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Perinatal depression: implications for child mental health

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ABSTRACT

Perinatal depression is common and primary care holds a crucial role for detecting, treating or, if necessary, providing referrals to mental health care for affected women. Family doctors should be aware of risk factors for peripartum depression, including previous history of depression, life events and interpersonal conflict. Perinatal depression has been associated with many poor outcomes, including maternal, child and family unit challenges. Infants and young children of perinatally depressed mothers are more likely to have a difficult temperament, as well as cognitive and emotional delays. The primary care setting is uniquely poised to be the screening and treatment site for perinatal depression; however, several obstacles, both at patient and systems level, have been identified that interfere with women's treatment engagement. Current published treatment guidelines favour psychotherapy above medicines as first line treatment for mild to moderate perinatal depression, while pharmacotherapy is

first choice for severe depression, often in combination with psychosocial or integrative approaches. Among mothers who decide to stop taking their antidepressants despite ongoing depression during the perinatal period, the majority suffer from relapsing symptoms. If depression continues post-partum, there is an increased risk of poor mother–infant attachment, delayed cognitive and linguistic skills in the infant, impaired emotional development and risk for behavioural problems in later life. Complex, comprehensive and multilevel algorithms are warranted to treat perinatal depression. Primary care doctors are best suited to initiate, carry out and evaluate the effectiveness of such interventions designed to prevent adverse outcomes of maternal perinatal depression on mother and child wellbeing.

Keywords: depression, infant development, perinatal

Perinatal depression: prevalence and treatment seeking

Perinatal depression, defined as depression in pregnancy, around childbirth or within the first year post-partum, is a significant problem in households around the world and often occurs comorbidly with other medical or mental health illnesses (for example, pain conditions or anxiety) affecting all members of the family while too often escaping detection and treatment. The nature of the close relationship

between the family physician and the patient provides the ideal setting for effective screening, systematic treatment and appropriate follow-up for women who battle perinatal depression.

According to one study, at least 13% of women face the debilitating effects of major depressive disorder (MDD) while pregnant, while another finds that 11–20% suffer from post-partum depressive

symptoms.^{1,2} The effects of perinatal depression reverberate throughout the entire family unit; the Avon Longitudinal Study of Parents and Children from the UK found a strong correlation between paternal and maternal depression.³ Therefore, the disease burden felt by parents is substantial and affects at least 17% of parents, as described by the National Comorbidity Survey Replication in 2003.⁴ MDD has become such an important public health concern that in 2001 the World Health Organization determined that depression is one of the leading causes of disability in the world, and given higher prevalence rates constitutes particular burden to females.⁵

As these statistics paint a grim picture, the prevalence of perinatal depression is even higher in vulnerable groups with certain risk factors. Young, single mothers, experiencing complications, with history of stress, loss or trauma are far more likely to succumb to depression.⁶ Furthermore, one study found that up to 51% of women who experience socioeconomic disadvantage also report depressive symptoms during pregnancy.⁷

Despite this significant disease burden few mothers are diagnosed and treated, resulting in both immediate and far-reaching complications. According to one study of future mothers in the obstetrics clinic setting which screened for psychiatric illness and substance use, only 18% of women who met the screening criteria were formally diagnosed by the providers and only 23% were being treated for their symptomatology.⁸ Similarly, Flynn *et al* found that just one-third of pregnant women with depressive symptoms receive necessary treatment despite meeting criteria for an MDD diagnosis.⁹

Even as their healthcare providers are unlikely to detect their depression, future mothers are themselves less prone to seek treatment compared to non-pregnant women.¹⁰ A multitude of obstacles, such as lack of time, fear of stigmatisation and difficulty in securing childcare, prevent pregnant women from reaching out to healthcare professionals for help.¹¹ Exacerbating their risk of relapse, women with pre-existing psychiatric conditions often opt to decrease or completely cease pharmacological treatment.¹¹

Consequences for mother and child

Perinatal depression bears negative medical and psychological outcomes for both mother and child. Mothers with psychiatric illness report worse health than those without psychiatric illness.⁶ This may be

due to the fact that while experiencing depressive symptoms, pregnant women are less likely to follow doctor's orders and take care of their personal health and wellbeing. In addition, women with perinatal depression may present predominantly with negative cognitions and suicidal ideations, which, in turn, interfere with self-care, reaching out for support and the motivation to bond with the infant.¹² Common negative consequences for mothers experiencing depression include decreased support from the family unit and social support network, decreased ability to take care of oneself, poor nutrition and weight gain, substance use, relationship difficulties with partner and impaired interaction with the infant.¹³⁻¹⁶

