OBSTETRICS

Randomized controlled trial to prevent postpartum depression in adolescent mothers

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OBJECTIVE: The purpose of this study was to estimate the effect of an interpersonally oriented intervention on the reduction of the risk of postpartum depression in primiparous adolescents.

STUDY DESIGN: We conducted a randomized controlled trial of 106 pregnant primiparous adolescents who were ≤17 years old at their first prenatal visit. Participants were assigned randomly to the intervention program (n = 54) or the attention and dose-matched control program (n = 52). Each program included 5 sessions that were delivered during the prenatal period. A structured diagnostic interview was administered to assess for the primary outcome and depression at 6 weeks, 3 months, and 6 months after delivery.

RESULTS: Participants included Hispanic (53%), non-Hispanic black (17%), and non-Hispanic white (16%) adolescents. The overall rate of depression in the intervention group (12.5%) was lower than the control group (25%) with a hazard rate ratio of 0.44 (95% confidence interval, 0.17−1.15) at 6 months after delivery.

CONCLUSION: An intervention that is delivered during the prenatal period has the potential to reduce the risk for postpartum depression in primiparous adolescent mothers.

Key words: adolescent, clinical trial, interpersonal therapy, postpartum depression, prevention, teen pregnancy

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Approximately 400,000 births in the United States each year are to mothers who are <20 years old[1]; approximately 25-36% of these teens experience postpartum depression (PPD) after delivery.[2-4] These rates are significantly higher than adult postpartum women[5] and higher than nonperinatal adolescents.[2]

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★ EDITORS' CHOICE ★

PPD puts adolescent mothers and their children at risk during an already challenging time in their lives, and this hardship may be a major determinant of poor outcomes for these young mothers and their children. Untreated, depression is associated with school dropout, suicide, and substance use.[6,7] Among adolescent mothers, evidence suggests that depression may prevent them from engaging in health-promoting behaviors for their infants and themselves.[8,9] Overall, children who are born to mothers with untreated depression show developmental delays, lower levels of social engagement, increased stress reactivity, and negative interactions relative to infants of nondepressed mothers.[10-12]

Although validated treatments for adolescent depression exist and include interpersonal therapy, cognitive behavioral therapy, and antidepressant medication, teen mothers with mental health problems are mostly under treated.[13,14] To date, only one published report of 2 small open-trial pilot studies (n = 14 and n = 11) addressed treatment for depression in pregnant adolescents.[15] Despite the potentially high burden of depression to young women and their families, studies on the prevention of PPD in pregnant adolescents are virtually nonexistent.

A substantial body of research demonstrates that some prevention programs for adults and adolescents with mental health conditions are capable of strengthening protective factors (eg, social support, stress-management skills), that these interventions can lessen the consequences of risk factors (eg, other psychiatric symptoms), and that the interventions may have positive economic effects.[16] Several experts in the field of PPD have advocated for preventive interventions for PPD to commence in pregnancy.[17,18] Pregnancy provides a "window of opportunity"[19] for prevention because pregnancy is a time when women have frequent contact with healthcare providers and is a time when pregnant women may be more open to making changes to improve their health, which would include mental health, before the birth of their baby.[17,20]

The objective of the present study was to perform a pilot study of 100 pregnant adolescents to evaluate a novel intervention to prevent PPD in primiparous adolescent mothers. The intervention, the REACH (Relaxation, Encouragement, Appreciation, Communication, Helpfulness) program, is based on interpersonal therapy, which targets those fac-

tors that may play a significant role in the development of PPD.[21,22] Our primary hypothesis was that the REACH program would be more efficacious than the attention and dose-matched control program that is focused on prenatal education in the reduction of risk for depression up to 6 months after delivery in adolescent mothers.

MATERIALS AND METHODS

Trial design

A blinded randomized controlled trial was used to evaluate the REACH program as an intervention to prevent PPD. Because the focus of the REACH program is on the prevention of PPD, the intervention and control programs were conducted during the prenatal period. Depression was assessed from intake (during pregnancy) to 6 months after delivery. A preintervention survey was conducted to collect data on sociodemographic characteristics, reproductive history, and substance use. Medical charts were reviewed for pregnancy and infant outcomes.

