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Psychiatric Medicine Reports

Volume 1, Number 2 *The Practical, Evidence-Based Journal for Psychiatrists* **August 2003**

Postpartum depression affects up to one-fifth of women following childbirth, and while it is seen as commonplace, it can evolve into one of the few true psychiatric emergencies.

Not only is the mother at risk, with her ability to function and care for her child and herself affected by the condition, but the long-term welfare and development of infants whose mothers suffer from postpartum depression have been shown to be affected.

The author reviews the available data on recognition and treatment of postpartum depression with an easy-to-reference screening tool. She also has included a table of psychotropic medications and their safety in breastfeeding.

Prospective studies are difficult to conduct in this population, particularly regarding illness predictors, long-term maternal and infant outcome, and pharmacotherapy. There can be many confounding variables, including pre-existing psychiatric conditions, psychosocial stressors, physical and hormonal changes, and infant temperament. The author's review attempts to capture some of the recognizable trends in current research.

The article concludes with a review of peripartum depression and the safety of antidepressant therapy during pregnancy.

— The Editor

Postpartum Depression: Management of Patients with and without Prior History of Depression

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Introduction

Postpartum depression affects 10-20% of women after childbirth. The risk is even higher in women with any prior history of depression (25%) or a prior history of postpartum depression (50%).[1]

Postpartum depression can impair the mother's ability to function, create additional family stress, interfere with mother-infant bonding, and affect the infant's development. In severe cases, maternal depression can lead to suicide and infanticide.

Research has shown that maternal depression produces alterations in a mother's communicative and affective responses, which can affect an infant's emotional and affective development.[2-5] One group of researchers found that depressed mothers who displayed affective changes produced infants who were more irritable or avoidant compared to control infants.[6] Another study showed infants develop a depressive interactive style in mothers who remained depressed for the first six months postpartum.[7] These infants went on to demonstrate inferior performances on the Bayley Mental and Motor Scales and less growth at 1 year of age than infants of depressed mothers who recovered before six months postpartum.

Researchers recently found infants exposed to mothers with depression lasting more than two months had significantly lower weight gain than those with nondepressed mothers or mothers whose depression ended within two months.[8]

There is newer data showing psychological changes in infants of depressed mothers. Infant salivary cortisol levels

are elevated at six months, which is correlated with percent of time fussing.[9]

Diagnosis

According to the *Diagnostic and Statistical Manual of Mental Disorders,* 4th edition (DSM-IV), women who meet criteria for a major depressive episode, with the onset of episode within four weeks postpartum, are classified as having postpartum depression.[10] *(See Table 1.)* Experts agree that for investigative purposes, the diagnosis of postpartum depression typically is used for women who experience a major depressive episode with onset up to 3-6 months after delivery.[11,12]

Postpartum depression needs to be differentiated from postpartum blues. Postpartum blues is present in 50% of women after delivery.[12] Women with this condition experience mild depressive symptoms that last days to weeks before typically remitting spontaneously. Also, a psychiatric evaluation of postpartum depression always should include a thorough evaluation for manic and psychotic features. Psychotic symptoms increase the risk of suicide and infanticide and should be treated as an emergency. In addition, the mother's level of consciousness and attention should be noted to make sure the mother is not suffering from delirium. During evaluation of postpartum depression, it is helpful to bring in the infant for observation of the mother-infant interaction. Some clinicians have noticed that patients may minimize symptoms but have very little engagement with their children.

