First-Onset Psychosis Occurring in the Postpartum Period: A Prospective Cohort Study

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ABSTRACT

Objective: To prospectively characterize a cohort of patients for whom first lifetime episode of psychosis occurs in the postpartum period.

Method: Included in the study were 51 women admitted to an inpatient facility for postpartum psychosis and a population-based control group (n = 6,969). All patients received naturalistic treatment using the sequential addition of benzodiazepines, antipsychotics, and lithium. A clinician-administered questionnaire and parallel history provided information about obstetric history, pregnancy, delivery, breastfeeding, neonatal outcomes, and onset of the disease. Clinical remission was defined as the absence of psychotic, manic, and depressive symptoms for at least 1 week. The primary outcome measure was the Clinical Global Impressions-Severity scale. The study was conducted from 2005 to 2009.

Results: Compared to the general population sample, women with postpartum psychosis had a significantly higher incidence of primiparity (OR = 2.90; 95% CI, 1.49–5.67) but had no significant differences in delivery-related, lactational, or neonatal-related risk factors. The median onset of psychiatric symptoms occurred at 8 days' postpartum (interquartile range [IQR], 5–14), and median duration of episode was 40 days (IQR, 23–69). Patients with prominent depressive symptoms had a significantly later onset ($P = .01$) of psychosis and a longer duration of episode ($P < .01$) than patients without depressive symptoms. Psychotic symptoms were mood-incongruent in 64.7% of patients.

Conclusions: In contrast to other findings related to postpartum psychosis in bipolar patients, no delivery-related, neonatal-related, or lactational risk factors could be identified. Further, our findings of a delayed onset and mood incongruence of postpartum psychotic symptoms markedly contrasts with that of patients with a previous history of bipolar disorder. These results suggest that women with psychosis limited to the postpartum period might have a distinct risk profile and phenomenology.

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Postpartum psychosis is a rare but severe disorder. The incidence has been estimated at 1 or 2 of 1,000 deliveries.[1] Phenomenologically, postpartum psychosis has been described as having the abrupt onset of manic or psychotic symptoms within 4 weeks of delivery. In addition, patients frequently experience insomnia, restlessness, irritability, and affective instability.[2] Importantly, clinical symptoms vary widely and can often be overlooked in the early postpartum period. However, given the severity of the disorder, with very high risks for suicide and infanticide, early recognition is of great importance.

By far, the most important risk factor for postpartum psychosis is a history of bipolar disorder.[3] In women with bipolar disorder, the first symptoms of postpartum psychosis are often reported within 1 or 2 days following delivery.[4,5] Indeed, for women with bipolar disorder, careful monitoring during the postpartum period, prophylactic treatment, and prevention of sleep loss have been well-documented measures that improve clinical outcome.[6]

Although bipolar disorder is an important risk factor for postpartum psychosis, the majority of patients admitted with postpartum psychosis have no prior diagnosis of a psychiatric disorder.[7] Therefore, the etiology of postpartum psychosis in patients with no prior psychiatric history remains unclear. Further, the most commonly reported hypothesis is that their manifestation of postpartum psychosis results from an underlying bipolar diathesis.[8–10] Therefore, investigators have now begun to focus studies specifically on this distinct population: those patients with psychotic episodes limited to the postpartum period.[11,12]

Accordingly, the present study was designed to prospectively examine the risk factors, phenomenology, mode of onset, and clinical course in women with psychosis exclusively limited to the postpartum period.

METHOD

Participants

This study was approved by the medical ethical committee of the Erasmus Medical Center, Rotterdam, the Netherlands. All subjects provided written informed consent.

The study was performed at the Mother-Baby Inpatient Unit of the Department of Psychiatry of the Erasmus Medical Center. This 5-bed inpatient unit treats female patients with severe psychopathology in the postpartum period (0–6 months). Patients are given the option of admission together with their baby in a fully staffed nursery adjoining the unit.

