OBSTETRICS

Psychiatric risk factors associated with postpartum suicide attempt in Washington State, 1992-2001

Katherine A. Comtois, PhD; Melissa A. Schiff, MD, MPH; David C. Grossman, MD, MPH

OBJECTIVE: The purpose of this study was to evaluate preexisting psychiatric risk factors for postpartum suicide attempts resulting in hospitalization.

STUDY DESIGN: We performed a population-based case-control study using Washington State birth certificates linked to hospital discharge data to evaluate the association between hospitalization with a psychiatric diagnosis, substance use diagnosis, or dual diagnosis in the 5 years before delivery with risk of postpartum suicide attempt. We compared cases (n = 355) hospitalized postpartum for a suicide attempt with controls (n = 1420) by using multivariable logistic regression.

RESULTS: Women with a psychiatric disorder were at a 27.4-fold (95% confidence interval 10.6-70.8) increased risk, and those with a substance use disorder were at a 6.2-fold (95% confidence interval 2.8-13.9) increased risk, and those with a dual diagnosis were at an 11.1-fold (95% confidence interval 5.1-24.2) increased risk of postpartum suicide attempt compared with controls.

CONCLUSION: Prenatal screening for preexisting psychiatric or substance abuse diagnoses may help identify women at risk of postpartum suicide attempt.

Key words: attempted suicide, hospitalization, postpartum, pregnancy, psychiatric diagnosis, substance abuse

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A postpartum suicide attempt is a tragic event that may have serious long-term repercussions for the postpartum woman's family and her infant. A recent study noted that 1 in 2277 women are hospitalized for a suicide attempt in the postpartum period.[1] Although prior psychiatric morbidity is a well-established risk factor for suicide and suicide attempt in the general population,[2-4] less is known about psychiatric risk factors for suicide attempt among postpartum women.

★ EDITORS' CHOICE ★

Women in the postpartum period can experience several affective, anxiety, and psychotic disorders, ranging in severity from the common "postpartum blues" experienced by 50-85% of mothers to postpartum psychosis with a prevalence of 0.2% among childbearing women.[5-6] Appleby and Turnbull[7] found that Danish women admitted to an inpatient psychiatric facility postpartum had a 70-fold increased risk of suicide in the year after birth and a 17-fold increased risk of suicide long-term compared with women in the general Danish population. To our knowledge, no prior population-based studies have evaluated the association between psychiatric morbidity before delivery and risk of suicide attempt postpartum. In light of this gap in knowledge, our objective was to perform a case-control study to examine the association between preexisting psychiatric risk factors for suicide attempts resulting in hospitalization in a statewide population of postpartum women.

Materials and Methods

Study subjects

We performed a case-control study to evaluate the association between demographic characteristics and prior psychiatric diagnoses with hospitalized postpartum suicide attempts among women who had a live birth or fetal death from Jan. 1, 1992-Dec. 31, 2001, in Washington State. The hospital data were extracted from the Comprehensive Hospital Abstract Recording System (CHARS) from all Washington State nonfederal hospitals. Nonfederal hospitals include all hospitals in Washington State, except for military hospitals, which account for 4.7% of all deliveries in Washington State. The hospital discharge dataset and the Washington State death certificates were linked to the birth and fetal death

From the Departments of Psychiatry and Behavioral Sciences (Dr Comtois) and Pediatrics (Dr Grossman), University of Washington School of Medicine, Seattle, WA; Harborview Injury Prevention and Research Center (Drs Schiff and Grossman); the Department of Epidemiology, University of Washington School of Public Health and Community Medicine (Dr Schiff); and the Center for Health Studies, Group Health Cooperative (Dr Grossman), Seattle, WA.

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certificates, all identifiers were removed, and analysis was performed by using a deidentified dataset. This study was approved by the Washington State Institutional Review Board.

Cases included all women who were hospitalized for attempted suicide in the year after their live birth or fetal death during the 1992-2001 study period. Postpartum women who were hospitalized for attempted suicide were identified by linking the hospital discharge dataset containing all females with a hospitalization International Classification of Diseases, 9th revision, clinical modification (ICD-9-CM)[8] external causation or E-code 950-959 for attempted suicide to birth and fetal death certificates for the 364 days before the date of hospitalization. Hospitalization data for the 5 years before the index delivery were obtained for the cases. A control group consisted of postpartum women who had a live birth or fetal death during the study period and were not hospitalized for attempted suicide during the postpartum year. Hospitalization data for the 5 years before the index birth were obtained for controls. Controls were randomly selected from live birth and fetal death certificates from the same period in a ratio of 4 controls to 1 case. Controls were frequency matched to cases on year of live birth or fetal death. Women who died from nonsuicide related causes in the postpartum year were excluded from the control group because they were not at risk of suicide for the entire postpartum period.