As with other psychiatric illness, postpartum depression needs to be diagnosed once medical reasons for the depressive symptoms have been excluded. Thyroid function should be evaluated as a part of the medical workup. Postpartum thyroid disease occurs in 5-9% of women; in women who are thyroid peroxidase antibody positive, the rates of thyroid dysfunction are as high as 50%.[13]

Postpartum psychosis is considered a psychiatric emergency and usually requires hospitalization for careful assessment, aggressive pharmacotherapy, and mother and infant safety. Careful documentation and close family involvement in these patients is mandatory. These episodes have been reported to occur in one or two per 1000 births[14] and often are considered a bipolar (manic-depressive) variant.[15] Risk factors include history of bipolar disorder in the patient or family member, lack of partner, perinatal mortality, puerperal and non-puerperal psychosis, and primiparity.[16]

The Edinburgh Postnatal Depression Scale (EPDS) is a useful screening tool for postpartum depression.[17,18] *(See Figure.)* This 10-item scale can be completed in five minutes and is simple to score. The sensitivity (the proportion of depressed women who are true positives) is 86%; the specificity (the proportion of non-depressed women who are true negatives) is 78%.[18] The EPDS also is sensitive to change in the severity of a woman's depression over time. One study recommends using a cutoff score of 9-10.[18]

Etiology

The postpartum period is a time of rapid changes in hormonal levels. There is a lack of clear evidence showing changes in hormonal levels to be the cause of postpartum depression; however, some women may be differentially sensitive to these changes. One group found that women with a history of postpartum depression had an increase in depressive symptoms in response to changing plasma levels of the gonadal steroids estradiol and progesterone.[19] This response was not present in the control group of women without a history of postpartum depression. Risk factors for the develop-

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Vice President/Group Publisher: Brenda L. Mooney
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GST Registration No.: R128870672

Periodicals postage paid at Atlanta, GA. **POSTMASTER:** Send address changes to ***Psychiatric Medicine Reports***, P.O. Box 740059, Atlanta, GA 30374.

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In order to reveal any potential bias in this publication, and in accordance with Accreditation Council for Continuing Medical Education guidelines, we disclose that Dr. Gupta (author and board member) reports no relationship with companies related to the field of study covered by this CME program. Dr. Ghaemi (board member) discloses that he is a consultant and serves on the speakers' bureau of Janssen, GlaxoSmithKline, and AstraZeneca; serves on the speakers' bureau of Forrest and Eli Lilly; and receives research funding from Janssen, AstraZeneca, Novartis, and Abbott. Dr. Banov (editor), acknowledges that he is a consultant to Eli Lilly; on the speakers' bureau for Eli Lilly, Wyeth, GlaxoSmithKline, and Bristol-Myers; and receives research funding from Shire, Eli Lilly, and GlaxoSmithKline. Dr. Hilty (board member) reports that he is a consultant to and on the speaker's bureau of Abbott, Bristol-Myers Squibb, GlaxoSmithKline, Eli Lilly, and Novartis, and conducts research for Abbott.

ment of postpartum depression include a prior history of major depression, depressive symptoms during the current pregnancy, family history of mood disorders, life stress, and inadequate social support.[20-24]

Breastfeeding

In the early postpartum period, 64% of mothers breastfeed their infants.[25] The American Academy of Pediatrics advocates breastfeeding to be the "optimal form of nutrition for infants."[25] Breast milk has been shown to confer immunologic, nutritional, and cognitive advantages to the infant. Nursing infants have been shown to have decreased otitis media, respiratory infection, diarrhea, bacterial meningitis, and urinary tract infections.[26-34] Breastfeeding also has been shown to enhance cognitive development in infants.[35,36]

There also is evidence that breastfeeding is beneficial to the mother. Research has found lactating women have reduced risk of ovarian and premenopausal breast cancer, less postpartum bleeding, and improved bone remineralization.[37-39]

With these demonstrated benefits to breastfeeding in the postpartum period, it is understandable why the majority of women choose this option. Understanding the present literature on antidepressant exposure to nursing infants will assist the psychiatrist in having a well informed risk-benefit discussion with mothers and their partners.

Many experts feel that patients already treated with most antidepressants during pregnancy should continue while breastfeeding, since antidepressant levels are minimally present in infant serum.

Treatment

It is important to remember that presently there are no evidence-based treatment guidelines for postpartum depression. The Expert Consensus Guidelines discussed in this article were produced after 40 national experts were surveyed on a variety of treatment options for postpartum depression.[1] These guidelines indicate preferred treatment strategies by this group of experts.