Every patient admitted to the Mother-Baby Inpatient Unit between August 2005 and December 2009 was screened for study inclusion (n = 157), and diagnosed using the Structured Clinical Interview for *DSM-IV* Axis I Disorders, Patient Edition (SCID-I/P).[13] Previous hypomanic and manic episodes were registered using the Mood Disorder Questionnaire.[14]

Patients aged 18–45 years with a diagnosis of "postpartum psychosis" were included in the study cohort. As postpartum psychosis is not described as a distinct disease entity in *DSM-IV-TR*, we defined the diagnosis

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Clinical Points

- First-onset postpartum psychosis has a distinct risk profile and phenomenology compared to postpartum psychosis in patients with bipolar disorder.
- Depressive symptoms were associated with a later onset and longer duration of episode.
- Treatment with the combination of lithium plus an antipsychotic led to high rates of remission.

as subjects for whom the SCID interview generated any of the following *DSM-IV-TR* diagnoses and required the specifier "onset postpartum": depressive disorder with psychotic features, mania with psychotic features, mixed episode with psychotic features, psychotic disorder not otherwise specified (NOS), or brief psychotic disorder. Importantly, the specifier *onset postpartum* requires that the onset of symptoms must occur within 4 weeks' postpartum. Consequently, patients with a chronic psychotic disorder or psychosis with onset during pregnancy were excluded.

Sixty-six patients fulfilled the criteria for postpartum psychosis. We excluded 15 patients because of a history of psychosis and/or mania occurring outside the postpartum period: 8 patients had a history of bipolar I disorder, 5 had psychotic disorder NOS, 1 had schizoaffective disorder, and 1 had cannabis dependence. Fifty-one patients had psychosis limited to the postpartum period, of which 45 patients were experiencing their first psychotic episode, while 6 patients each had a single previous episode of postpartum psychosis. Of these 51 women with psychosis limited to the postpartum period, 9 women reported depressive and anxiety symptoms in history, 6 women had previously seen a psychologist, and 1 woman had been treated with venlafaxine. No patients fulfilled criteria for a *DSM-IV* Axis II personality disorder.

Since postpartum psychosis is widely considered a bipolar spectrum disorder, treatment was administered using the clinical guidelines for bipolar I disorder.[15] Specifically, all patients were initially treated with benzodiazepines. For those patients without a marked improvement on benzodiazepine monotherapy, antipsychotic medication was initiated within the first week of admission. After 2 weeks of combination antipsychotic/benzodiazepine treatment, adjunctive lithium was initiated in those patients without a significant clinical response.

The control group was included through the Generation R Study, a population-based study conducted in the same catchment area, with delivery dates from April 2002 until January 2006.[16] This study is designed to identify early environmental and genetic determinants of growth, development, and health from fetal life until young adulthood. Study inclusion occurred during pregnancy for 6,969 women, with a follow-up of at least 2 months in the postnatal phase.

Risk Factors and Precipitating Factors

All participants and their relatives were interviewed by a psychiatrist. A clinician-administered questionnaire provided information about obstetric history, pregnancy, delivery, breastfeeding, and neonatal outcomes.

Phenomenology was quantified using the Bipolar Affective Disorder Dimension Scale (BADDS).[17] The BADDS is a dimensional rating scale intended for use in clinical samples with a high incidence of bipolar spectrum illness. There are 4 identified dimensions that measure the key domains of lifetime psychopathology: mania, depression, psychosis, and mood incongruence. The presence of psychotic symptoms (percentage of time) was defined based upon the comprehensive psychiatric team evaluations throughout the admission course.

Onset of Symptoms and Clinical Course

We defined the onset of psychiatric symptoms as the first date of having any of the following symptoms: delusions, hallucinations, euphoric mood, increased libido, obsessive thoughts, panic attacks, suicidal thoughts, anhedonia, or disorientation. Further, the onset of prodromal symptoms was defined as the time point at which the patient, her partner, or family initially reported becoming concerned about the patient's mental health but prior to contacting a mental health provider or having a sufficient symptom burden to fulfill the diagnostic criteria for postpartum psychosis.

