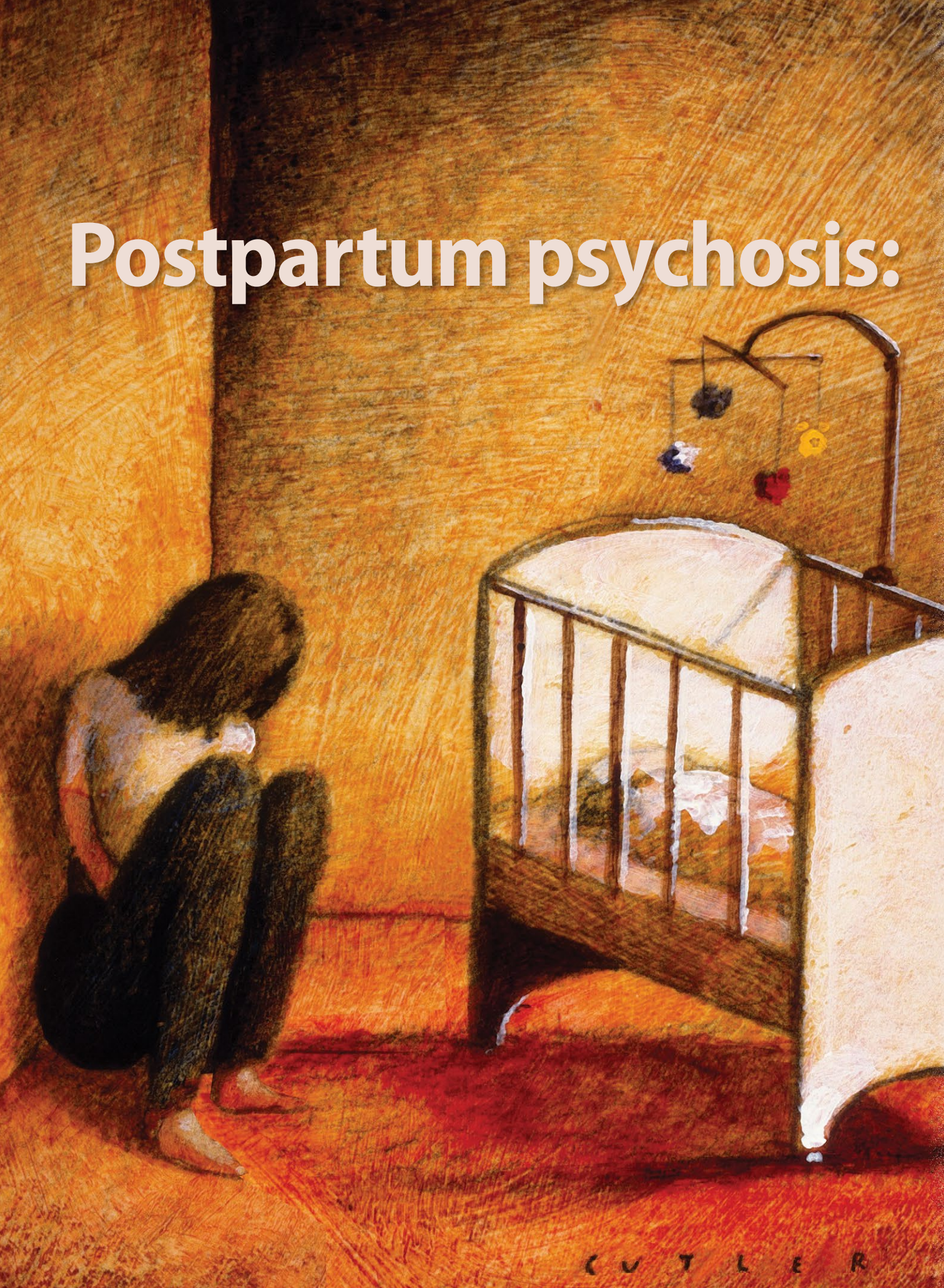
Postpartum psychosis:



Protecting mother and infant

Urgent identification and treatment are needed to prevent potentially fatal consequences

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A new mother drowned her 6-month-old daughter in the bathtub. The married woman, who had a history of schizoaffective disorder, had been high functioning and worked in a managerial role prior to giving birth. However, within a day of delivery, her mental state deteriorated. She quickly became convinced that her daughter had a genetic disorder such as achondroplasia. Physical examinations, genetic testing, and x-rays all failed to alleviate her concerns. Examination of her computer revealed thousands of searches for various medical conditions and surgical treatments. After the baby's death, the mother was admitted to a psychiatric hospital. She eventually pled guilty to manslaughter.[1]

Mothers with postpartum psychosis (PPP) typically present fulminantly within days to weeks of giving birth. Symptoms of PPP may include not only psychosis, but also confusion and dysphoric mania. These symptoms often wax and wane, which can make it challenging to establish the diagnosis. In addition, many mothers hide their symptoms due to poor insight, delusions, or fear of loss of custody of their infant. In the vast majority of cases, psychiatric hospitalization is required to protect both mother and baby; untreated, there is an elevated risk of both maternal suicide and infanticide. This article discusses the presentation of PPP, its differential diagnosis, risk factors for developing PPP, suicide and infanticide risk assessment, treatment (including during breastfeeding), and prevention.

The bipolar connection

While multiple factors may increase the risk of PPP (***Table 1***,[2] ***page 14***), women with bipolar disorder have a particularly elevated risk. After experiencing incipient postpartum affective psychosis, a woman has a

DAVE CUTLER

Postpartum psychosis

Table 1

Postpartum psychosis: Risk factors

Personal or family history of postpartum psychosis
Bipolar disorder or schizoaffective disorder
Hormonal shifts after birth (primarily rapid drop in estrogen)
Immune activation
Sleep deprivation in susceptible women
Primiparity

Source: Reference 2

Clinical Point

New mothers with bipolar disorder are more likely to experience psychiatric admission than those with any other psychiatric diagnosis

50% to 80% chance of having another psychiatric episode, usually within the bipolar spectrum.[2] Of all women with PPP, 70% to 90% have bipolar illness or schizoaffective disorder, while approximately 12% have schizophrenia.[3,4] Women with bipolar disorder are more likely to experience a postpartum psychiatric admission than mothers with any other psychiatric diagnosis[5] and have an increased risk of PPP by a factor of 100 over the general population.[2]

For women with bipolar disorder, PPP should be understood as a recurrence of the chronic disease. Recent evidence does suggest, however, that a significant minority of women progress to experience mood and psychotic symptoms only in the postpartum period.[6,7] It is hypothesized that this subgroup of women has a biologic vulnerability to affective psychosis that is limited to the postpartum period. Clinically, understanding a woman's disease course is important because it may guide decision-making about prophylactic medications during or after pregnancy.

A rapid, delirium-like presentation

Postpartum psychosis is a rare disorder, with a prevalence of 1 to 2 cases per 1,000 childbirths.[3] While symptoms may begin days to weeks postpartum, the typical time of onset is between 3 to 10 days after birth, occurring after a woman has been discharged from the hospital and during a time of change and uncertainty. This can make the presentation of PPP a confusing and distressing experience for both the new mother and the family, resulting in delays in seeking care.