In addition, it is imperative that clinicians evaluate each risk-benefit assessment in women with postpartum depression on a case-by-case basis. Factors to be considered in this assessment include the woman's previous history of depression and risk of recurrence, the severity of her depressive symptoms, the risk of harm to herself or her baby, and her decision to nurse or bottle-feed her infant.

Both the severity of the depression and whether or not the mother is breastfeeding appear to be factors in the choice of first-line treatment.[1] In mild forms of depression in the nursing mother, either psychosocial intervention alone or in combination with antidepressants is an acceptable strategy. However, there is clear consensus that with a more severe,

Table 1. Criteria for Major Depressive Episode

A. FIVE OR MORE OF THE FOLLOWING SYMPTOMS, PRESENT DURING THE SAME TWO-WEEK PERIOD, AND REPRESENTING A CHANGE FROM PREVIOUS FUNCTIONING. AT LEAST ONE OF THE SYMPTOMS IS EITHER #1 OR #2 [§]:

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). *Note:* In children and adolescents, can be irritable mood
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. *Note:* In children, consider failure to make expected weight gains
4. Insomnia or hypersomnia nearly every day
5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
6. Fatigue or loss of energy nearly every day
7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. THE SYMPTOMS DO NOT MEET CRITERIA FOR A MIXED EPISODE.[†]

C. THE SYMPTOMS CAUSE CLINICALLY SIGNIFICANT DISTRESS OR IMPAIRMENT IN SOCIAL, OCCUPATIONAL, OR OTHER IMPORTANT AREAS OF FUNCTIONING.

D. THE SYMPTOMS ARE NOT DUE TO THE DIRECT PHYSIOLOGICAL EFFECTS OF A SUBSTANCE (E.G., A DRUG OF ABUSE, A MEDICATION) OR A GENERAL MEDICAL CONDITION (E.G., HYPOTHYROIDISM).

E. THE SYMPTOMS ARE NOT BETTER ACCOUNTED FOR BY BEREAVEMENT (I.E., AFTER THE LOSS OF A LOVED ONE); THE SYMPTOMS PERSIST FOR LONGER THAN TWO MONTHS OR ARE CHARACTERIZED BY MARKED FUNCTIONAL IMPAIRMENT, MORBID PREOCCUPATION WITH WORTHLESSNESS, SUICIDAL IDEATION, PSYCHOTIC SYMPTOMS, OR PSYCHOMOTOR RETARDATION.

[§] Do not include symptoms that clearly are due to a general medical condition, or mood-incongruent delusions or hallucinations.

[†] In a mixed episode, criteria are met for both a manic and a major depressive episode nearly every day for at least one week, with marked impairment in functioning.

Figure. Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale has been developed to assist primary care health professionals in detecting mothers suffering from postnatal depression. The mother underlines which of the four possible responses is closest to how she has been feeling during the past week. Most mothers complete the scale without difficulty in fewer than five minutes. The validation study showed that mothers who scored above threshold 92.3% were likely to be suffering from a depressive illness of varying severity. Nevertheless the EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt during the previous week and in doubtful cases it may be usefully repeated after two weeks. The scale will not detect mothers with anxiety neuroses, phobias, or personality disorder.

Name:

Address:

Baby's age:

As you have recently had a baby, we would like to know how you are feeling. Please UNDERLINE the answer that comes closest to how you have felt IN THE PAST SEVEN DAYS, not just how you feel today.