Clinical evaluation of treatment was performed weekly using the Clinical Global Impressions-Severity scale (CGI-S [primary outcome measure]),[18] the Young Mania Rating Scale (YMRS),[19] and the Edinburgh Postnatal Depression Scale (EPDS).[20] Clinical remission was defined as the absence of psychotic, manic, and depressive symptoms for at least 1 week (including CGI-S score ≤ 3, YMRS score ≤ 8, and EPDS score ≤ 10).[21] Duration of episode was defined as the number of days from the initial onset of psychiatric symptoms until remission.

Statistical Analysis

All analyses were performed using SAS, version 9 (SAS Institute Inc; Cary, North Carolina). Categorical outcomes were examined using odds ratios (ORs) with corresponding 95% confidence intervals (CIs). Continuous variables were evaluated using a 2-sample *t* test. Control cases were matched for ethnic group and parity, drawn randomly from the generation R population using the sample function in SPSS. Postpartum onset of symptoms was evaluated using Kaplan-Meier methodology and the log-rank test. All hypotheses were tested with an α of .05 (2-sided).

RESULTS

Demographics and Obstetric Outcomes

Table 1 shows the demographic, obstetric, and child outcome measures for the enrolled cohorts. Overall, compared to the unmatched general population sample, women

Table 1. Demographic Information, Obstetric Variables, and Neonatal Outcomes in Women With Postpartum Psychosis

Variable	Postpartum Psychosis (N = 51)[a]	General Population (N = 6,969)[a]	OR (95% CI)	General Population (matched for ethnicity and primiparity) (n = 2,847)[a]	OR (95% CI)
General demographics					
Dutch ethnicity	88.2	52.9	6.68 (2.85–15.67)	88.2	1.00 (0.42–2.37)
Postsecondary education	52.9	32.2	2.37 (1.36–4.12)	40.5	1.65 (0.95–2.88)
Married	96.1	87.0	0.27 (0.07–1.13)	90.8	2.23 (0.54–9.21)
Primiparity	78.4	55.6	2.90 (1.49–5.67)	78.3	1.01 (0.52–1.98)
Primigravity	68.6	44.4	2.74 (1.51–4.96)	65.0	1.18 (0.65–2.14)
Age, mean (SD), y	31.9 (4.5)	30.2 (5.1)	NS	30.7 (4.5)	NS
History of depressive symptoms	17.6	16.2	1.11 (0.54–2.28)	17.0	1.05 (0.51–2.16)
Pregnancy					
Unplanned pregnancy	9.8	27.1	0.29 (0.12–0.74)	19.8	0.44 (0.17–1.11)
Continual smoking	9.8	10.8	0.90 (0.36–2.27)	10.6	0.92 (0.36–2.32)
Continual alcohol use	25.5	17.9	1.57 (0.83–2.96)	22.1	1.21 (0.64–2.28)
Blood loss	3.9	1.0	4.02 (0.96–16.87)	0.8	5.01 (1.15–21.85)
Growth retardation	2.0	1.6	1.22 (0.17–8.94)	1.6	1.25 (0.17–9.21)
Hypertension	3.9	3.6	1.09 (0.26–4.51)	4.7	0.83 (0.20–3.43)
Preeclampsia or eclampsia	5.9	1.9	3.24 (0.97–10.53)	1.9	3.23 (0.98–10.70)
Diabetes gravidarum	0	0.7	NA[b]	0.7	NA[b]
Delivery					
Home delivery	13.7	14.1	0.97 (0.44–2.16)	16.8	0.79 (0.35–1.76)
Fetal distress	7.8	15.4	0.47 (0.17–1.30)	10.3	0.74 (0.27–2.07)
Failure to progress/failure to descend	11.8	16.3	0.69 (0.29–1.60)	21.3	0.51 (0.22–1.21)
Fluxus	3.9	5.4	0.72 (0.17–2.96)	6.4	0.59 (0.14–2.46)
Prolonged rupture of membrane	2.0	6.0	0.31 (0.04–2.28)	6.6	0.28 (0.04–2.07)
Total or subtotal rupture	7.8	5.5	1.46 (0.53–4.08)	4.6	1.76 (0.63–4.97)
Elective cesarean	2.0	4.7	0.40 (0.06–2.93)	5.5	0.34 (0.05–2.50)
Emergency cesarean	7.8	7.5	1.05 (0.38–2.91)	8.8	0.89 (0.32–2.48)
Vacuum	9.8	13.6	0.69 (0.27–1.74)	17.5	0.51 (0.20–1.29)
Breastfeeding	88.2	87.8	1.04 (0.44–2.45)	87.0	1.12 (0.48–2.66)
Child					
Premature birth < 37 weeks	7.8	5.6	1.44 (0.52–4.00)	6.4	1.23 (0.44–3.46)
Neonatal ward	19.6	16.7	1.22 (0.61–2.44)	18.9	1.04 (0.52–2.10)
Birth weight, mean (SD), g	3,391 (818)	3,412 (566)	NS	3,420 (569)	NS