Effects of maternal depression on the health of the infant range from the physical and physiological to the psychological and behavioural.¹⁷⁻¹⁹ Growth of the foetus has been found to be at risk when mothers suffer with depressive symptoms. Thus, low birth weights and weights small for gestational age have been reported for these mothers.^{20,21} Pre-term deliveries and shorter gestations have also been associated with depressive symptoms.^{22,23}

Mothers with depressive symptomatology and their infants tend to have similar physiological markers such as elevated cortisol, decreased peripheral levels of dopamine and serotonin, greater relative right frontal electroencephalogram activation and lower vagal tone. However, the sequelae for infants of depressed mothers also include a number of negative behavioural indicators such as more irritability, less activity, less attentiveness and fewer facial expressions.¹⁶ Subsequently, children of mothers who were depressed while pregnant show developmental delays at 18 months compared to controls.²⁴

Other markers of infant health and relationship security also show impairments for infants of depressed mothers. These include impaired dyadic relationship with the mother and social withdrawal, which in turn has been associated with negative long-term developmental outcomes.²⁵⁻²⁷ Finally, depressed mothers utilise preventative care for their children less often than non-depressed mothers, while visiting urgent care settings at a higher rate.²⁸⁻³⁰

Focus on family medicine and perinatal depression

Owing to frequency and consistency of contact, the family physician is in a perfect position to screen, diagnose, treat and educate women of childbearing age about depression and its effects on the family. Recently, the US Preventative Services Task Force

has recommended a two-question screening tool for the primary care clinic based on findings that show a significant two- to three-fold increase in depression detection after implementation of screening in this setting, coupled with concomitant decrease of persistent depression.^{31,32}

By screening and treating for perinatal depression, the primary care provider is also uniquely poised to detect additional factors which may put mother and child at risk. Maternal perinatal depression rates are higher in women plagued by personal, social or economic problems, such as intimate partner violence, poverty, homelessness or confinement.^{33–36} Finally, mothers themselves also prefer that their treatment for depression is conducted at their primary care office, and that, if specialty mental health care is needed, prompt follow up to the referral within the same location can be provided.³⁷ All of these factors point to the utility of screening, referral and treatment all provided at the familiar setting of the primary care clinic.

Obstacles to detection and treatment

Many obstacles to detection exist in the setting of the primary care clinic, but appropriate use of screening measures can circumvent these effectively. The most important of these barriers is the failure to use formal screening tools for depression. This is underscored by the findings that depressive symptoms can be missed in almost half of pregnant women or mothers, if only informal means of screening are used to probe for depression.^{38–40} Furthermore, some of the flaws of informal inquiry include the lack of consistency and the use of non-specific questions, in contrast to the standardised queries of formalised screening tools.³⁷ Maternal unease about discussing mental health, the social normalisation of depressive symptoms and the scarcity of time can all be ameliorated with the confident use of quick and practiced methods to broach the subject of depression.⁴¹ Therefore, the development of an efficient toolkit is a must for the versatile primary care clinician with the goal of providing comprehensive care for women of childbearing age.

Future mothers also report psychological and practical barriers to effective treatment, such as treatment location, proactive and timely connections with referrals and flexible therapy options, concerns about stigma, positive motherhood and accurate information about depression and when to seek treatment. While women with fewer resources are

especially affected by pragmatic considerations, all women express a preference for accessing treatment at the obstetrics clinic or the home as opposed to the current system of referral to an off-site mental health setting.⁴² Mothers, particularly African-American women, are found to express less confidence in help from friends, family and mental health professionals, and to place more value on treatment provided by religious leaders or in a religious setting.⁴³

In addition, a recent study examining attitudes towards treatment of perinatal depression found that 92% of pregnant women are likely to endorse preference for individual therapy in contrast to only 62% accepting group therapy. Interestingly, two-thirds of women reject the idea of taking antidepressants while pregnant or breastfeeding, compared to 70% of women who agree to pharmacological treatment if they are not expecting or nursing. Finally, women who are more familiar with medications are also more likely to endorse willingness to take them if prescribed.⁴⁴ These findings point to the need for an integrated and flexible approach to treatment, in which the family physician plays a crucial role due to familiarity and ease of access for the mother. Observing women's preferences when offering treatment, including them in the decision making and taking into account their cultural background and social support are all tools for getting the most appropriate and efficient help to pregnant or post-partum women and mothers.