Here is an example, already completed:

I have felt happy
- Yes, all the time
- Yes, most of the time
- No, not very often
- No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past seven days:

1. I have been able to laugh and see the funny side of things:
   - As much as I always could
   - Not quite so much now
   - Definitely not so much now
   - Not at all

2. I have looked forward with enjoyment to things:
   - As much as I ever did
   - Rather less than I used to
   - Definitely less than I used to
   - Hardly at all

3.* I have blamed myself unnecessarily when things went wrong.
   - Yes, most of the time
   - Yes, some of the time
   - Not very often
   - No, never

4. I have been anxious or worried for no good reason.
   - No, not at all
   - Hardly ever
   - Yes, sometimes
   - Yes, very often

5.* I have felt scared or panicky for no very good reason.
   - Yes, quite a lot
   - Yes, sometimes
   - No, not much
   - No, not at all

6.* Things have been getting on top of me.
   - Yes, most of the time I haven't been able to cope at all.
   - Yes, sometimes I haven't been coping as well as usual.
   - No, most of the time I have coped quite well.
   - No, I have been coping as well as ever.

7.* I have been so unhappy that I have had difficulty sleeping.
   - Yes, most of the time
   - Yes, sometimes
   - No, not very often
   - No, not at all

8.* I have felt sad or miserable.
   - Yes, most of the time
   - Yes, quite often
   - No, not very often
   - No, not at all

9.* I have been so unhappy that I have been crying.
   - Yes, most of the time
   - Yes, quite often
   - No, only occasionally
   - No, never

10.* The thought of harming myself has occurred to me.
   - Yes, quite often
   - Sometimes
   - Hardly ever
   - Never

Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptoms. Items marked with an asterisk are reverse scored (i.e., 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the 10 items.

Used with permission from Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 1987; 150:782-876.

non-psychotic depression, the treatment plan should include both an antidepressant and psychosocial intervention.

Selective serotonin reuptake inhibitors (SSRIs) are the first-line treatment for postpartum depression, due to the relative safety with overdose, favorable side effect profile, and easy dosing schedule. Specifically, sertraline has been recommended as the first-line treatment for postpartum depression.[1] Infant serum levels of sertraline and desmethylsertraline typically have not been detectable, or are found at very low concentrations.[40-44] Sertraline has been studied, with no adverse effects noted in nursing infants.[40-44] One group studied platelet serotonin levels in mother-infant pairs exposed to sertraline.[45] They found that, unlike the mothers who showed a decrease in platelet serotonin levels, nursing infants exposed to sertraline showed little change in platelet serotonin levels.

One study performed gradient-of-excretion and time-of-excretion analyses on breast milk samples of women taking sertraline.[40] These analyses were used to calculate the maximum infant daily dose of sertraline. Significant correlation was found between calculated infant maximum of desmethylsertraline and infant serum levels of desmethylsertraline. Researchers found peak concentrations of sertraline and desmethylsertraline in breast milk at 8-9 hours after maternal daily dose, and determined that discarding this breast milk significantly (by 17.1%) reduced exposure to the nursing infant. Despite the data, most experts do not recommend routine, timed discarding of breast milk, although breastfeeding mothers may feel better by having this option.

Paroxetine[44,46,47] and fluvoxamine[44,48] have not been detectable in infant serum and have had no reported adverse effects. Citalopram resulted in disturbed sleep in one infant whose mother was taking 40 mg/day.[49] When the dose was reduced to half and two feeding cycles were replaced with bottles, the infant was able to sleep again.

One group found fluoxetine to be associated with colic in two of 14 infants and with uncontrollable crying, irritability, and poor feeding in another two infants.[50] However, all infants in this study had in utero exposure to fluoxetine. The authors of the study caution that the long half-lives of fluoxetine (1-4 days) and norfluoxetine (7-15 days) may contribute to infant serum levels postpartum. One study found nursing infants exposed to fluoxetine gained less weight compared to nursing infants without fluoxetine exposure.[51] However, cases of fluoxetine exposure with no adverse effects also have been reported.[52]

One reason to consider alternative agents to the class of SSRIs would be if the patient has had a prior positive response to another drug.[11] It is advisable to choose an antidepressant that has been studied,[12,53] and the tricyclic antidepressants are a well-studied alternative treatment to the SSRIs. With the exception of doxepin, tricyclic drugs have not been found to have detectable levels in infant serum and have not been associated with adverse effects.[54] In a case report, an increase in the maternal dose of doxepin led to sedation secondary to elevated metabolite levels.[55] *(See Table 2.)*