[a]Values shown are percentages unless otherwise stated.
[b]Odds ratio cannot be computed given the absence of diabetes gravidarum in postpartum psychosis.
Abbreviations: NA = not applicable, NS = nonsignificant.

with postpartum psychosis more frequently were of Dutch origin (OR = 6.68; 95% CI, 2.85–15.67), had a postsecondary education (OR = 2.37; 95% CI, 1.36–4.12), and were married (OR = 0.27; 95% CI, 0.07–1.13). Further, women with postpartum psychosis had a higher incidence of primiparity (OR = 2.90; 95% CI, 1.49–5.67) and primigravity (OR = 2.74; 95% CI, 1.51–4.96).

Of note, 11 of 51 patients had a previous delivery prior to study enrollment. Six of these multiparous women had previous postpartum psychosis. In contrast, the other 5 patients had no significant psychiatric symptoms following their previous deliveries. Therefore, of the 45 patients with only 1 episode of postpartum psychosis, 40 (88.9%) were primiparous.

No differences were found in the rates of complications during delivery, nor in the frequency of cesarean section, compared to controls. Children from mothers with postpartum psychosis had the same mean gestational age and birth weight, and no difference in neonatal admission in the first week postpartum was observed. There was no difference in the prevalence of breastfeeding in women with postpartum psychosis compared to controls.

Given the demographic differences between the patients and the control sample, we subsequently matched the cohorts for ethnicity and primiparity, as these demographic factors might influence the development of postpartum symptoms (Table 1). After matching for ethnicity and primiparity, a significant difference was found in blood loss during pregnancy (OR = 5.01; 95% CI, 1.15–21.85), despite the low absolute incidence of blood loss during pregnancy in all groups. Further, the incidence of (pre)eclampsia in 3 of 51 women with postpartum psychosis remained elevated and nearly reached statistical significance (OR = 3.23; 95% CI, 0.98–10.70). Importantly, however, there remained no significant differences in any other demographic, obstetric, or child outcome measures.

Phenomenology

Table 2 shows the phenomenological characteristics of the presenting episode of postpartum psychosis. Fifty-one women experienced a postpartum psychosis, of which 36 were without depressive symptoms. Of these women, 32 of 36 had a combination of manic and psychotic features, while 4 of 36 had a predominance of psychotic symptoms without clear evidence of mania.

