General Practice in China

Volume 1 | Issue 1 Article 26

2022

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GENERAL PRACTICE IN CHINA

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Recommended Citation

ZHAO Q Q，ZHOU Y L，XIAO C Q，et al. Advances in screening for postpartum hypomanic symptoms and their relationship with postpartum depression and bipolar disorder［J］. Chinese General Practice，2022，25（20）：2547-2550.

Available at: https://gpinchina.net

Advances in Screening for Postpartum Hypomanic Symptoms and Their Relationship with Postpartum Depression and Bipolar Disorder

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【**Abstract**】 Hypomanic symptoms in postpartum women are common but often ignored due to under diagnosis, which may lead to more serious psychological problems, such as postpartum depression and bipolar disorder. We reviewed recent advances in diagnostic criteria and assessment tools regarding postpartum hypomanic symptoms as well as their relationship with postpartum depression and bipolar disorder, aiming to provide physicians and nurses with a scientific basis for more effectively identifying postpartum hypomania.

【Key words】 Bipolar disorder; Hypomania; Drepression; Postpartum women; Review

【Chinese Library Classification Number】 R 749.3 【Document Identification Code】 A

With the announcement of the new birth policy, the accumulated demand for birth over the years has been released to a certain extent in China, but the pressure of childbirth can not be ignored. Women are more likely to have psychological or emotional problems with the combination of biological and social factors, such as neuroendocrine changes and social roles changes in perinatal period[1].Whether pregnancy would trigger or exacerbate the risk of mental illnesses, such as major depression/bipolar disorder/mood disorders and schizophrenia, has been the research focus[2]. Maternal mood disorders not only affected their sleep, diet and the quality of life, but also affected the infant bonding and the feeling of husband and wife, may even lead to suicide or infanticide[3].Therefore, it is very important to pay attention to maternal psychological changes and use tools to screen for emotional problems.

The study of maternal mood disorders mainly focused on depressive symptoms. Meta-analysis showed that the positive rate of postpartum depression in women was 9% -26% , with the highest at 6 months postpartum[4]. Some studies indicated that hypomanic symptom was also very common in the early postpartum period, the incidence rate was 9.6% -20.4%, nothing but the patient who was diagnosed with type II bipolar disorder combined with hypomania, was often misdiagnosed as major

depressive disorder[5]. The main reasons for the misdiagnosis were that individuals with hypomania were less likely to seek for help, and the euphoria associated with hypomania was also difficult to distinguish from the euphoria associated with normal childbirth. And the professionals might neglect to screen and enquiry due to a lack of attention to hypomanic symptoms[6].Therefore, there was a certain challenge in the diagnosis of postpartum hypomania, at the same time, the recognition of hypomanic symptoms was also very important. Firstly, the recognition of bipolar disorder made more effective measures to be implemented, especially for the patients with refractory depression. Secondly, manic episodes might occur in bipolar disorder patients who took antidepressants alone. Thirdly, patients with bipolar disorder had a higher risk of suicide than those with depression alone. Lastly, early postpartum hypomanic symptoms increased the risk of postpartum depression[7]. Therefore, it is necessary to screen postpartum hypomania, and to explore its relationship with postpartum depression and postpartum bipolar disorder. If postpartum hypomania can be identified and intervened in advance, it may be possible to avoid more serious mental illness.

1 Diagnostic criteria for postpartum hypomania

Earlier studies had described that hypomania was common during postpartum period, and it was a more intense form of well-being than usual, an emotional state accompanied by chatter, giggling, and excitement[8]. And in 1994, a study described hypomania as a transient subclinical state, but there was no more descriptions of when it occurs and how long it lasts[9]. Subsequent researchers proposed the diagnostic criteria of postpartum hypomania including five aspects by systematic reviews. Firstly, the symptoms occurred in the 4 weeks following delivery that met the DSM-5 criteria of either short-duration hypomanic episode or hypomanic episode with insufficient symptoms. Secondly, the hypomanic symptoms did not cause clinically significant distress or impairment in social or occupational functioning. Thirdly, lacked of a past hypomanic or manic episode. Forthly, no current or previous major depressive episode. Fifthly, the hypomanic symptoms should not be attributable to the physiological effect of drug abuse, adverse reactions to antipsychotic or other treatment.

2 Assessment tools for postpartum hypomania

2.1 The Highs Scale In 1994, Glover et al.[9] designed the highs scale based on the the Schedule for Affective Disorders and Schizophrenia a-Lifetime Version (SADS-L). The highs scale contained 7 items, and each item was scored from 0 to 2, representing never, sometimes and often, respectively. The scale was assessed by self-rating, if the total score was 8 or more, it would be considered positive. Cronbach's α coefficient of the highs scale was 0.86, and the validity was tested by combining with psychiatrist's interview and the Comprehensive Psychopathological Rating Scale (CPRS). The correlation between the highs scale and the Mania subscale of CPRS was 0.62. The scale had been widely used in Ireland, Japan, Australia, Chile,

South Africa and so on, but not in China. And all the subjects were women in postpartum or perinatal period, whose positive rate was 9.6% -49.1%[5,7,9]. It should be noted that the highs scale did not contain all the features of hypomania, and it could only be used as a screening tool, not a diagnostic tool. Therefore, it is necessary to analyse the relationship between the positive symptoms screened by the DSM-V scale with other mood disorders[10].

