Is Postpartum Psychosis Incidence Increasing During the COVID-19 Pandemic?

To the Editor:

Postpartum psychosis (PP) refers to a manic, psychotic, psychotic depressive, or mixed state episode (1,2) generally occurring 3 to 10 days after childbirth (3,4). Symptoms can develop rapidly and include hallucinations, delusions, irritability, mood lability, sleep disturbance, and confusion (5). PP is a psychiatric emergency, and the majority of cases require hospitalization (6) owing to increased risk of suicide and infanticide (2,3). The underlying pathophysiology is poorly understood (2,5), and investigation is limited by low incidence, typically ranging from 0.25 (7,8) to 0.6 (9) cases of first-episode PP per 1000 births. However, certain biological mechanisms are theorized to be involved, especially immune system dysregulation and alterations in proinflammatory cytokines interleukin 1β (10) and interleukin 8 (11). Other findings suggest that stress response contributes to PP development and may be mediated by immune-hypothalamic-pituitary-adrenal axis dysfunction (12).

The COVID-19 pandemic may be contributing to increasing rates of psychosis in the general population (13–17). Case reports have documented associations between heightened pandemic-related fears and vulnerability to psychosis in the perinatal period (14,18) as well as between PP and COVID-19 viral infection (19). Anecdotally, we noticed an apparent increase in patients presenting to our hospital system with PP. To our knowledge, there have been no epidemiological reports estimating PP prevalence or incidence rates during the pandemic. This study investigates the impact of the pandemic on first-episode PP incidence in a clinical sample. Two cases are presented to illustrate the clinical significance of our findings and demonstrate the need for further research in the field.

Methods

This retrospective cohort study compares first-episode PP incidence from year 1 of the COVID-19 pandemic to years prior using admission data from electronic medical records of a large tertiary-care hospital system. This study was approved by our institutional review board. Informed consent was obtained from participants described in case presentations.

Record Identification

During a 3-year period, February 1, 2018, to January 31, 2021, we identified all women of reproductive age, 16 to 40 years, who were diagnosed with PP and/or those with secondary hospitalizations within 90 days of a psychiatric hospitalization for psychotic or manic symptoms. Prior studies suggest 90 days to be the most appropriate cutoff point when using psychiatric admission as the criterion (3,8). Secondary encounters not related to obstetric delivery were then removed. Review of clinician documentation enabled verification of first-episode PP diagnosis using well-established guidelines (5). Notable exclusions were active substance use, prior manic or psychotic episodes, bipolar disorder, and potentially contributory medical illness (Figure 1) (5).

Statistical Analysis

Analyses were conducted using SPSS version 27.0 (IBM Corp., Armonk, NY), using Quasi-Poisson regression to account for overdispersion. Year and presence of PP were categorical variables, and the count was the dependent variable. The significance level was set to 0.05, and a one-sided test was performed to test the hypothesis that PP incidence was higher in the COVID-19 cohort. The incidence rate ratio was calculated with a 95% Wald confidence interval with Agresti-Coull adjustment to account for rare events.

Results

During pandemic year 1 (February 1, 2020, to January 31, 2021), there were 6 first-episode PP cases, 3554 live births, and an incidence of 1.68 per 1000 live births (Figure 2). Case characteristics comprised the following: age (20 years, 20 years, 29 years, 32 years, 34 years, 36 years), parity (5 of 6 were G1P1 [gravida 1, para 1], 1 of 6 was G5P4), comorbidities (4 of 6 with no comorbidities, 1 of 6 with preeclampsia, 1 of 6 with obesity, 1 of 6 with asymptomatic COVID-19 positivity on polymerase chain reaction screen). In the 2 preceding years (February 1, 2018, to January 31, 2020), there were 2 cases, 7129 live births, and an incidence of 0.28 per 1000 live births. This incidence is consistent existing epidemiologic study findings (7–9). Case characteristics comprised the following: age (30 years, 40 years), parity (1 of 2 was G4P1, 1 of 2 was G7P5), comorbidities (1 of 2 with obesity, 1 of 2 with preeclampsia and fibroids). An incidence rate ratio of 4.0 was determined with a 95% CI of 1.21 to 13.3 and a p value of .0469.

Cases

Patient A had no prior psychiatric history or known COVID-19 infection and began experiencing profound anxiety related to personal and financial stressors brought on by the pandemic at 20 weeks gestation. She presented 1 week postpartum with paranoia, visual illusions, ideas of reference, thought disorder, poor self-care, and sleep disturbance. She recalled, “I noticed people were crossing their eyes at the hospital and I thought they were trying to hypnotize me.” She noticed small things, small dog hairs or fluff, it almost looks like a snake or a worm. And sometimes I see them everywhere, like small worms or sperm trying to burrow into an egg.”

Patient B had a remote history of depression and no known COVID-19 infection history. During her first trimester, she lost her job owing to the pandemic, with resultant financial insecurity. She presented 4 weeks postpartum with visual-tactile hallucinations of shadows turning into people, snakes, and bugs in her bed, and the sensation that an earthquake was occurring. She had intermittent confusion and memory difficulties, and ongoing ego-dystonic suicidal and infanticidal
ideation, which she experienced as highly distressing and shameful.

**Discussion**

As our cases demonstrate, PP is a potentially severe condition that can affect those without established psychiatric illness. Historically, incidence tends to be low, yet our findings suggest that rates may have increased during year 1 of the COVID-19 pandemic. This observation exists only within a clinical sample of a single health care institution. Therefore, results are not generalizable to the general public. Nevertheless, these findings have implications for future research involving larger, nationally representative, population-based samples.

Reasons for this apparent rise in cases are likely multifactorial, though there is a strong case for involvement of pandemic-related psychosocial stressors as illustrated by recent reports (18). Prior work suggests that immune dysregulation may contribute to PP development (10,11), indicating a theoretical basis for subclinical COVID-19 viral infection as an etiologic factor. Even in the absence of infectious process, immune dysfunction is known to contribute to psychopathology during the perinatal period and can be mediated through alterations in stress response and hypothalamic-pituitary-adrenal function (12,20). Further study of the interplay between psychosocial and biologic factors is therefore warranted.

An additional limitation to be noted is that the nature of the pandemic limits our time frame of comparison. COVID-19 may also be affecting rates of hospitalization, theoretically leading to underestimation of PP incidence. Finally, the observations reported in this study do not prove causality and should not change care of pregnant patients. Time and perspective on the
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Figure 2. First-episode postpartum psychosis incidence.

The pandemic may influence our understanding of these findings, and physicians should remain vigilant in assessing patients for PP as it evolves.

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