The study protocol was approved the Institutional Review Board of Women & Infants Hospital, Providence, Rhode Island. Local laws regarding minor participants in research were followed. All participants were consented by written consent from her guardian and assent from the minor participant. The protocol was registered at clinicaltrials.gov (NCT00436150) on Feb. 14, 2007.

Participants (eligibility and setting)

Participants were recruited between February 2007 and August 2008 through an urban prenatal clinic that cared for women of all ages and diverse backgrounds. Participants were eligible if they were ≤17 years old when they conceived their pregnancy and were <25 weeks gestational age at their first prenatal visit. The following exclusion criteria were determined before randomization: (1) received mental health services from a healthcare provider or (2) met criteria for a current affective disorder, substance use disorder, anxiety disorder (excluding simple phobia), or psychosis as determined by the relevant modules of the Structured Clinical Interview for the Diagnostic and Statistical Manual for Mental Disorders, 4th edition, (DSM-IV) Childhood Diagnoses (KID-SCID).[23] Adolescents who met the criteria for any of these disorders were excluded because the REACH program is a prevention program and is not designed to treat any of these disorders. Furthermore, the control condition is relatively inert. Hence, it would have been unethical for us to withhold treatment from an adolescent who had been diagnosed with one of these disorders.

Intervention

The REACH program intervention was an adaptation of an interpersonal therapy–based prevention intervention, which was found to reduce PPD in pregnant adults on public assistance.[21,22] The REACH program intervention is the product of an extensive, iterative treatment development process. To maximize acceptability of the intervention, the REACH program was tailored extensively and refined to be culturally appropriate and appealing to adolescents from diverse racial and ethnic backgrounds. Modifications were guided by input and feedback from postpartum adolescent focus groups, expert consultants (in adolescent medicine and depression and perinatal care among low-income minority adolescent female patients and an expert in interventions for minority teens), pilot participants, and pilot facilitators.

The REACH program is a highly structured, adolescent-oriented intervention that is delivered over the course of 5 one-hour prenatal sessions with a postpartum booster session that includes multimedia (video snippets), interactive (role-playing) components, and homework with feedback. The content of the REACH program focused on the development of effective communication skills to manage relationship conflicts before and after the birth of the baby, expectations about motherhood, stress management, "baby blues" vs depression, development of a support system, development of healthy relationships, goal setting, and psychosocial resources for new mothers. The structured format and detailed facilitator manual ensured that specific defining elements of interpersonal therapy such as enhancing social support and therapeutic strategies (eg, role-playing, communication analysis) remain the central features of the intervention. The highly structured nature of the REACH intervention and the control program allowed for efficient facilitator training and monitoring for adherence and competency.

Each participant was given the book *Baby Basics: Your Month by Month Guide to a Healthy Pregnancy,*[24] which is a comprehensive pregnancy guide that was developed by the What to Expect Foundation. The attention and dose-matched control condition involved using the *Baby Basics* book as a guide for the didactic control program. This program included information about maternal health throughout pregnancy and the early postpartum period, fetal development, nutrition, preparation for labor, and preparation of the home for taking a baby home. The control condition had no overlapping content with the REACH program curriculum.

The initial plan was for the REACH program and control program sessions to be delivered as group sessions once each week for 5 consecutive weeks and an individual booster session that is delivered in the hospital after the delivery, with accommodations for make-up sessions. As the study progressed, it became clear through rescheduling and qualitative assessment that the participants preferred individual sessions. Thus, accommodations were made to deliver the sessions individually. The intervention and control sessions were administered in similar fashions to balance contact time with the facilitator. Each session lasted approximately 30-60 minutes, depending on the discussion.

Outcome assessment

PPD was classified as an episode of major depressive disorder that occurred within the first 6 months after delivery. Although the DSM-IV defines *PPD* as major depressive disorder with an onset within 4 weeks after delivery, research has shown that at least one-third of women report the onset of PPD at 2-6 months[25]; among teens, 32% have scores that indicate depression at 4 months after delivery.[3] Moreover, most investigators classify a depression that occurs within the first 6 months after delivery as