Fifteen women had a postpartum psychosis with prominent depressive symptoms. Among these 15 women with a

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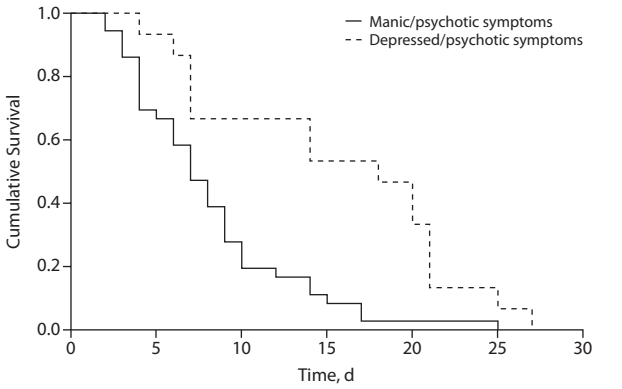
Table 2. Phenomenology of Patients With Postpartum Psychosis

Variable	Postpartum Psychosis (N = 51) n	%
Phenomenology		
Postpartum psychosis		
With manic psychotic features	32	62.7
With only psychotic features	4	7.8
With depressed psychotic features	7	13.7
With mixed (manic and depressed) features	8	15.7
Relation between mood symptoms and psychotic symptoms		
Only mood-congruent psychotic symptoms	18	35.3
Presence of mood-incongruent psychotic symptoms	33	64.7
Balance between mood-congruent/mood-incongruent psychotic symptoms	14	27.5
Mood-incongruent psychotic symptoms	15	29.4
Presence of first-rank symptoms[a]	4	7.8
Presence of psychotic symptoms		
Up to 25% of episode	8	15.7
50% of episode	11	21.6
75% of episode	9	17.6
100% of episode	23	45.1

[a]Thought echo, insertion, withdrawal or broadcasting, passivity experiences, hallucinatory voices giving running commentary, discussing subject in third person or originating in some part of the body, bizarre delusions, or catatonia.

Figure 1. Survival Curve of Time From Delivery to the Initial Onset of Prominent Psychiatric Symptoms in Patients With Postpartum Psychosis



postpartum psychosis and prominent depressive symptoms, 7 patients had mood symptoms restricted to depression, while 8 patients fulfilled criteria for a mixed episode involving both manic and depressive symptoms.

Regarding psychotic symptoms, the majority of patients had a mood-incongruent psychosis (n/N = 33/51, 64.7%). Of these patients with mood-incongruent psychotic symptoms, 25 presented with manic features, 4 with mixed features, and 4 with depressive features. Further, 4 of these 33 patients showed Schneiderian first-rank symptoms, of which all 4 patients presented with manic features.

Onset of Symptoms

The median onset of the initial psychiatric symptoms occurred at 8 days' postpartum (interquartile range [IQR], 5–14). There was no difference in symptom onset between the 45 women with first-onset postpartum psychosis and the 6 women with a second episode of postpartum psychosis. In contrast, there were significant differences in onset stratified by phenomenological characteristics. Patients without depression had a significantly earlier onset of psychosis (median = 7 days; IQR, 4–10) than patients with prominent depressive symptoms (median = 18 days; IQR, 7–21) (Figure 1; log-rank $P = .01$).

The majority of women reported a history of prodromal symptoms prior to the overt onset of postpartum psychosis (n = 37, 72.5%). Of these 37 women, only 4 reported an onset of prodromal symptoms during pregnancy. In contrast, 33 women had a postpartum onset of symptoms, for which the prodromal phase lasted a median of 5 days (IQR, 2–7), while the onset of postpartum psychosis occurred at a median 9.5 days' postpartum (IQR, 7–17). No prodromal phase was evident prior to the onset of postpartum psychosis in the remaining 14 women (27.5%), for whom the median onset of acute psychosis was at day 6 (IQR, 4–9).

No difference in the incidence of prodromal symptoms was found between patients with a first versus second episode of postpartum psychosis. Similarly, the presence or absence of depressive symptoms was not significantly related to the incidence of prodromal symptoms.