Initiating Treatment

It has been recommended that patients be started on half of the typical recommended starting doses, given the sensitivity of women to side effects in the postpartum period.[11] Treatment for six months to prevent relapse, as recommended by the American Psychiatric Association Practice Guidelines for major depressive episode, also has been recommended for PPMD.[11,56]

There are limited studies examining prophylaxis in women with a previous history of postpartum depression. Nortriptyline was not proven to be effective in preventing recurrence of postpartum depression.[57] However, experts agree that given the incredibly high risk of recurrence, it is a reasonable option to consider prophylactic medication in a woman with a prior history of postpartum depression.[1] A preventive psychosocial intervention also should be considered since this has proven to be effective.[58] At a very minimum, close monitoring of the mother for depressive symptoms should occur. Mothers, partners, and fellow physicians participating in postpartum care should be educated about depressive symptoms to assist in this monitoring process.

Neurodevelopment

Research is needed to examine the long-term developmental effects in infants with antidepressant exposure. One research group studied 10 nursing infants exposed to tricyclic antidepressants.[59] The infants were monitored by physical examination and the Bayley Scales of Infant Development up to the age of 30 months. When compared to a control group of infants who were bottle-fed, the breast-fed infants had no evidence of developmental delay.

There are no studies examining the long-term neurodevelopmental effects in infants exposed to SSRIs in the postpartum period. However, one group recently monitored 11 infants for growth and neurologic development up to the age of 1 year.[60] No differences were noted in the infants exposed to fluoxetine compared to the control infants. In addition, another group found that antidepressant exposure to the fetus throughout pregnancy did not have any effect on the cognitive, language, or temperament development in children ages 15-71 months.[61] In that study, 46 children with fetal exposure to tricyclics and 40 children with fetal exposure to fluoxetine were compared to 36 children who had nondepressed mothers who were not on medications during their pregnancies.

Table 2. Pharmacotherapy for Postpartum Depression

DRUG	RECOMMENDED RANGE OF DOSES (MG/DAY)*	SIDE EFFECTS	IMPLICATIONS FOR USE DURING BREASTFEEDING
Selective serotonin reuptake inhibitors			
• Sertraline	50-200	Nausea, loose stools, tremors, insomnia, sexual dysfunction, possible drug interactions†	Drug and weakly active metabolite not detectable in infants; no reports of adverse events
• Paroxetine	20-60	Nausea, drowsiness, fatigue, dizziness, sexual dysfunction, possible drug interaction†	No active metabolite; levels not detectable in infants; no reports of adverse events
• Fluvoxamine	50-200	Nausea, drowsiness, anorexia, anxiety, sexual dysfunction, possible drug interaction†	No active metabolite; levels not detectable in infants; no reports of adverse events
• Citalopram	20-40	Nausea, insomnia, dizziness, somnolence	One infant with a measurable level had colic; other infants had no problems and serum levels that were undetectable or just above the limit of detection.
• Fluoxetine	20-60	Nausea, drowsiness, anorexia, anxiety, sexual dysfunction, possible drug interactions†	Drug and active metabolite have comparatively long half-lives; serum levels similar to those in adults reported in some symptomatic infants; prenatal exposure adds to serum levels in breast-fed infants.
Tricyclic antidepressants			
• Nortriptyline	50-150	Sedation, weight gain, dry mouth, constipation, orthostatic hypotension, possible drug interactions†; baseline ECG recommended‡	Drug and metabolites generally below or slightly above limit of detectability; no reports of adverse events in infants
• Desipramine	100-300	Sedation, weight gain, dry mouth, constipation, orthostatic hypotension, possible drug interactions†; baseline ECG recommended‡	Drug and metabolites below quantifiable level; no adverse effects
Serotonin-norepinephrine uptake inhibitor			
• Venlafaxine	75-300	Nausea, sweating, dry mouth, dizziness, insomnia, somnolence, sexual dysfunction	Undetectable or low serum levels of drug metabolite usually measurable, levels similar to those in adults observed in some infants; drug level greater in breast milk than in maternal serum
Other			
• Bupropion	300-450	Dizziness, headache, dry mouth, sweating, tremor, agitation, rare seizures, possible drug interactions†	Unknown
• Nefazodone	300-600	Dry mouth, somnolence, nausea, dizziness possible drug interactions†	No published data on serum levels in infants; sedation and poor feeding in a premature infant described
• Mirtazapine	15-45	Somnolence, nausea, weight gain, dizziness	Unknown

