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Research Article

Prior Psychiatric Diagnosis Suggests Additional Depression Screening During Pregnancy

Nathaniel E. Miller

Department of Family Medicine, Mayo Clinic Rochester Minnesota, USA

Brianna Konwinski

Department of Family Medicine, Mayo Clinic Rochester Minnesota, USA

Hannah K. Betcher

Department of Psychiatry and Psychology, Mayo Clinic Rochester Minnesota, USA

Marla A. DeWitt

Department of Family Medicine, Mayo Clinic Rochester Minnesota, USA

Kurt B. Angstman

Department of Family Medicine, Mayo Clinic Rochester Minnesota, USA

ABSTRACT

Objective: Depression is associated with poor outcomes during pregnancy and the postpartum period and a proactive approach to screening and diagnosing depression is desired. We sought to determine how significantly a prior psychiatric diagnosis impacted the risk for onset of depression during a pregnancy.

Methods: This was a prospective study that surveyed pregnant women from July 1st, 2013 through June 30th, 2015. Women presenting for a new obstetric appointment at our institution were eligible. Surveys were completed during each trimester and approximately 6 months postpartum with obstetrical data collected after delivery.

Results: 572 patients were enrolled in the study of which 40 (7.0%) were diagnosed with active depression during their pregnancy. No statistical difference was found in age or gravidity for those with or without depression. A prior history of post-partum depression was more frequent in those with depression during pregnancy (22.5% vs. 6.2%, $p<0.01$), as was any prior history of depression (90% vs. 11.3%, $p < 0.01$). Almost all of the patients with depression during their pregnancy had a documented prior psychiatric diagnosis (38/155 vs. 2/417, $p<0.01$). A history of a prior psychiatric diagnosis incurred a 64-fold increased risk of depression during the pregnancy ($p<0.01$).

Conclusion: A prior history of a psychiatric diagnosis imports a significantly elevated risk of depression during pregnancy. Currently, interval depression screening is recommended for all pregnant women. Our data suggests the need for more active screening in patients with a prior history of psychiatric diagnosis.

Keywords: Antenatal Depression, Psychiatric History, Depression Screening.

Introduction

Depression during pregnancy is common and an estimated 12-15% of women experience depression during pregnancy [1,2] with the prevalence rising to 21.9% in the first year postpartum [3]. Peripartum depression is associated with myriad poor outcomes, including pregnancy complications such as gestational diabetes, preeclampsia, anaemia, and placental abnormalities [4-7]. Infants exposed to maternal depression have a higher incidence of adverse neonatal outcomes, such as low birth weight, small for gestational age, neonatal intensive care unit (NICU) admission, Apgar score <7 at 5 minutes of life, fetal pH <7.15 at birth, and major congenital anomalies [7]. Additionally, psychiatric disorders and suicide remain a leading cause of maternal death postpartum [8].

Despite the negative impact of perinatal depression on maternal and fetal health, only 18% of pregnant women who meet criteria for major depression seek out treatment in the perinatal and postpartum periods [9]. Current recommendations from the American College of Obstetricians and Gynecologists (ACOG) suggest screening for depression during pregnancy every trimester and postpartum [10]. Perinatal office visits are an opportune time to identify women struggling with depression in pregnancy secondary to the existing frequency of visits and continuity of care in place, and there is evidence that screening itself is clinically beneficial [11]. Thus, it is essential that maternal care providers screen and identify women with perinatal depression. The Edinburgh Postnatal Depression Scale (EPDS) [12] and Patient Health Questionnaire (PHQ-9) [13] are commonly used, brief, validated screens for perinatal depression.

Furthermore, it is important to identify risk factors which may predispose women to perinatal depression. In the non-pregnant population, a prior history of depression is a known risk factor for recurrent depression. One large study suggests a history of depression is the strongest risk factor for major depression during pregnancy [7]. However, there are few high-quality studies that address the extent to which a history of depression is a risk factor for perinatal depression [6,14,15]. We sought to determine how significantly a prior psychiatric diagnosis impacts the risk for depression onset during a pregnancy and if this should inform frequency of screening during the peripartum period.