Duration of Episode

In our cohort, 47 of 51 patients (92.2%) achieved full remission prior to discharge (Figure 2). The majority of patients (n = 34, 66.7%) achieved remission using the combination of lithium, antipsychotics, and benzodiazepines. Nine patients (17.6%) remitted with the combination of antipsychotic medication and benzodiazepines, whereas 3 patients (5.9%) achieved remission with benzodiazepines only. One patient ultimately required electroconvulsive therapy treatment to achieve full remission.

Four patients requested voluntary discharge from the hospital before achieving full remission at a median 7 weeks after admission. These 4 patients showed a clear response to treatment, for which both manic and psychotic symptoms were absent for more than 1 week (1 patient used benzodiazepines and 3 patients used the combination of lithium, antipsychotics, and benzodiazepines). However, they did not fulfill criteria for complete remission at discharge because they still suffered from depressive symptoms or irritability.

In the 47 patients (92.2%) who achieved full remission during their inpatient hospitalization, the median duration of episode was 40 days (IQR, 23–69). Further, the duration of episode in patients with first-onset postpartum psychosis was similar to those experiencing a second episode of postpartum psychosis ($P = .81$, Mann-Whitney test).

There were significant differences in duration of episode based on the current phenomenology. The clinical course of patients with manic/psychotic features compared to patients with depressed/psychotic features is shown in Figure 3. In the 35 women with a predominance of

Figure 2. Treatment of Patients With Postpartum Psychosis

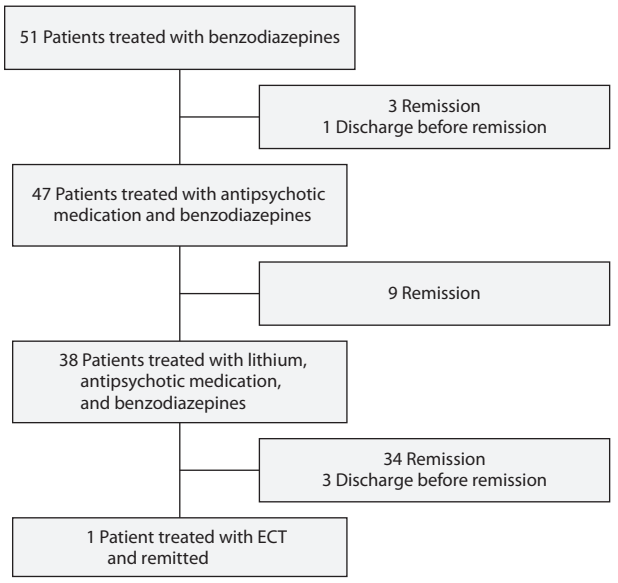
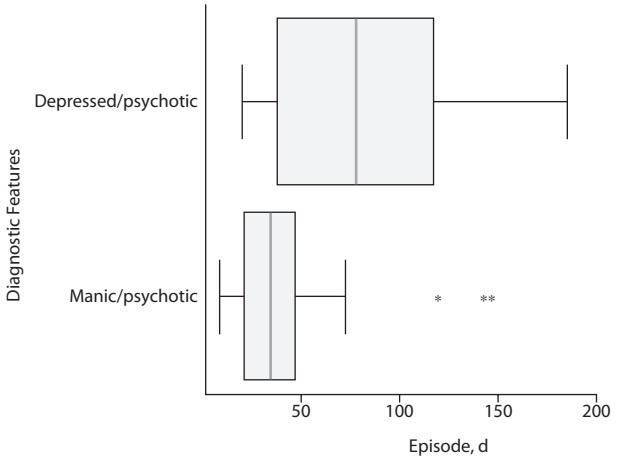


Figure 3. Duration of Disease Episode in Patients With Manic/Psychotic Features Compared to Patients With Depressed/Psychotic Features[a]



[a]Asterisks represent outliers.

manic/psychotic symptoms, the median duration of episode was 34 days (IQR, 19–48). In contrast, the 12 women with postpartum psychosis and depressive symptoms had a significantly longer median duration of episode (77.5 days [IQR, 31–117]; $P < .01$, Mann-Whitney test). This difference was particularly influenced by the median duration of episode in women with psychotic depression (115 days [n = 6]) compared to the patients with a mixed episode (54 days [n = 6]).