* Treatment with any of these agents should be initiated at half of the lowest recommended therapeutic dose.

† Drug interactions are possible because of the drug's inhibition of the following cytochrome P450 enzyme systems: for sertraline, 2D6, 2C, and 3A4; for paroxetine, nortriptyline, desipramine, and bupropion, 2D6; for fluvoxamine, IA2, 2C, 3A4; for fluoxetine, 2D6, 2C, and 3A4; and for nefazodone, 3A4.

‡ ECG = electrocardiogram. If the ECG shows conduction defects, consider a non-tricyclic antidepressant.

Used with permission from: Wisner KS, Parry BL, Piontek CM. Postpartum depression. *N Engl J Med* 2002;347:194-199.

Limitations of Studies

One study describes well the complexities of interpreting present research in this area.[40] The research is a compilation of case reports, case series, and a variety of serum measurement studies. The different collection methods and varying sensitivities of assays make the results difficult to interpret. When understanding the data for clinical purposes, it is important to recognize that detectability is not synonomous with exposure. Antidepressants clearly are excreted into breast milk, so infants are exposed regardless of whether the levels are quantifiable or not. Long-term effects of this exposure are not known. Also, the studies have been conducted typically in healthy, full-term infants. Care needs to be taken in generalizing results to sick or premature infants who may have impaired metabolic capacities that may lead to atypically high levels of drugs and metabolites. A listing of published studies of antidepressant use during breastfeeding is found in Table 3.

Hormonal Therapy

There is limited evidence for hormonal therapy in the treatment of postpartum depression. In a double blind, placebo controlled study, transdermal estrogen appeared to rapidly improve depressive symptoms; however, in this study many women were also on concurrent antidepressant medication.[62] One group showed increasing concentrations of estradiol in women with postpartum depression, and low estradiol levels reduced depressive symptoms. However, there was no control group in this study.[63] Both studies indicated that the rate of response was rapid, with depressive symptoms improving within the first week. Further research is needed in this area and may prove helpful, given that antidepressants do not work this quickly.

Psychosocial Interventions

Expert consensus guidelines recommend either interpersonal therapy (IPT) or cognitive behavioral therapy (CBT) with clear emphasis that the spouse or significant other should be included in therapy. Additional strategies include part-time or full-time help for the mother and some follow-up home visits by a nurse.

Research has examined IPT, CBT, and group interventions, and findings include:

- IPT—12 weeks of IPT has been shown to be effective in reducing depressive symptoms when compared to a control group in a wait list condition.[64]
- CBT—One group found six weeks of cognitive behavioral therapy to be an effective treatment for depressed women, compared to one week of counseling. However, CBT combined with fluoxetine did not prove to be more effective than treatment with fluoxetine alone.[65]
- Group Therapy—A four-session interpersonal therapy group intervention was helpful in preventing postpartum depression in financially disadvantaged women.[60] In another study, a psycho-educational group intervention was successful in the reduction of depressive symptoms when compared to routine primary care.[66]
- Partner Inclusion—Patients with postpartum depression were assigned to either a group consisting of patients and their partners or a control group of patients only. Both groups were seen for seven visits, with the partners attending four. Patients in the group with the partners were found to have a significant decrease in depressive symptomatology compared to the control group.[67]
- Other Forms of Therapy—One author evaluated new mothers with the EPDS, and then randomly assigned these women to a control group who received standard postpartum care or an experimental group who received telephone-based peer support in addition to standard postpartum care.