Methods

This study was a prospective survey and clinical outcome study initially formed to look at exercise habits and attitudes of adult (age ≥18) women during pregnancy [16] and previously we had reported on the risk of depression in patients with a diagnosis of gestational diabetes [17]. Utilizing the same data, we developed a cohort of patients who scheduled a new obstetric appointment at Mayo Clinic, Rochester, MN. Women presenting in the first trimester between July 1, 2013 and June 30, 2015 were considered eligible for participation. Our practice has approximately 2,500 new obstetrical patients annually and comprises primary to tertiary care. The patients were cared for by providers of the Department of Obstetrics and Gynecology or Department of Family Medicine. Exclusionary criteria were: non-English speaking patients, women who did not complete the first trimester survey, and women who were not planning on continuing prenatal (>50% of visits) care or maternity care with one of our providers. After informed consent, the women were surveyed during their first new OB appointment, which included questions on the patient's prior history of depression or postpartum depression diagnoses. The second survey was obtained between 18- and 22-weeks' gestation and the third survey was distributed at approximately 28 weeks gestation. The second and third surveys included questions related to comorbid diagnoses during the pregnancy, including but not limited to, a diagnosis of depression, gestational diabetes, and gestational hypertension. Participants were asked during the third survey to provide their email address, if they were willing to complete a six-month postpartum survey.

The study included of 578 patients with 6 lost to outcome for a total of 572 patient records. During the study period our institution screened for depressive symptoms with a PHQ-9 in each trimester and at least once postpartum. The diagnosis of depression during the pregnancy was based on patient report of having the diagnosis made by their provider.

The 572 participants were divided into two study cohorts, with the first cohort consisting of 40 patients reporting the diagnosis of depression during pregnancy and the remaining (n=532) of those without depression diagnosis during pregnancy. Information was collected about history of depression or postpartum depression, age and gravidity. Clinical outcomes data collected included type of delivery, newborn birth weight and pregnancy depression diagnosis.

The second study cohort involved those without and with psychiatric diagnoses (depression bipolar disorder, anxiety disorders, and eating disorders) reported prior to pregnancy. Due to the limitations of the prospective survey study, the data was patient supplied and historical diagnoses from the medical record were not obtained.

We used two-sample t-tests for the continuous variables. Categorical variables were compared using chi-square tests. P-values less than 0.05 were considered statistically significant. Regression modeling, using MedCalc Statistical Software version [18] for the was performed while controlling for patient age and gravidity (MedCalc Software, Ostend, Belgium; http://www.medcalc.org; 2018). Not all variables were collected for all participants, thus the number of responses may vary. The study continued until all enrolled patients had completed delivery and had outcomes documented. The Mayo Clinic institutional review board (IRB) evaluated and approved the study.

Results

Of the 572 patients enrolled into the study, 40 (7.0%) reported a diagnosis of active depression during the study period. Comparing the cohort with peripartum depression to those without depression, there was no statistically significant difference in age or gravidity (Table 1). However, those with a current diagnosis depression during pregnancy or postpartum were more likely to have a prior history of post-partum depression (22.5% vs. 6.2%, $p<0.01$) and a prior diagnosis of depression (90% vs. 11.3%, $p < 0.01$).

In the second study grouping, 155 individuals had a prior history of a psychiatric diagnosis (depression, bipolar disorder, anxiety, or eating disorder) and 417 individuals had no prior psychiatric diagnosis (Table 2). Almost all of the patients with depression diagnosed during their pregnancy also reported a prior psychiatric diagnosis (38/155 vs. 2/417, $p<0.01$). There was no statistically significant difference between these two groups for age, gravidity, baseline BMI, delivery fetal weight or mode of delivery.

Multivariate analysis was performed for the outcome of a current pregnancy diagnosis of depression with or without the prior psychiatric diagnoses, while controlling each for the age of the patient and gravidity. For pregnant patients with a prior psychiatric diagnosis, the risk for depression in the current pregnancy was significantly elevated, AOR 4.09, 95% CI 15.20-270.18, $p<0.01$). The R^2 for these models was 37.50% and the area under the ROC curve was 0.88 (95% CI 0.86- 0.91) (Table 3).

Discussion

Marcus et al found an increased risk of peripartum depression with an odds ratio of 4.9 for any lifetime history of depression

Table 1: Comparison of patients with pregnancy associated diagnosis of depression.