2.2 The Hypomia Check List -32 In 2005, Angst et al.[11] designed the HCL-32 based on the HCL-20. HCL-32 contained 32 items and was divided into 2 dimensions, including active/elated and risk-take/irritable. Each item was scored on 0 or 1, representing no or yes.The scale was also assessed by self-rating, if the total score was 14 or more, it would be considered positive. Cronbach's α coefficient of HCL-32 was 0.82, and with a sensitivity of 80% and a specificity of 51% in distinguishing bipolar disorder from major depression[11]. The scale had been widely used in England, France, Italy, Spain, Portugal, Russia, Sweden, Korea, Norway and China. The Chinese version was translated by Yang Haichen et al.[12] in 2008. It was used mainly in bipolar disorder patients. A study examined the women in postpartum period by HCL-32, which showed that the positive rate was 43.6%[13]. It should be noted that while the scale could screen for hypomania, it can not effectively distinguish between type I and type II bipolar disorder.

2.3 The Mood Disorder Questionnaire In 2000, Hirschfeld et al.[14] designed MDQ. MDQ contained 13 self-rated items for manic or hypomanic symptoms. Each item was scored on 0 or 1, representing no or yes. Most studies thought the total score of 7 or more as a threshold to distinguish bipolar disorder from unipolar depression. Cronbach's α coefficient of MDQ was 0.90. The sensitivity of MDQ to screen for bipolar disorder type I (90.3%) was higher than that of bipolar disorder type II (52.4%)[14]. Thus, some researches also suggested the total score of 5 or more as a threshold to distinguish bipolar disorder from unipolar depression, and the total score of 8 or more as a threshold to distinguish bipolar disorder types I from types II[15]. The scale had been widely used in Britain, Germany, South Korea, Brazil, France, Spain, Tunisia and China[16,17]. It was primarily used to screen for bipolar disorder, but some researchers had also used it in pregnant women. To sum up, MDQ can effectively reduce the retrospective and interview bias and is convenient to assess, but it can not be used to diagnose bipolar disorder, it is mainly used to distinguish bipolar disorder from unipolar depression.

2.4 Altman Self-Rating Mania Scale In 1997, Altman et al.[18] designed ASRM based on the core manic symptoms in DSM-IV. Firstly, a panel of experts listed the main items of mania, and then recruited patients, informing them that ”0” represents the absence of the symptom, ”4” represents the most severe symptoms, allowing them to describe the severity of symptoms. Finally, the experts determined the descriptions which represents 0-4 level for each item. Initially, ASRM had 14 items version (including mania subscale, irritability subscale, and psychiatric symptoms subscale), 11 items version

(including mania subscale and irritability subscale), and 5 items version (mania subscale). And the follow-up studies found that the 5 items version had the most sensitivity, which was also widely used in Hungary, Germany and Korea, but it was not yet available in China. Receiver operating characteristic (ROC) curve showed that if the cutoff of total score was 6, the sensitivity would be 85.5% and the specificity would be 87.3%[18]. ASRM had been mainly used for bipolar disorder, depression and schizophrenia patients, and it had also been used in perinatal women[19]. The correlation coefficient between ASRM and Young Mania Rating Scale (YMRS) was 0.718[18]. The downside was that ASRM can not distinguish mania or hypomania.

To sum up, the above 4 assessment tools are all self-rating scales, and self-rating scale is convenient and easy to operate in symptoms screening, but most of which were used for screening of mood disorders in clinical, except the highs scale was developed for perinatal women. At present, there is no hypomanic symptom screening scale based on the characteristics of perinatal women under the background of Chinese special fertility policy. Since the study of postpartum hypomania focused on 3 days, 1 week and 6 weeks after delivery[1], it is not clear how long women would be still at risk of hypomania in postpartum period. It is necessary to follow-up continuously whether hypomania occurs only in postpartum period and when it recurs, and the relationship between the hypomania screened by self-rating scales and mood disorders was also need to be verified combining of psychiatric interview and DSM-V.