Subtle prodromal symptoms may include insomnia, mood fluctuation, and irritability. As symptoms progress, PPP is notable for a rapid onset and a delirium-like appearance that may include waxing and waning cognitive symptoms such as disorientation and confusion.[8] Grossly disorganized behaviors and rapid mood fluctuations are typical. Distinct from mood episodes outside the peripartum period, women with PPP often experience mood-incongruent delusions and obsessive thoughts, often focused on their child.[9] Women with PPP appear less likely to experience thought insertion or withdrawal or auditory hallucinations that give a running commentary.[2]

Differential diagnosis includes depression, OCD

When evaluating a woman with possible postpartum psychotic symptoms or delirium, it is important to include a thorough history, physical examination, and relevant laboratory and/or imaging investigations to assess for organic causes or contributors (***Table 2***[2,6,10-12] and ***Table 3***,[2,6,10-12] ***page 15***). A detailed psychiatric history should establish whether the patient is presenting with new-onset psychosis or has had previous mood or psychotic episodes that may have gone undetected. Important perinatal psychiatric differential diagnoses should include "baby blues," postpartum depression (PPD), and obsessive-compulsive disorder (OCD).

PPP vs "baby blues." "Baby blues" is not an official DSM-5 diagnosis but rather a normative postpartum experience that affects 50% to 80% of postpartum women. A woman with the "baby blues" may feel weepy or have mild mood lability, irritability, or anxiety; however, these symptoms do not significantly impair function. Peak symptoms typically occur between 2 to 5 days postpartum and generally resolve within 2 weeks. Women who have the "baby blues" are at an increased risk for PPD and should be monitored over time.[13,14]

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PPP vs PPD. Postpartum depression affects approximately 10% to 15% of new mothers.[15] Women with PPD may experience feelings of persistent and severe sadness, feelings of detachment, insomnia, and fatigue. Symptoms of PPD can interfere with a mother's interest in caring for her baby and present a barrier to maternal bonding.[16,17]

As the awareness of PPD has increased in recent years, screening for depressive symptoms during and after pregnancy has increasingly become the standard of care.[18] When evaluating a postpartum woman for PPD, it is important to consider PPP in the differential. Women with severe or persistent depressive symptoms may also develop psychotic symptoms. Furthermore, suicidal thoughts or thoughts of harming the infant may be present in either PPD or PPP. One study found that 41% of mothers with depression endorsed thoughts of harming their infants.[19]

PPP vs postpartum OCD. Postpartum obsessive-compulsive symptoms commonly occur comorbidly with PPD,[9] and OCD often presents for the first time in the postpartum period.[20] Obsessive-compulsive disorder affects between 2% to 9% of new mothers.[21,22] It is critical to properly differentiate PPP from postpartum OCD. Clinical questions should be posed with a non-judgmental stance. Just as delusions in PPP are often focused on the infant, for women with OCD, obsessive thoughts may center on worries about the infant's safety. Distressing obsessions about violence are common in OCD.[23] Mothers with OCD may experience intrusive thinking about accidentally or purposefully harming their infant. For example, they may intrusively worry that they will accidentally put the baby in the microwave or oven, leave the baby in a hot car, or throw the baby down the stairs. However, a postpartum woman with OCD may be reluctant to share her ego-dystonic thoughts of infant harm. Mothers with OCD are not out of touch with reality; instead, their intrusive thoughts are ego-dystonic and distressing. These are thoughts and fears that they focus on and try to avoid, rather than plan. The psychiatrist must carefully differentiate between ego-syntonic and ego-dystonic thoughts. These patients often avoid seeking treatment because of their shame and guilt.[23] Clinicians often under-recognize OCD and risk inappropriate hospitalization, treatment, and inappropriate referral to Child Protective Services (CPS).[23]

continued

Table 2

Medical differential diagnosis for postpartum psychosis

Infection (ie, endometritis or CNS infection)
Primary hyperparathyroidism
Thyroid disease
Substance intoxication or withdrawal
Peripartum blood loss and anemia
Tumor (primary or metastatic)
Autoimmune disease (anti-NMDAR encephalitis)
Inborn errors of metabolism (urea cycle disorder)
Head injury
Embolism
Eclampsia
Medication-induced (such as corticosteroids)
Electrolyte anomalies
Anoxia (Sheehan's syndrome)
Vitamin B_{12} deficiency