Toolkit for primary care physicians

The family physician toolkit should include screens for maternal depression as well as screens for infant depression and the dyadic relationship. Maternal depression can be quickly assessed in the clinic using the ten-question Edinburgh Postpartum Depression Scale (EPDS), the two-question Patient Health Questionnaire-2 (PHQ-2) and the nine-question PHQ-9.^{38,45–47} All three scales are free of charge and easily found on the web (see Table 1 for website addresses). The Beck Depression Inventory, Second Edition (BDI-II) is also a user-friendly and valid screening option for perinatal depression, but is not free of charge.⁴⁸ Evaluation of infant depression can be found in the DC: 0–3,⁴⁹ while the dyadic relationship can be assessed using the Postpartum Bonding Questionnaire (PBQ).⁵⁰ The PBQ and EPDS have been used in conjunction to evaluate the effectiveness of treatment of both postpartum depression and mother–infant bonding disorder in the

Table 1 Screening toolkit for primary care physicians

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|-------|---|---|---|
| EPDS | Sensitivity = 0.86 Specificity = 0.78 For positive screen >10 | 5–10 minutes, self-administered, could be self-scored | www.dbpeds.org/articles/detail.cfm?TextID=485 |
| PHQ-2 | Sensitivity = 0.83 Specificity = 0.92 For positive screen >3 | <1 minute, self-administered or can be asked | www.pfizer.com/pfizer/download/do/phq-9.pdf The two questions from the PHQ-9 for mood and anhedonia are used |
| PHQ-9 | Sensitivity = 0.88 Specificity = 0.88 For positive screen >10 | 5–10 minutes, self-administered and self-scored | www.pfizer.com/pfizer/download/do/phq-9.pdf |

clinical setting.^{51,52} The PHQ-9 has also been evaluated in the obstetric–gynaecological setting.³⁸

Integrated approach to care: to support women's physical and medical wellbeing during the perinatal period

A variety of clinically evaluated approaches exist which can be used alone or in combination to provide comprehensive and practical treatment to women experiencing perinatal depression. These methods include pharmacological treatment, psychosocial, cognitive–behavioural, interpersonal, psychodynamic or supportive therapy, dyadic mother–infant therapy, marriage counselling, body–mind modalities such as yoga, exercise, guided imagery, meditation and tai chi and integrative medicine approaches such as acupuncture and fish oil supplementation. An integrated approach to supporting women's physical and medical wellbeing during the perinatal period presupposes thoughtful consideration of the risks and benefits of treatment versus untreated disease, collaboration with the mother to reach appropriate decisions on treatment and close follow-up with referrals to ensure compliance, satisfaction and the safety of mother and child.

Algorithm

A systematic yet flexible approach for choosing treatment for depressive symptoms and MDD has been recommended by many professional organisations such as the American Psychiatric Association

(APA), the American College of Obstetricians and Gynecologists (ACOG), the Institute of Medicine (IOM) and the UK's National Institute for Health and Clinical Excellence (NICE).^{53–55}

The treatment algorithm for already perinatal women is complex. The decision-making process is based on several considerations: ascertaining the severity of her depressive illness based on current symptoms and past history, exploring prior treatment responses and medical and psychiatric comorbidities, exploring her willingness for pharmacological and non-pharmacological treatment options and assessing the stage of her perinatal course (preconception, gestational age or postpartum and breastfeeding). The decision to initiate pharmacological treatment in pregnancy or while breastfeeding should be always done on a case-by-case basis and judged by weighing the risk of untreated maternal illness against the risk for drug exposure to the foetus.

If a woman is experiencing major psychotic or suicidal symptoms and is only in the pre-conception stage, the family physician should encourage her to postpone pregnancy and refer her to psychiatry for thorough evaluation and treatment recommendations. If such referral is not feasible, then the family doctor should initiate treatment with antidepressants and, if necessary, antipsychotics and should continue such a regimen for at least six to 12 months.⁵⁶ If a woman contemplating conception already has a standing psychotropic medication regimen she should be encouraged to stay on her psychotropic medicine while trying to conceive, as relapse rates are extremely high upon medication discontinuation. Similarly, pregnant women with histories of depression who discontinue their antidepressant medication because of pregnancy are highly vulnerable to experiencing another major depressive episode within three months of discontinuation, even if their depressive symptoms prior to discontinuation

had been mild to moderate.⁵⁷ Women who insist on ceasing medicine while pregnant should be monitored while they slowly taper their medicine, and should be offered non-pharmacological treatment instead (therapy or complementary-alternative treatments). If, however, a woman is suffering severe depression including psychotic or suicidal symptoms, clinicians should insist on continuation of psychotropic drugs supplemented with additional non-pharmacological treatment (see Figure 1 for visual display).