The author found a significant reduction in depressive symptoms at both the four- and eight-week assessment in the group who received peer support compared to the control group.[68]

Another researcher found that mothers who attended five weeks of infant massage therapy class showed significantly greater reduction in EPDS scores compared to the control group. Mothers' attitudes toward the infants, infants' responses, and overall maternal-infant interaction seemed to improve in the massage therapy group.[69]

Managing Peripartum Depression

Any review of postpartum depression warrants a discussion on the safety of antidepressant therapy *during* pregnancy. Clinicians are faced with this dilemma when woman are treated with antidepressants at the time of pregnancy, develop significant depression during pregnancy, or have a history of significant postpartum depression.

There is an increasing comfort level with physicians initiating or continuing most antidepressants in this population. This is a result of a growing number of case reports/series, a few controlled prospective studies, personal experiences, and an evolving substantial reproductive safety database. Serotonin reuptake inhibitors are among the best-understood class of medicines regarding fetal exposure and outcome.

The question remains as to whether antidepressants are appropriate in peripartum depression and which are the safest to use. Given the observed effects of maternal depression on the fetus, there is clearly a substantial risk from inadequate or no treatment. One group reviews the literature on peripartum depression being associated with increased risk of pre-term delivery, lower birth weights, smaller head circumference, and lower cognitive abilities in children up to

Table 3. Published Studies of Antidepressant Use During Breastfeeding

MEDICATION	INFANT SERA (N)	REFERENCES
Sertraline	88	Altshuler LL, et al. Breastfeeding and sertraline: A 24-hour analysis. *J Clin Psychiatry* 1995;56:243-245. Mammen OK, et al. Sertraline and norsertraline levels in three breastfed infants. *J Clin Psychiatry* 1997;58:100-103. Epperson CN, et al. Sertraline and breast-feeding [letter]. *N Engl J Med* 1997;336:1189-1190. Stowe ZN, et al. Setraline and desmethylsertraline in human breast milk and nursing infants. *Am J Psychiatry* 1997; 154:1255-1260. Wisner KL, et al. Serum sertraline and N-desmethylsertraline levels in breast-feeding mother-infant pairs. *Am J Psychiatry* 1998;155:690-692. Kristensen J, et al. Distribution and excretion of sertraline and N-desmethylsertraline in human milk. *Br J Clin Pharmacol* 1998;45:453-457. Birnbaum CS, et al. Serum concentrations of antidepressants and benzodiazepines in nursing infants: A case series. *Pediatrics* 1999;104:1-6. Hendrick V, et al. Use of sertraline, paroxetine, and fluvoxamine by nursing women. *Br J Psychiatry* 2001;179:163-166. Stowe ZN, et al. Paroxetine in breast milk and nursing infants. *Am J Psychiatry* 2000;157:185-189. Dodd S, et al. Antidepressants and breast-feeding: A review of the literature. *Paediatr Drugs* 2000;2:183-192.
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6 years of age.[70] Additionally, depressed pregnant mothers are less apt to comply with prenatal care and are at higher risk for substance abuse or suicide. Certainly, the risk of not treating often far may outweigh any risk of medication therapy.

Among the SSRIs, most experts agree that it is appropriate to continue the current medication if the patient is already responding and the risk of depression relapse is high. The physician will want to limit exposure to multiple medications. If the patient has responded to a certain antidepressant in the past and currently is not being treated, the medication used successfully in the past would be the most appropriate medicine to consider. One study reports data of placental passage of SSRIs measuring fetal-maternal ratios.[70] The lowest ratios are with paroxetine (36%), then increasing with sertraline (48%), desmethylsertraline (59%), citalopram (64%), fluvoxamine (78%), norfluoxetine (80%), fluoxetine (82%), OD-desmethylvenlafaxine (141%), and venlafaxine (690%). The higher ratios appear to be related to low molecular weight and low protein binding. Newer medicines without sufficient experience regarding fetal exposure and outcomes should be avoided if possible. Also, using brand name medications is recommended since additives in generic medications may have unknown adverse effects.