Anti-NMDAR: anti-*N*-methyl-D-aspartate receptor

Source: References 2,6,10-12

Table 3

Laboratory testing and radiologic imaging

Complete blood count
Urinalysis
Comprehensive metabolic profile
Urine drug screen
Thyroid-stimulating hormone, free T4, and thyroid peroxidase antibodies
If neurologic symptoms are present: cerebrospinal fluid analysis, limbic encephalitis and antibody screening, serum ammonia concentration, EEG, and MRI

T4: thyroxine

Source: References 2,6,10-12

Clinical Point

Consider postpartum psychosis in the differential when evaluating a woman for postpartum depression

Clinical Point

When a mother develops postpartum psychosis, consider the risks of suicide, child harm, and infanticide

Table 4

Infanticide motives: Not all are related to mental illness

Motive	Description	Relevance to PPP
Fatal maltreatment	The most common cause of infanticide Death as a result of abuse or neglect (often chronic)	Rarely related to PPP, but a mother with PPP may have irritability or difficulty providing for the infant's needs
Unwanted child	Infant is unwanted due to inconvenience or future plans	Rarely related to PPP
Partner revenge	The least common cause of infanticide Murder of infant to cause suffering of other parent, may occur during custody battle	Rarely related to PPP
Altruistic	A mother with psychosis or depression kills her infant "out of love" believing that she is preventing earthly suffering; or a suicidal mother kills her infant and herself, rather than leave the infant in the world motherless	Often related to PPP or PPD
Acutely psychotic	A mother kills her infant for no comprehensible reason, such as in response to command hallucinations, or confusion in delirium	Often related to PPP

PPD: postpartum depression; PPP: postpartum psychosis

Source: Reference 27

Perinatal psychiatric risk assessment

When a mother develops PPP, consider the risks of suicide, child harm, and infanticide. Although suicide risk is generally lower in the postpartum period, suicide is the cause of 20% of postpartum deaths.[24,25] When PPP is untreated, suicide risk is elevated. A careful suicide risk assessment should be completed.

Particularly in PPP, a mother may be at risk of child neglect or abuse due to her confused or delusional thinking and mood state.[26] For example, one mother heated empty bottles and gave them to her baby, and then became frustrated when the baby continued to cry.

The risk of infanticide is also elevated in untreated PPP, with approximately 4% of these women committing infanticide.[9] There are 5 motives for infanticide (***Table 4***[27]). Altruistic and acutely psychotic motives are more likely to be related to PPP, while fatal maltreatment, unwanted child, and partner revenge motives are less likely to be related to PPP. Among mothers who kill both their child and themselves (filicide-suicide), altruistic motives were the most common.[28] Mothers in psychiatric samples who kill their children have often experienced psychosis, suicidality, depression, and significant life stresses.[27] Both infanticidal ideas and behaviors have been associated with psychotic thinking about the infant,[29] so it is critical to ascertain whether the mother's delusions or hallucinations involve the infant.[30] In contrast, neonaticide (murder in the first day of life) is rarely related to PPP because PPP typically has a later onset.[31]

Treating acute PPP

The fulminant nature of PPP can make its treatment difficult. Thinking through the case in an organized fashion is critical (***Table 5, page 17***).

Hospitalization. Postpartum psychosis is a psychiatric emergency with a rapid onset of symptoms. Hospitalization is required in almost all cases for diagnostic evaluation, assessment and management of safety, and initiation of treatment. While maternal-infant bonding in the perinatal period is important, infant safety is critical and usually requires maternal psychiatric hospitalization.