Outcome classification

We used the ICD-9-CM E codes listed in the hospital discharge data and the death certificates to evaluate the method of suicide attempt. We classified method as poisoning by medications or other substances; cutting and piercing instruments; jumping from high place; crashing of motor vehicle; hanging; firearms; extremes of cold; and other methods (including jumping or lying before moving object, burns or fire, or other unspecified means. The specific ICD-9-CM E codes are available from the author on request. A prior study in Washington State[9] of injury hospitalizations compared CHARS with medical record review and found E-codes reported in CHARS to be reliable on mechanism and intent of injury including suicide.

Exposure classification

The primary exposures of interest for this study were demographic characteristics and psychiatric disorders preceding the delivery. Demographic characteristics we evaluated were maternal age, race/ethnicity, education, marital status, and insurance status, as recorded on the birth and fetal death certificates. Maternal age was categorized as less than 20 years, 20-34 years, and 35 years and older. Maternal race/ethnicity was categorized as non-Hispanic white, African-American, American Indian or Alaska Native, Asian or Pacific Islander, and Hispanic (regardless of race). Maternal education was categorized as completing less than high school, high school graduate, some college, and college graduate. Marital status was categorized as single or married. Type of medical insurance for the birth hospitalization was categorized as public funding (Medicaid, Medicare, or other program), private (any commercial third-party payer), and self-pay.

Psychiatric diagnoses, including substance use, were determined from ICD-9-CM diagnoses codes during hospitalizations as listed in the CHARS dataset in the 5 years before the index delivery. The CHARS dataset included up to 9 diagnosis codes and a woman was classified as having a prior psychiatric or substance use diagnosis if the ICD-9CM codes were included in any of the 9 diagnosis code fields for any hospitalization. Five years was selected as a period long enough for a significant psychiatric or substance use disorder to be identified.

Psychiatric diagnoses included mood disorders, psychotic illnesses, anxiety and hysteric disorders, personality disorders, and somatoform, hysteria, eating, impulse control, and adjustment. ICD-9-CM diagnoses of substance use disorders included either abuse or dependence on substances other than nicotine. The specific ICD-9-CM E codes are available from the author on request. Disorders of childhood, delirium, dementia or other cognitive disorders, and diagnoses caused by a general medical condition were not included in the psychiatric diagnosis category. Dual diagnosis was determined if there was at least 1 psychiatric and 1 substance use diagnosis during the same hospitalization in the previous 5 years.

Statistical analysis

We compared the demographic and obstetric characteristics of women hospitalized for postpartum suicide attempt with those of postpartum women with no history of hospitalization for suicide attempts. Obstetric characteristics that we evaluated were gravidity, parity, and trimester of initiation of prenatal care as recorded on the birth or fetal death certificate. Gravidity and parity were categorized as 1, 2, or 3 or more previous births. Trimester of initiation of prenatal care was categorized as first, second, or third trimester. We assessed proportions of mechanism of suicide attempt (using ICD-9-CM E-codes) among the women who attempted suicide.

We used logistic regression to estimate the odds ratios (OR) and 95% confidence intervals (CI) for the association between the demographic and psychiatric risk factors and postpartum suicide attempts. We initially included in our model those factors that were significantly associated with postpartum suicide attempt. Our final model only included demographic and psychiatric factors that remained significant after inclusion of all other factors. We adjusted our regression model for gravidity and infant or fetal death because we wanted to evaluate demographic and psychiatric risk factors independent of the obstetric factors. We have evaluated obstetric characteristics as independent risk factors in a prior analysis of postpartum suicide attempts.[1] We performed 2 subanalyses to evaluate the association between postpartum suicide attempt and (1) the number of prior hospitalizations for a psychiatric or substance use disorder in the prior 5 years as a measure of severity of prior psychiatric morbidity and (2) the timing of the prior hospitalizations in relation to date of delivery, categorized as less than 1 year, 1 to less