DISCUSSION

In this prospective study, we examined risk factors, phenomenology, mode of onset, and clinical course in women with psychosis exclusively limited to the postpartum period.

Primiparity Is a Highly Predictive Covariate for Postpartum Psychosis

Primiparity has been previously observed as a significant covariate, predictive of postpartum psychosis.[6] Indeed, our data strongly confirm this finding. Specifically, we find that the initial episode of postpartum psychosis occurs predominantly following a primiparous delivery. Together, these data support a model whereby delivery represents a "neurobiological stress test," for which a primiparous delivery without psychiatric sequelae is highly predictive of subsequent deliveries. Accordingly, if a woman's initial delivery does not trigger a postpartum psychosis, then the likelihood becomes substantially lower that a subsequent delivery will cause a postpartum psychosis.

Blood Loss and Preeclampsia as Risk Factors for Postpartum Psychosis?

Even after correction for ethnicity and parity, we found a higher incidence of blood loss and preeclampsia during pregnancy in women who later developed postpartum psychosis. Accordingly, further research in larger naturalistic cohorts should be used to confirm these findings and to investigate their pathophysiologic underpinnings. Importantly, however, the low absolute incidence of blood loss or preeclampsia in the postpartum psychosis cohort precludes that either of these factors has a major influence on the general population rates of postpartum psychosis.

No Identified Delivery-Related, Neonatal-Related, or Lactational Risk Factors

Previous studies in bipolar patients have identified complications during delivery that were associated with postpartum psychosis.[6] However, in contrast to these findings with bipolar patients, a recent population-based Swedish study[12] in primiparous mothers with no previous psychiatric hospitalization found no significant influence of delivery complications, such as perinatal death, congenital malformations, preterm birth, or cesarean delivery. Similarly, our prospective cohort of nonbipolar patients with no previous psychiatric history also identified no obstetrical or neonatal-related risk factors that were predictive of postpartum psychosis.

To the best of our knowledge, this is the first study of postpartum psychosis to evaluate the influence of lactation. In theory, the dramatic postpartum changes in the hormonal environment, followed by the cyclical neuroendocrine responses governing lactation, could be associated with the abrupt onset of postpartum psychosis. The principal hormones involved in lactation, prolactin and oxytocin, have each been independently associated with disturbances in mental state.[22,23] Importantly in our cohort, the rate of breastfeeding was equivalent in patients and controls. On the basis of these data, we find no evidence of an association between breastfeeding and postpartum psychosis, although prolactin and oxytocin cannot be ruled out as possible factors in the etiology of postpartum psychosis.

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Demographic Characteristics

The patient cohort had a higher likelihood of being ethnically Dutch, having postsecondary education, and being married or living with a partner. Notably however, no significant demographic differences remained after matching for ethnicity. The higher frequency of ethnically Dutch patients can most likely be explained by the widely observed difference in psychiatric services utilization between native and immigrant residents.[24] Consequently, some immigrant women and their relatives may not have contacted primary care services for serious mental health problems in the postpartum period. Accordingly, substantial efforts in the Netherlands have been increasingly focused on effective solutions for improving ethnic disparities in mental health services utilization.[25]

Phenomenology and Family History in Accordance With the Literature

The majority of women suffered from mania (n = 32). Less frequently, we observed mixed-episode symptoms (n = 8), depression with psychotic features (n = 7), or psychosis in the absence of discernible affective symptoms (n = 4). As extensively described in the literature, we indeed find that the majority of patients have bipolar symptoms. By the specific *DSM-IV* criteria, postpartum depression with psychotic features does not constitute a bipolar depression. However, several investigators have more recently advanced the perspective that early-onset postpartum depression is most likely to have a bipolar diathesis, especially if psychotic features are present.[26]