The specialized mother-baby psychiatric unit (MBU) is a model of care first developed

Table 5

Treatment plans for mothers with postpartum psychosis

Consideration	Comments
Suicide and infanticide risk assessment	Consider general risk factors as well as factors specific to the postpartum period. Also consider safety and risk of neglect
	Notify Child Protective Services if appropriate based on risk assessment
Evaluation	Rule out medical causes of presentation in the postpartum period
Hospitalization	Psychiatric hospitalization rather than care at home is required in the vast majority of cases of PPP due to severity of symptoms and fluctuations
	Develop a safe plan for infant while mother is hospitalized. Some locations have MBUs for psychiatric hospitalization (mothers with PPP may or may not meet criteria to be hospitalized together with their infant due to risk)
	Have supervised visits with infant when safe during hospitalization
Psychoeducation	Educate patient and support network about diagnosis and risk
	Discuss hospitalization: importance of managing sleep in a controlled environment, close monitoring and titration of psychiatric medications, observing waxing and waning of symptoms
	Psychoeducation about the illness and rationale for hospitalization may lead to voluntary rather than involuntary hospitalization
Medication(s)	Mood stabilizer and/or antipsychotic
	Avoid antidepressants, which may precipitate mixed state or rapid cycling
	Consider the possibility of ECT
	Consider maternal adverse effects (eg, sedation)
	Consider whether the mother is breastfeeding
	Discuss with patient, family, and pediatrician when possible

ECT: electroconvulsive therapy; MBUs: mother-baby psychiatric units; PPP: postpartum psychosis

Clinical Point

Mood stabilizers and second-generation antipsychotics are often used for acute management of postpartum psychosis

in the United Kingdom and is now available in many European countries as well as in New Zealand and Australia. Mother-baby psychiatric units admit the mother and the baby together and provide dyadic treatment to allow for enhanced bonding and parenting support, and often to encourage breastfeeding.[30] In the United States, there has been growing interest in specialized inpatient settings that acknowledge the importance of maternal-infant attachment in the treatment of perinatal disorders and provide care with a dyadic focus; however, differences in the health care payer system have been a barrier to full-scale MBUs. The Perinatal Psychiatry Inpatient Unit at University of North Carolina-Chapel Hill is among the first of such a model in the United States.[32]

Although this specialized treatment setting is unlikely to be available in most American cities, treatment should still consider the maternal role. When possible, the infant should stay with the father or family members during the mother's hospitalization, and supervised visits should be arranged when appropriate. If the mother is breastfeeding, or plans to breastfeed after the hospitalization, the treatment team may consider providing supervised use of a breast pump and making arrangements for breast milk storage. During the mother's hospitalization, staff should provide psychoeducation and convey hopefulness and support.

Medication management. Mood stabilizers and second-generation antipsychotics (SGAs) are often used for acute management of PPP. The choice of medication is determined by individual symptoms, severity of presentation, previous response to medication, and maternal adverse effects.[30] In a naturalistic study of 64 women admitted for new-onset PPP, sequential administration of benzodiazepines, antipsychotics, and lithium was found to be effective in achieving remission for 99% of patients, with 80% sustaining remission at 9 months postpartum.[6]

continued

Table 6

Safety after hospital discharge

Consideration	Comments
Child Protective Services notification	Based on risk assessment for the infant CPS will review the case to determine a safety plan for the infant, which could include temporary custody or compulsory psychiatric follow-up
Family meetings	Thorough discussion of diagnosis, risks, importance of medication compliance, importance of sleep, need for supports for infant care
Outpatient appointments	Frequent outpatient appointments for follow-up with mother, with infant and partner present if possible
Communication	Communication with obstetrics and pediatrics regarding risk and safety
Home support	Support from family, visiting nurses, or childcare services are needed The mother's sleep is critical

CPS: Child Protective Services

Clinical Point

ECT can be considered first-line treatment for high-risk patients with PPP when rapid improvement is needed