Pharmacological treatment

Despite an extensive amount of research and review on the subject of antidepressant medication and the wellbeing of the foetus, the literature provides far from a comprehensive understanding of the risks associated with drug therapy.⁵⁸⁻⁶² According to the US Food and Drug Administration (FDA) rating system, drugs are separated into five risk categories (A, B, C, D and X) based on data derived from human and animal studies, where A designates 'safe for use during pregnancy' and X drugs are contraindicated due to known risks. While no antidepressant medication is category A and most are designated category C, some controversy exists over the appropriateness of category designations, including the summation of existing data, the lack of human studies to support animal research findings and the failure to incorporate the risk of untreated disease into the classification.⁶³ The FDA has recently set out to revise the system to remove the five categories and instead include a discussion of the risk and the evidence for that risk for each drug.⁶³

As with all medication during pregnancy the dosage must be adjusted to match the changes in pharmacokinetics due to the profound changes in maternal physiology during pregnancy. Fluoxetine and citalopram are considered the lowest risk and first line drugs because of the large amount of data showing their safety in pregnant women. On the other side paroxetine, which is category D, has been avoided by pregnant women and practitioners because of the reports of cardiovascular malformations following exposure during the first semester. Although subsequent studies did not find a significant effect for paroxetine, the category D designation has remained.^{64,65}

Other pharmacological options exist as well, with the option of recommending tricyclic antidepressants (TCAs) such as desipramine and nortriptyline first as they have been reported to have less anticholinergic properties, which decreases the likelihood of worsening orthostatic hypertension in pregnant women. If there is a lack of positive response to the TCAs, then moving on to try bupropion can be recommended, which has the advantage of also being FDA approved for smoking cessation.^{66,67} Finally, the serotonin-norepinephrine reuptake inhibitor (SNRI) venlafaxine is widely used, but there is a lack of reports of any malformations, which could be interpreted in positive way. However, there is not enough data to reach an unequivocal conclusion about it.⁶⁸

Electroconvulsive therapy

Electroconvulsive therapy (ECT) has been used for a long time as a safe, non-pharmacological approach to treatment of peripartum depression. The low risk