The most important piece of managing peripartum depression is good education and communication with the patient and other family members. Informed consent always should be obtained, with written documentation demonstrating full disclosure of the unknown risks of taking medication along with the risks of untreated depression. The physician should discuss the warning signs of worsening depression with the patient and family, and should provide a contact for questions or emergencies should problems arise. Encourage non-pharmacological therapies to augment pharmacotherapy, such as psychotherapy and cognitive-behavioral therapy. Many soon-to-be mothers need a good deal of support and encouragement to manage the associated guilt with having depression and needing to take medication during this challenging time.

Conclusion

Women in the postpartum period should be screened for major depression. Those with a prior history of depression or postpartum depression and those suffering from depression in the current pregnancy are at particularly high risk. Untreated symptoms may have serious consequences for mother, infant, and other family members. A risk-benefit assessment should be made on a case-by-case basis when formulating an appropriate treatment plan. Antidepressant and psychosocial treatment options should be considered and discussed with both mother and partner. Research examining SSRIs in nursing mother-infant pairs in the last decade has expanded. Further research is needed to help develop treatment-based practice guidelines. In addition, more studies are needed examining long-term effects of antidepressants and the role of hormonal therapy.

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Physician CME Questions

For instructions on how to earn CME through this activity, please refer to the CME Instructions box on page 24.

11. Severe cases of maternal depression can lead to suicide and infanticide.
    A. True
    B. False

12. Which of the following effects may be seen in an infant whose mother suffers from postpartum depression?
    A. Irritability
    B. Lower weight gain compared to infant with nondepressed mother
    C. Less growth compared to infant with nondepressed mother
    D. Inferior performance on mental and motor scales
    E. All of the above

13. Postpartum blues typically resolve spontaneously after a period of days to weeks.
    A. True
    B. False

14. The Edinburgh Postnatal Depression Scale is sensitive and specific for detecting which of the following?
    A. Anxiety neuroses
    B. Phobias

CME Objectives

The CME objectives for *Psychiatric Medicine Reports* are to help psychiatrists:

(a) recognize psychiatric conditions encountered in the clinical setting;
(b) be educated about methods of treating psychiatric conditions, including use of traditional drugs, experimental methods, and off-label uses;
(c) understand the progression of treatment for conditions described; and
(d) understand both likely and rare complications or side effects of the condition and treatments described.

C. Personality disorder
D. Postpartum depression

15. The first-line treatment for postpartum depression is:
A. bupropion.
B. venlafaxine.
C. nortriptyline.
D. sertraline.
E. transdermal estrogen.

16. A study of platelet serotonin levels in mothers and breast-feeding infants exposed to sertraline found that while mothers showed little change in platelet serotonin levels, the infants showed a decrease in platelet serotonin levels.
A. True
B. False

17. In diagnosing a major depressive episode, among the criteria that should be included are symptoms that are due to a general medical condition, or mood-incongruent delusions or hallucinations.
A. True
B. False

18. The American Psychiatric Association Practice Guidelines for major depressive episodes recommend what length of treatment to prevent relapse?
A. Six weeks
B. Three months
C. Six months
D. Two years

19. Which selective serotonin-reuptake inhibitor was found to cause a sleep disorder in an infant whose mother was taking the maximum recommended daily dose?
A. Sertraline
B. Paroxetine
C. Fluvoxamine
D. Citalopram
E. Fluoxetine

20. Consensus guidelines recommend interpersonal therapy or cognitive behavior therapy for mothers suffering from postpartum depression, and further recommend the inclusion of:
A. the infant.
B. the mother's significant other or spouse.
C. infant's siblings.
D. the mother's parents.

Answer Key:

11. A	16. B
12. E	17. B
13. A	18. C
14. D	19. D
15. D	20. B

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