Second-generation antipsychotics such as olanzapine and quetiapine are especially helpful because they can manage multiple symptoms, including insomnia, mood-related symptoms, and anxiety, although the risk of maternal weight gain and sedation (which could impair a mother's ability to respond to her infant) should be discussed with the patient and needs to be monitored.[33] Antidepressants should be avoided due to the risk of inducing rapid cycling or mixed mood states, although these medications may be considered for patients with PPD or postpartum OCD. Lactation inhibitors, such as bromocriptine and cabergoline, also should be avoided because they are dopamine agonists and can exacerbate psychosis. Electroconvulsive therapy is a safe and effective treatment for PPP and can be considered first-line treatment for high-risk patients when rapid improvement is needed.[34] It has been proposed as a primary treatment for women with catatonia, agitation, compromised nutritional status due to refusal to eat or drink, high suicidality, or treatment resistance.[30]

Breastfeeding. It is important to discuss breastfeeding with the mother and her partner or family. The patient's preference, the maternal and infant benefits of breastfeeding, the potential for sleep disruption, and the safety profile of needed medications should all be considered. Because sleep loss is a modifiable risk factor in PPP, the benefits of breastfeeding may be outweighed by the risks for some patients.[9] For others, breastfeeding during the day and bottle-feeding at night may be preferred. Including the partner in this discussion and planning is important because they can play a crucial role in taking over some of the nightly feedings to facilitate maternal sleep. Give the family information about options for support in the home, such as doulas and baby nannies. The ***Related Resources*** (***page 20***) lists a recent review of risks and benefits of mood stabilizers and antipsychotics during breastfeeding.

What to consider during discharge planning

Discharge arrangements require careful consideration (***Table 6***). Meet with the family prior to discharge to provide psychoeducation and to underscore the importance of family involvement with both mother and infant. It is important to ensure adequate support at home, including at night, since sleep is critical to improved stability. Encourage the patient and her family to monitor for early warning signs of relapse, which might include refractory insomnia, mood instability, poor judgment, or hypomanic symptoms.[35] She should be followed closely as an outpatient. Having her partner (or another close family member) and infant present during appointments can help in obtaining collateral information and assessing mother-infant bonding. The clinician should also consider whether it is necessary

Box

Preventing postpartum psychosis: Prophylactic medication during pregnancy

It is essential to consider the patient's individual symptoms and treatment history when making pharmacologic recommendations during pregnancy. Discussion with the patient about the risks and benefits of lithium is recommended. For women who continue to use lithium during pregnancy, ongoing pharmacokinetic changes warrant more frequent monitoring (some experts advise monthly monitoring throughout pregnancy, moving to more frequent monitoring at 36 weeks).[47] During labor, the team might consider temporary cessation of lithium and particular attention to hydration status.[30] In the postpartum period, there is a quick return to baseline glomerular filtration rate and a rapid decrease in vascular volume, so it is advisable to restart the patient at her pre-pregnancy lithium dosage. It is recommended to check lithium levels within 24 hours of delivery.[47] While lithium is not an absolute contraindication to breastfeeding, there is particular concern in situations of prematurity or neonatal dehydration. Collaboration with and close monitoring by the pediatrician is essential to determine an infant monitoring plan.[48]

If lamotrigine is used during pregnancy, be aware that pregnancy-related pharmacokinetic changes result in increased lamotrigine clearance, which will vary in magnitude among individuals. Faster clearance may necessitate dose increases during pregnancy and a taper back to pre-pregnancy dose in the postpartum period. Dosing should always take clinical symptoms into account.

to contact CPS. Many mothers with mental illness appropriately parent their child, but CPS should be alerted when there is a reasonable concern about safe parenting—abuse, neglect, or significant risk.[36]

Take steps for prevention

An important part of managing PPP is prevention. This involves providing preconception counseling to the woman and her partner.[30] Preconception advice should be individualized and include discussion of:

- risks of relapse in pregnancy and the postpartum period
- optimal physical and mental health
- potential risks and benefits of medication options in pregnancy
- potential effects of untreated illness for the fetus, infant, and family
- a strategy outlining whether medication is continued in pregnancy or started in the postpartum period.

