The pattern of depression screening results across successive pregnancies

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OBJECTIVE: Determine whether depression screen results are consistent across successive pregnancies.

STUDY DESIGN: The Edinburgh Postnatal Depression Scale was administered in 2 successive pregnancies to 2116 women. A woman was “screen-positive” if she scored ≥12 at 24-28 weeks’ or 6-weeks’ postpartum. Screen-positive women were assessed by telephone and triaged by mental health professionals.

RESULTS: Most women (87.9%) were screen-negative in both pregnancies; 1.7% screened successfully positive, 5.9% screened positive in only the first pregnancy; 4.5% screened positive in only the second pregnancy. Unpartnered, nonwhite, and publicly insured women were each likelier to screen positive in either or both pregnancies (P < .0001). Gestational age at delivery was significantly greater in women who never screened positive (P < .05). A majority (63%) of screen-positive women in both pregnancies reported no history of mood disorder.

CONCLUSION: There is sufficient variability in depression screening results between successive gestations to warrant screening during each pregnancy.

Key words: Edinburgh Postnatal Depression Scale, perinatal depression, screening

Depression is considered a common complication of pregnancy. Its prevalence, coupled with the availability of easily administered and validated screening tools has led to support for universal screening among obstetricians and legislators. However, routine screening and systematic triage are not yet commonplace. As a result, most studies of depression risk have examined unselected groups of individual pregnancies and their corresponding postpartum timeframes. Other limitations in this literature include underrepresentation of minority subjects and those individuals who are uninsured or Medicaid enrollees. A systematic review by the Agency for Healthcare Research and Quality called for studies to parse out screening differences using these demographic variables to identify relevant cohorts and their unique attributes.

Depression screens analyzed in the current study were administered in the context of a comprehensive program for universal perinatal depression screening and mental health referral. Since 2003, the program has included centralized processing of all screening, a 24/7 crisis hotline, a network of community-based mental health professionals and an educational program for obstetricians and nurse midwives. In a prior study reporting on 1584 patients screened once during pregnancy and again at 6-weeks’ postpartum, we observed that unique screen-positive cohorts were identified before and after delivery, suggesting that screening status was not necessarily static over time in a single pregnancy. A related question is whether depressive risk is sustained between pregnancies and our program data provided the opportunity to address this issue by studying screening patterns across 2 successive gestations in the same patients.

MATERIALS AND METHODS

The Edinburgh Postnatal Depression Scale (EPDS) was chosen for its validity in both the antepartum and postpartum timeframes. The EDPS is a self-report instrument that does not provide a clinical diagnosis of a perinatal mood disorder but does identify at-risk patients. A validated version of the EPDS was administered to patients at 24-28 weeks’ gestation and 6-weeks’ postpartum. These screening times were based on the potential onset of perinatal mood disorders and also to coincide with routine clinical activities (ie, glucose tolerance testing and the postpartum check-up).

Completed screens were e-faxed from the outpatient office to a confidential email account that was monitored daily. Scored screens were inputted into the electronic medical record and linked to the corresponding demographic and perinatal data. EPDS screens were designated “positive” for scores ≥12 or for a response other than “never” to the question describing thoughts of harming oneself based on recommendations for use of the EPDS. Screen-positive patients received a telephone call from a mental health professional and were re-

RESULTS

We screened 2116 women in 2 successive pregnancies between 2003 and 2010. The Table shows the demographic characteristics of this sample. At the time of the first screen, the mean age was 31.1 years, ± 4.6. Nearly half (48.3%) of the sample were primigravida, and the remaining were multigravida (2, 3, and ≥4 in 27.4%, 13.3%, and 11%, respectively).

Average gestational age at the time of antepartum screening was 29.0 weeks and 6.6 weeks for postpartum screening. A total of 949, 843, and 324 women had 2, 3, and 4 screens available for analysis for a total of 5723 screens studied among 4232 individual pregnancies. Of women who were positive in 1 or both pregnancies, 12.1% were positive using our adjusted definition of “positive” as scoring positive at any time in a pregnancy. The frequency distribution of EPDS scores is similar to that observed in prior publications from our center (Figure).9,10

Most women in our sample (89.6%) screened concordantly across pregnancies. A majority of cases (87.9%) were negative/negative; 1.7% screened positive in both pregnancies. Of discordant cases, 5.9% screened positive in the first pregnancy (positive/negative) and 4.5% screened positive in the second pregnancy (negative/positive).

In comparing demographic characteristics of 4 cohorts, maternal age was not different between groups. We observed significant differences in successive screening results by marital status, race distribution, and insurance category. Of women with known marital status (n = 1702), partnered women were more likely to screen negative in both pregnancies (89.3% vs 74.8%, P < .0001), were less likely to screen positive in the first pregnancy (5.3% vs 12.2%, P < .05), and less likely to screen positive in both pregnancies (1.2% vs 6.1%, P < .05).

