mother and child, thus negatively affecting the infant's emotional and social development [8]. Additionally, it is important to remember the value of appropriate physical contact in the mother-child relationship. Sensitive touch such as cuddling, apart from breastfeeding, is crucial in the development of emotional bonds. Experiencing PPD can significantly reduce it or even completely eliminate it, leading to disruption of the infant's emotional well-being. Moreover, it may further intensify mothers' sense of guilt and doubt about their parenting abilities, creating another barrier in their relationship [20].

Screening and diagnosis:

Advances in screening tools and diagnostic criteria have improved the diagnosis of postpartum depression. Recent studies have examined the performance of various tests and emphasized the need for routine screening during prenatal and postnatal care [8,21]. Currently, validated instruments such as the Edinburgh Postnatal Depression Scale (EPDS) and the Postnatal Depression Screening Scale (PDSS) are commonly used to assess maternal mental health [21]. EPDS, as the most commonly used scale, is a 10-item survey completed by patients in a few minutes. It refers to symptoms present in the last 7 days and allows to obtain from 0 to 3 points for each question, with a maximum number of points at the level of 30. The positive predictive value of this scale is classified between 70%-90% [6,22,23]. To determine whether patients are at risk of developing PPD, an EPDS cut-off score is required, which is most frequently major than 10 or 12, which is the basis for additional clinical testing. The exact cut-off point depends on whether it is desired to obtain a more specific result (where a cut-off value of 13 or more is preferred) or to avoid false-negative results (where a cut-off value of 11 or more is recommended) [6,24]. The main goal is to make a diagnosis, assess the risk of suicide, including infanticide, and exclude other mental diseases [5]. However, the most considerable challenge is creating an environment that encourages open communication about mental health issues. It is worth emphasizing that some efforts have already been made to destigmatize the discussion on this topic, as evidenced by the work of Fleischman et al., which raises the importance of this issue. In their study, they decided to examine the relationship between perinatal depression and anxiety, the stigma of mental illness, and social support among hospitalized postpartum women. Thus, they showed that the anxiety felt by patients was significantly related to all stigma subscales, while all social support subscales correlated negatively with depression. This proves that the social support felt by patients can significantly alleviate the effects of stigma, thus improving the speed of identifying people who need additional help [25].

Interventions and support:

Treatments for postpartum depression have evolved over the years, with recent research evaluating the effectiveness of psychotherapeutic approaches (such as cognitive behavioral therapy and interpersonal therapy), pharmacological interventions (using selective serotonin reuptake inhibitors or serotonin and norepinephrine reuptake inhibitors), and complementary therapies (e.g., electroconvulsive therapy) [26-28]. A tremendous progress is undoubtedly brexanolone, which was the first drug approved by the FDA specifically for the treatment of

PPD [29]. Community-based interventions (such as home visiting programs) and peer support programs have shown hopeful in providing additional levels of support for mothers experiencing postpartum depression [8,30]. Recent literature highlights the importance of a multidisciplinary approach involving health care professionals, family members and support networks. Emphasis is placed on early diagnosis of PPD, which, together with rapid intervention, enables the use of targeted therapies, significantly alleviating symptoms and improving the well-being of the mother and child [8,31]. Various programs are carried out in this regard, such as "Next Stop: Mom", covering the region of northern Poland, in which over 21,500 women participated in the first year after giving birth. Its main goal is to increase the early detection of symptoms of postpartum depression through education and increasing social awareness about PPD [23].

CONCLUSION:

Postpartum depression remains a serious public health problem, and recent literature reflects growing awareness of its multifaceted nature. Advances in understanding the disease's prevalence, risk factors, and impact on maternal and child health have paved the way for improved screening, diagnosis, and intervention strategies. As we move forward, it is critical to continue the dialogue around postpartum depression, create supportive environments for mothers, and continue to refine treatments to improve the well-being of both mothers and their babies.

STATEMENT OF THE AUTHOR'S CONTRIBUTION

Conceptualization, Kinga Panuciak and Paweł Pawlik; methodology, Kinga Panuciak and Natalia Trąbka; software, Patryk Lasek; check, Kinga Panuciak, Paweł Pawlik and Maciej Smerdzyński; formal analysis, Kinga Ściurka; investigation, Kinga Panuciak; resources, Klaudia Kowalczyk; data curation, Natalia Trąbka; writing - rough preparation, Paweł Pawlik; writing - review and editing, Kinga Panuciak; visualization, Gabriela Demidowicz; supervision, Karolina Kozicka; project administration, Nina Lasota; receiving funding, Maciej Smerdzyński

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The authors of the paper report no conflicts of interest.

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