For women at risk of PPP, the risks of medications need to be balanced with the risks of untreated illness. To reduce the risk of PPP relapse, guidelines recommend a robust antenatal care plan that should include[37,38]:

- close monitoring of a woman's mental state for early warning signs of PPP, with active participation from the woman's partner and family
- ongoing discussion of the risks and benefits of pharmacotherapy (and, for women who prefer to not take medication in the first trimester, a plan for when medications will be restarted)
- collaboration with other professionals involved in care during pregnancy and postpartum (eg, obstetricians, midwives, family practitioners, pediatricians)
- planning to minimize risk factors associated with relapse (eg, sleep deprivation, lack of social supports, domestic violence, and substance abuse).

Evidence clearly suggests that women with bipolar disorder are at increased risk for illness recurrence without continued maintenance medication.[39] A subgroup of women with PPP go on to have psychosis limited to the postpartum period, and reinstating prophylactic medication in late pregnancy (preferably) or immediately after birth should be discussed.[2] The choice of prophylactic medication should be determined by the woman's previous response.

Regarding prophylaxis, the most evidence exists for lithium.[6] Lithium use during the first trimester carries a risk of Ebstein's anomaly. However, a recent systematic review and meta-analysis have concluded that the teratogenic risks of lithium have been overestimated.[40,41]

continued

Clinical Point

For women at risk for postpartum psychosis, the risks of medications need to be balanced with the risks of untreated illness

Postpartum psychosis

Related Resources

- Clark CT, Wisner KL. Treatment of peripartum bipolar disorder. Obstet Gynecol Clin N Am. 2018;45:403-417.
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Drug Brand Names

Bromocriptine • Cycloset, Parlodel
Cabergoline • Dostinex
Lamotrigine • Lamictal
Lithium • Eskalith, Lithobid
Olanzapine • Zyprexa
Quetiapine • Seroquel

Clinical Point

Olanzapine and quetiapine are often used to manage acute symptoms because they are acceptable during breastfeeding

Lamotrigine is an alternative mood stabilizer with a favorable safety profile in pregnancy. In a small naturalistic study in which lamotrigine was continued in pregnancy in women with bipolar disorder, the medication was effective in preventing relapse in pregnancy and postpartum.[42] A small population-based cohort study found lamotrigine was as effective as lithium in preventing severe postpartum relapse in women with bipolar disorder,[43] although this study was limited by its observational design. Recently published studies have found no significant association between lamotrigine use in pregnancy and congenital malformations.[44,45] While recent evidence suggests that lamotrigine is a reasonable option for treating bipolar disorder during pregnancy, further research is warranted to determine the best clinical practice.[46] The ***Box***[30,47,48] (***page 19***) provides more information regarding prophylactic medications in pregnancy.

Pharmacotherapy can reduce relapse risk

To prevent relapse in the postpartum period, consider initiating treatment with mood stabilizers and/or SGAs, particularly for women with bipolar disorder who do not take medication during pregnancy. A recent meta-analysis found a high postpartum relapse rate (66%) in women with bipolar disorder who did not take prophylactic medication, compared with a relapse rate of 23% for women who did take such medication. In women with psychosis limited to the postpartum period, prophylaxis with lithium or antipsychotics in the immediate postpartum can prevent relapse.[39] The SGAs olanzapine and quetiapine are often used to manage acute symptoms because they are considered acceptable during breastfeeding.[33] The use of lithium when breastfeeding is complex to manage[48] and may require advice to not breastfeed, which can be an important consideration for patients and their families.

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Bottom Line

Postpartum psychosis (PPP) typically presents with a rapid onset of hallucinations, delusions, confusion, and mood swings within days to weeks of giving birth. Mothers with PPP almost always require hospitalization for the safety of their infants and themselves. Mood stabilizers and second-generation antipsychotics are used for acute management.

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Clinical Point

The use of lithium when breastfeeding is complex to manage and may require advice not to breastfeed