Of women whose race was known (n = 1669), white women were significantly more likely to screen negative in both pregnancies when compared with an aggregate of African American, Asian, American Indian, and Alaska Native women (91.03% vs 82.14%, adjusted P < .0001). White women were also less likely to screen positive in the second pregnancy (3.3% vs 6.4%, P < .05).

Of women whose insurance status was known (n = 1962), privately insured women were more likely to screen negative in both pregnancies (89.4% vs 74.3%, P < .0001). Privately insured women were less likely to screen positive in the first pregnancy (5.14% vs 14.16%, P < .05) and less likely to screen positive...
in both pregnancies (1.4% vs 5.3%, P < .05).

We also compared the 4 cohorts on several perinatal variables specific to each pregnancy. Most of these variables (delivery route, perineal laceration, induction of labor, prior cesarean, cesarean indication, delivery anesthesia, and neonatal intensive care admission) were not significantly different between groups for either pregnancy. Initial analysis demonstrated that gestational age and birthweight varied between groups. In both pregnancies, the negative/negative subset delivered at a more advanced gestational age and had higher birthweight infants. However, a post hoc, pairwise comparison revealed that only gestational age at delivery in the second pregnancy was significantly greater in the negative/negative and the positive/negative groups compared with the other cohorts with positive second pregnancy screens (Bonferroni adjusted P < .05).

The telephonic mental health assessments of positive/positive women conducted by the program’s licensed mental health professionals were retrieved and analyzed. Seventy-one mental health assessments were conducted in this cohort over the 2 pregnancies. It was determined that 63% of these patients reported no history of a mood disorder or prior treatment at the time of the first assessment, but did report a mood disorder diagnosis during the assessment completed in the second pregnancy.

### COMMENT

A major strength of this study is the opportunity to analyze successive pregnancies in the same system using the same screening methodology and the same triage algorithm in more than 2000 women. These data showed that unique cohorts of women screened positive in different pregnancies. Furthermore, most positive women were positive in only 1 pregnancy, not both. Instead of relying on prior screening results to assess risk for perinatal mood symptoms, these data support repeat depression screening in each subsequent pregnancy.

Our data also suggest that demographic variables correlate with positive screens, whereas most perinatal variables do not differentiate between screening status over time. The positive screening propensity across pregnancies of unpartnered, nonwhite, and publicly insured women, regardless of their age, supports existing literature on the relatively higher prevalence of perinatal mood disorders among women with these at-risk demographics. For obstetric offices that do not systematically screen patients, demographic variables may be used as a starting point in identifying women with potentially heightened risk. We could not determine whether a change in insurance or marital status between pregnancies influenced sequential screening results because too few women experienced such changes.

Women who screened positive in 2 pregnancies also had high rates of self-reported mood disorders, but most disorders had not been diagnosed at the time of the first screen assessment. These data support prior research suggesting that pregnancy may uncover an underlying depressive propensity, not unlike gestational diabetes is a risk factor for adult onset disease thereafter. We recognize that the accuracy of screening in the second pregnancy may have been influenced by the experience or the results of initial pregnancy screening, but the average interval of 2.5 years between pregnancies should effectively dampen that influence. Although a history of depression and previous perinatal depression are considered strong predictors of future perinatal depression, our data suggest that women without a reported mental health history can still be at risk.

One potential limitation of this study is the classification of depressive risk in pregnancy. Our definition of a “positive” woman allowed for her to screen negative at 1 of the 2 screening time points. As a result, the concordant and discordant cohorts in successive pregnancies may not be homogeneous. We contemplated...
restricting the focus of the study only to women who screened persistently positive over the course of a pregnancy episode (antepartum and postpartum), but too few women had 4 screens (2 per pregnancy) to form the basis of this study. We believe that whether depressive symptoms have their onset during pregnancy or after delivery, the clinical implications are likely similar.

Our study also lacked verifiable baseline mental health history in the negative/negative screening cohort because we did not routinely contact negatively screening women. This limited the opportunity to compare the likelihood of a subsequent mood disorder diagnosis with the rate observed in the positive-screening cohort.

Finally, it is the case that our telephonic mental health assessment and triage may influence the outcome of the subsequent pregnancy screen; reflecting the fact that our subjects are studied in a real clinical environment such that withholding triage would be inappropriate. This confounder might influence the women who screen positive in the first pregnancy and negative subsequently, but the additional subset that screened persistently positive underscores that any enduring effect of our intervention is not uniform across all at-risk women.

REFERENCES