Importantly, the increased prevalence of mood-incongruent psychosis is similar to that reported in previous studies. In addition, the low incidence of Schneiderian first-rank symptoms has also been described previously.[27–30]

One limitation of the current study is the absence of formal cognitive testing. Previous studies of postpartum psychosis have included a detailed description of cognitive symptoms, which include disorientation, confusion, perplexity, misrecognition of people, derealization, and depersonalization.[27,29–31]

Delayed Onset of Psychiatric Symptoms in the Postpartum Period

The median onset of postpartum psychosis in our study was at 8 days following delivery. Indeed, multiple studies examining naturalistic cohorts of postpartum psychosis, including both bipolar and first-onset patients, have documented the predominant time of symptom onset between 3–10 days' postpartum.[28,32] However, these findings of a delayed onset of overt psychotic symptoms contrast with that of bipolar women for whom the onset of acute psychosis is often immediately postpartum.[4,5] Furthermore, an important confounding factor may be the relative preparedness of women with no prior psychiatric history versus those with bipolar disorder to recognize the emerging symptoms of postpartum psychosis. Additionally, from a neurobiological perspective, the threshold for manifesting clinical symptoms of postpartum psychosis might be substantially reduced in bipolar patients as a consequence of previous mood episodes, a phenomenon termed the "kindling hypothesis of mood disorders."[33]

Duration of Episode Appears Similar to Those Observed for Bipolar Disorder

In this study, we report on the duration of episode while patients received naturalistic treatment using the sequential addition of benzodiazepines, antipsychotics, and, finally, lithium. Our treatment algorithm was based on our clinical experience, guided by the larger literature for treatment of bipolar patients. Importantly, this treatment algorithm also included patients with postpartum psychotic depression based upon the findings of Sharma and colleagues.[34,35]

Indeed, few treatment recommendations are available in the literature documenting the duration of episode or response to treatment in nonbipolar patients with postpartum psychosis. Accordingly, future studies will need to be performed to define the optimal treatment algorithm for new-onset postpartum psychosis.

Of note, the median duration of episode appears similar in patients with postpartum psychosis and predominantly manic features (5 weeks) compared to the duration of manic episodes previously reported for bipolar patients (7 weeks).[36] Furthermore, we observed a significantly longer duration of episode in patients with postpartum psychosis and depressive features (11 weeks), analogous to the longer median duration of episode in bipolar depression (15 weeks).[36] As expected, patients with a mixed episode exhibiting both manic and depressed features showed a median duration of episode intermediate between the manic and depressed groups (8 weeks).

Psychosis Limited to the Postpartum Period: A Distinct Disease Entity?

Previous studies have clearly described the unusual symptom presentation of patients with postpartum psychosis.[27,29–31] Our data confirm that women with psychosis limited to the postpartum period have a unique risk profile and phenomenology. In particular, and in addition to the clear absence of any manic or psychotic symptoms outside the postpartum period, these patients compared to bipolar patients with postpartum psychosis demonstrate a significantly delayed postpartum onset, the absence of obstetric complications as a significant risk factor, and a prominence of mood-incongruent psychosis.

Most longitudinal studies have suggested that postpartum psychosis is frequently the initial presentation of an underlying mood disorder within the bipolar spectrum.[10,28,37–42] Accordingly, the first episode of postpartum psychosis may in retrospect be appreciated as the incipient clinical presentation of bipolar disorder. Further, previous studies have suggested that long-term outcomes are more favorable when bipolar disorder has a postpartum onset.[37,43,44]

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Indeed, for some women the occurrence of a postpartum episode of affective psychosis will remain exclusively limited to the postpartum period.[10,28,37–42] Therefore, an independent status for psychosis limited to the postpartum period might be justified. Further research efforts to distinguish these populations at the time of their first-onset of psychosis will greatly enhance clinical prognosis and treatment.

Drug names: lithium (Lithobid and others), venlafaxine (Effexor and others).

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