3 Hypomania and postpartum depression/ bipolar disorder

3.1 Hypomania and postpartum depression Postpartum hypomania did not bring out significant social or occupational damage directly, but studies have shown that it was associated with episodes of postpartum depression[1]. And 20%-25% women experience postpartum hypomania before the onset of depression postpartum[20]. Glover et al.[9] found that 50% women who experienced hypomania in the third day after delivery also experienced depression in 6 weeks postpartum, compared to women who did not experience hypomania, the prevalence of depression in 6 weeks postpartum was 18%. However, a previous retrospective study of women with severe depression showed that 6.5%- 34.6% patients experienced hypomania in 6 months after delivery[21]. But other studies also showed that there is no relationship between postpartum hypomania and postpartum depression[5], different screening tools may be the main reason for this difference. A cross-sectional study by HCL-32 found that 71.4% women with postpartum depression experienced at least three hypomanic symptoms simultaneously[22], however， a study by MDQ found that 17.5% women with postpartum depression were also diagnosed with hypomania[23]. Therefore, in order to understand the relationship between postpartum hypomania and depression better, it is necessary to develop an assessment tool under the background of postpartum period in women with

depression.

3.2 Hypomania and bipolar disorder Studies had shown that women who experienced hypomania in the early postpartum period were more likely experiencing bipolar disorder[24,25]. The relationship between postpartum hypomania and bipolar disorder was similar to depressive symptoms and major depressive disorder. The incidence of postpartum depression screened by the Edinburgh postpartum depression scale (EPDS) was 40%-80% , but the incidence of major depressive disorder was only 14%[26]. The incidence of postpartum hypomania was 9.6% ~ 49.1% by self-rating scales, however, the lifetime prevalence of bipolar disorder was only 2.4%, with 0.6% type I, 0.4% type II, and 1.4% unclassified[27]. Studies suggested hypomania as a high-risk clinical manifestation of bipolar disorder before onset[6]. A missed diagnosis of hypomania could also lead to bipolar disorder type II being misdiagnosed as major depressive disorder, which would bring about the abuse of antidepressant during the subsequent drug interventions.Zhang Hongxia et al.[28] found that the missed diagnosis of bipolar disorder patients were 42.3%. Since the manic symptoms were more prominent and obvious than those of hypomania, therefore, the main reason of missed diagnosis was an inadequate diagnosis of hypomania. At the meantime, in the cross-sectional study, the subjects' previous clinical information, such as history of mental illness, family history of mental illness, history of mood disorders, and history of mania induced by antidepressants, etc. was lacking, which made it difficult to draw a definitive conclusion about the relationship between hypomania and bipolar disorder.

4 Conclusion

In the past few decades, foreign researchers have developed a greater interest in postpartum hypomania symptoms. Most researches thought that short-term hypomanic symptoms were common in the postpartum period, and postpartum hypomanic symptoms might be related to the subsequent depression and bipolar disorder, thus it should be taken seriously. The diagnostic criteria and assessment tools of postpartum hypomania were summarized for facilitate clinical staffs to identify the symptoms effectively. However, the incidence rate reported by the existing research showed difference because of the different assessment tools. In order to clarify the effect of hypomania on perinatal women, define the difference between hypomania and mania, and the association of hypomania with postpartum depression and bipolar disorder, a continuous follow-up investigation is needed to consider the previous maternal mental status in the analysis of influencing factors.

Author Contributions

Zhao Qianqian designed the paper conception, searched the literature, wrote and revised the paper. Zhao Qianqian, Zhou Yanli, Xiao Chaoqun, and Chen Yu carried out the feasibility analysis. Zhao Qianqian, Fan Zhongyi and Liu Wenting

conducted literature collection and analysis. Zhao Qian Qian and Chen Yu are responsible for the whole paper, and supervise and manage the progress. All other authors report no conflict of interest.

Acknowledgments

This work was supported by Grant Number 18YJAZH008 from Ministry of Education Humanities and Social Sciences Research Program Fund project, construction project of teaching quality and teaching reform in Guangdong province (teaching team) (Cantonese education letter [2020] No. 19), and Guangzhou University Innovation and Entrepreneurship (employment) Education Project (curriculum and teaching research project) (Guangzhou University Education [2019] No. 15).

Literature Research Strategy

The literature from Chinese and English electronic databases: Web of Science, PubMed, Springerlink and Wiley Online Library in English, and China National Knowledge Infrastructure (CNKI), and Wanfang Database in Chinese published from construction to 2021-05-01 was retrived, with “Hypomania” and “Postpartum” as the keywordes and “(Hypomanic OR Hypomania OR Hypomanias OR Hypomanic Episode OR Hypomanic Episodes) AND (Postpartum OR Postnatal)” as the search strategy.

Literature inclusion criteria: (1) researches of postpartum hypmanic symptoms associated with postpartum depression or postpartum bipolar disorder or postpartum psychosis; (2) researches of postpartum hypomanic symptoms screening or diagnosis; (3) researches of influencing factors analysis of postpartum hypomania; (4) cross-sectional study, cohort study or review study. Literature exclusion criteria: (1) animal studies or studies on subjects other than postpartum women; (2) studies on the effects of drug therapy or psychotherapy.

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