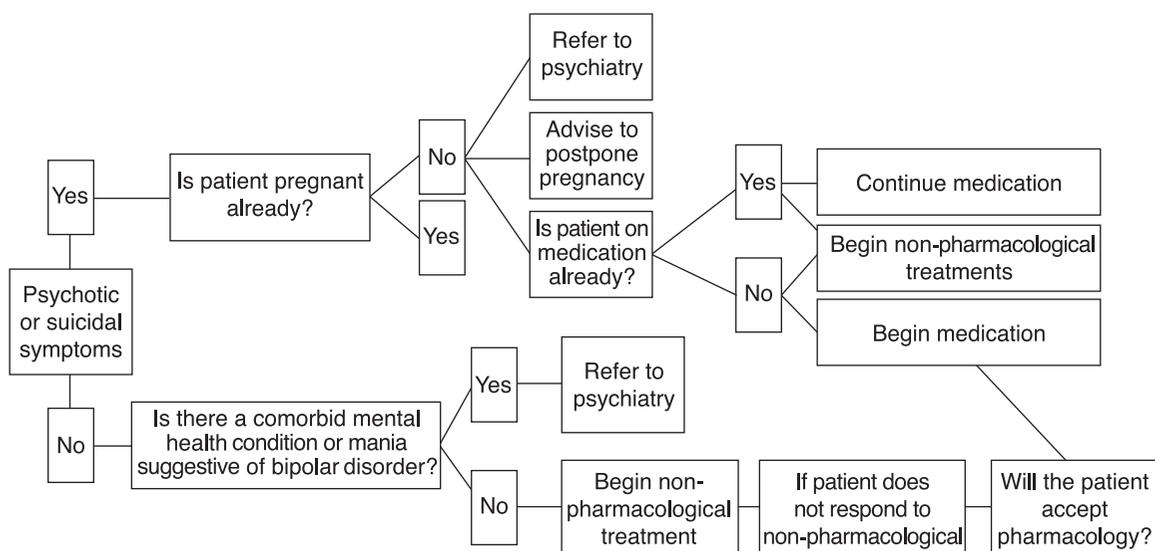


Figure 1 Treatment decision-making tree

for teratogenicity and other adverse effects has made ECT a preferred therapy for severe depression during pregnancy. Despite its relevant safety, ECT must only be used with careful monitoring of the mother and foetus by an experienced obstetric consultant and is generally employed after pharmacological antidepressant therapy has been exhausted.⁶⁹ To avoid vena caval compression syndrome pregnant women should be positioned slightly on their left with support underneath the right hip while receiving ECT.⁷⁰

Psychosocial therapy

Non-pharmacological treatments are effective and well received amongst perinatal women, although psychosocial therapies can be complicated by practical problems of an economic, efficiency and compliance nature. Cognitive-behavioural therapy (CBT) and interpersonal psychotherapy (IPT) have been shown to be effective in treating depression during pregnancy and after birth.⁷¹⁻⁷³ Other approaches including home-based psychodynamic and supportive therapies have also been shown to provide relief of depressive symptoms.⁷⁴ Marital counselling is yet another treatment found to reduce depressive symptoms and to improve maternal wellbeing, especially in the context of relational stress.^{75,76} To facilitate mother-infant attachment and promote good socioemotional outcomes in children of depressed mothers, an additional line of treatment focusing on enhancing sensitive parenting in the face of maternal depression was developed and tested for effectiveness.⁷⁷⁻⁷⁹ Current findings suggest that dyadic interventions are better suited to improving parenting quality and child wellbeing, even independently of the improvement of depressive symptoms experienced by the mother.^{80,81} Another example of a dyadic intervention designed to promote a mother's sensitive touch and give her tools to learn how to calm her infant is baby massage; this intervention, tested in depressed adolescent mothers, was found to increase baby wellness and reduce infant stress hormones.⁸² Finally, parent psychoeducation about infant development has also been found beneficial for infant outcomes, especially in the context of perinatal depression in adolescent mothers.⁸³

Mind-body modalities

As women turn away from pharmacology during pregnancy and the post-partum period, physicians are often asked to recommend or comment on the efficacy and safety of approaches to treating

depression that fall outside the purview of psychosocial therapy. Mind-body approaches such as yoga, meditation, mindfulness, guided imagery and tai chi have been used by mothers with perinatal depression to alleviate stress and symptoms, but their efficacy has yet to be definitively elucidated.⁸⁴ Acupuncture has also been shown to decrease depressive symptomatology but more research is needed to establish its suitability for the depressed mother.^{85,86}

Integrative medicine approaches

Similarly physicians are often approached to discuss the safety and efficacy of supplement-based or energy-based treatments such as omega-3 fatty acids, S-Adenosylmethionine (SAMe), St John's wort (*Hypericum perforatum*) and bright light therapy. Fish oil supplements containing EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) omega-3 fatty acids have been found to have an effect on depressive symptoms in some women, not as monotherapy but rather as an adjunct to other antidepressant treatment. On the other hand, SAMe, bright light therapy and St John's wort have been evaluated to have sufficient therapeutic advantage to be used as monotherapy. It is important to note that St John's wort has the potential to interact with p450 metabolism of a wide spectrum of drugs and must be used with caution.⁸⁷

Conclusion

Treatment of depression during the perinatal period is complex, almost always involving multi-modal treatments and many providers including those in obstetrics, paediatrics and family medicine. Coordination of care between such providers is crucial. The relative merit of psychotherapeutic, supportive and psychopharmacologic modalities during this time period all require further investigation. To date the specific contribution of pharmacotherapy vs illness to maternal and foetal risk is uncertain. Many novel treatment strategies such as vagal nerve stimulation and transcranial magnetic stimulation are still untested in the perinatal period. Numerous researchers are beginning to explore epigenetic influences on infants during gestation and the neonatal period and the impact of maternal illness on the infant's developing stress axis and predisposition to later psychiatric illness. Moreover, the impact of maternal depression and treatment upon the infant capacity for self-regulation and temperament and

subsequent attachment, cognitive development and predisposition to psychiatric illness all are areas for further exploration.

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CONFLICTS OF INTEREST

The authors have no financial conflicts to declare; none of the authors has financial or advisory links to industry. This paper was written without any financial grant or contribution from industrial sources or affiliations.

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