N= 572	Diagnosis of Depression (N=40)	No Depression Diagnosis (N=532)	p=
Age: mean (range)	31.2 (18.1-45.3)	30.5 (18.3-48.2)	0.363
Gravidity	2.8 (1-7)	2.3 (1-13)	0.068
Prior post-partum depression	22.5% (9)	6.2% (33)	P<0.001
History of depression	90.0% (36)	11.3% (60)	P<0.001

Table 2: Comparison of obstetrical patients with or without a prior psychiatric diagnosis.

N=572	Prior Psychiatric Diagnosis (N=155)	Control Group (N=417)	p=
Age: Mean years (SD)	30.6 (29.8-31.4)	30.5 (30.1-31.0)	0.9
Gravidity: Mean (SD)	2.6 (2.3-2.9)	2.3 (2.1-2.4)	0.05
Baseline BMI: kg/m2 (SD)	25.9 (24.9-26.9)	25.5 (25.0-26.0)	0.46
Fetal weight: grams (SD)	3392.8 (3307.3-3476.2)	3446.4 (3393.7-3499.1)	0.29
Cesarean Delivery	21.7% (31/143)	26.9% (103/382)	0.45
Diagnosis of depression during pregnancy	38 (24.5%)	2 (0.5%)	<0.01

Table 3: Adjusted odds ratio of depression diagnosis during pregnancy.

N=564	Adjusted Odds Ratio	95% Confidence Intervals	p=
Age	1.02	0.95-1.10	0.41
Gravidity	1.09	0.89-1.35	0.48
Prior Psychiatric Diagnosis	64.09	15.20-270.18	<0.01
Areas under ROC curve	0.88	0.86 to 0.91	R^2=0.375

[9]. And while previous studies have well established depression history as a risk factor for post-partum depression [10], there is less robust research regarding depression and bipolar disorder as a risk factor for antenatal depression and a lack of clarity on the extent such a history confers for an onset of depression during a current pregnancy. There is also minimal data regarding whether prior anxiety or eating disorder diagnoses increase the risk for peripartum depression. Our data demonstrates an increased risk of antepartum onset depression in individuals with a prior psychiatric diagnosis. Additionally, our results suggest that previous assessments may underestimate the risk in populations who have had prior psychiatric diagnoses.

Patients presenting for prenatal care represent a unique opportunity for intensive screening and symptom monitoring at a time where treatment can be particularly impactful [18], as untreated psychiatric illnesses during this time period have enduring health implications for both mother and baby [9]. There are multiple, well documented risk factors for perinatal depression [6], yet these are often not identified in a pro-active manner to allow for more intensive monitoring and early initiation of treatment in patients at higher risk. The structure and continuity of routine prenatal visits offers a unique opportunity for identification of risk factors and symptoms, and early intervention.

This data would suggest consideration for enhanced screening of all obstetrical patients with a prior history of a psychiatric disorder. For example, screening at each prenatal visit as opposed to every trimester may be appropriate for this at-risk population although it would represent a substantial increase in screening from current recommendations. Clinicians should also be familiar with local resources and consider referral for counseling services in these high-risk patients, as there is data that early intervention can be beneficial [19]. Additionally, our data emphasizes the importance of taking a thorough psychiatric history at the initial first trimester visit, to better inform the frequency of peripartum depression screening throughout pregnancy and provide adequate psychoeducation to patients at particular risk.

There are limitations to this study: It was completed at a single site, and only English-speaking patients participated, potentially limiting the diversity of the patients. The structure of the study relied on patient report of being diagnosed with depression during pregnancy and patient recall of their previous psychiatric diagnoses, which may have reduced reliability. Finally, there were not a large number of patients, so we could not analyze specific psychiatric illnesses, limiting the ability to estimate a specific illness's likelihood of contributing to depression.

Conclusions

This study helps clarify the extent of antepartum depression risk for patients both with any history of psychiatric illness and those with a prior history of depression. Given the potential risks of untreated depression to mother and baby, our findings support frequent screening and early intervention for at risk patients. Enhanced depression screening at each obstetrical visit should be considered in patients with a prior history of depression or other psychiatric illness.

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Declaration of interest

No potential conflict of interest was reported by the authors.

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ADDRESS FOR CORRESPONDENCE:

Nathaniel Miller, 200 First Street SW, Rochester, Minnesota, USA, Tel: 507-266-4648; E-mail: Miller.Nathaniel@mayo.edu

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