International Journal of Gynecology and Obstetrics (2008) **101**, 53–56

available at www.sciencedirect.com

ScienceDirect

www.elsevier.com/locate/ijgo

www.figo.org

CLINICAL ARTICLE

Psychiatric illness and adverse pregnancy outcome ☆

Naomi Schneid-Kofman [a,*], **Eyal Sheiner** [a], **Amalia Levy** [b]

[a] *Department of Obstetrics and Gynecology, Ben Gurion University of the Negev, Beer-Sheva, Israel*
[b] *Epidemiology and Health Services Evaluation, Ben Gurion University of the Negev, Beer-Sheva, Israel*

Received 9 July 2007; received in revised form 3 October 2007; accepted 11 October 2007

KEYWORDS
Psychiatric illness;
Fetal malformations;
Perinatal mortality;
Risk factors

Abstract

Objectives: To identify the adverse effect of psychiatric illness during pregnancy on pregnancy outcome. *Methods:* A large population-based study of deliveries (1988–2005) was conducted that compared women with and without psychiatric illness. Stratified analysis included multiple logistic regression models. *Results:* Out of 181,479 deliveries, 607 (0.3%) women reported psychiatric illness: depressive and anxiety disorders (39%), schizophrenia (11%), or other psychiatric illness (50%). The psychiatric patients were significantly older, with higher prevalence of diabetes and hypertensive disorders. Perinatal mortality rate, congenital malformations, low Apgar scores, and low birth weight (<2500 g) were significantly increased. Multivariable logistic regression models determined that psychiatric illness during pregnancy is an independent risk factor for perinatal mortality (odds ratio [OR] 2.4; 95% CI, 1.5–3.7, $P<0.001$) and congenital malformations (OR 1.4; 95% CI, 1.01–1.9, $P=0.03$). *Conclusions:* Psychiatric illness is an independent risk factor for congenital malformations and perinatal mortality, and prenatal care should be adjusted accordingly.

1. Introduction

Previous studies have identified a connection between maternal psychiatric illness and adverse pregnancy outcome [1–6]. The majority of data available on this subject concerns schizophrenic patients [1–3,6–10]. Since schizophrenia is associated with smoking, substance abuse, and low socio-economic status, a high-risk pregnancy might be expected in such cases [7].

Both obstetric and psychiatric complications are apparent during the pregnancy of a schizophrenic patient [1–3,6–10]. Mixed evidence concerning stillbirth and neonatal deaths has been reported [1,4]. Interestingly, schizophrenia increases the risk for placental abnormalities such as placental abruption with antepartum hemorrhage, and for fetal complications such as low birth weight, congenital cardiac anomalies, and fetal distress [2]. Maternal psychiatric co-morbidity is associated with transient symptoms of poor neonatal adaptation in the newborn [8].

Psychiatric medical therapy may alter pregnancy outcome. Currently, it is agreed that the benefits of antipsychotic drugs

☆ Abstract presented at the 28th Annual Meeting of the Society of Maternal Fetal Medicine (SMFM) Dallas TX, USA, January 28–February 2, 2008.

* Corresponding author. Sansana 507, D.N. Negev3, Israel, 85334. Tel.: +972 8 6519325; fax: +972 8 6519325.
E-mail address: shir2k@zahav.net.il (N. Schneid-Kofman).

0020-7292/$ - see front matter © 2007 International Federation of Gynecology and Obstetrics. Published by Elsevier Ireland Ltd. All rights reserved.
doi:10.1016/j.ijgo.2007.10.007

during pregnancy outweigh the risks. However, the guidelines available are based solely on partial scientific evidence and expert opinion, not randomized controlled trials [3,9,10].

The present study attempted to examine the effect of psychiatric illness on the risk of adverse pregnancy outcomes among a population-based cohort of women.

2. Materials and methods

A retrospective population-based analysis was performed. Data were reviewed from records of all deliveries performed between 1988 and 2005 at the Soroka University Medical Center, Beer-Sheva, Israel. As the sole medical center for the Negev, in the southern region of Israel, Soroka provides the highest rate of deliveries in the country, and comprises an entire population. There are 2 major social groups in the Negev, Jewish and Bedouin Arabs, who have different sociocultural and sociodemographic characteristics. The Jewish community is comparable to those in high-income countries. Health services are abundant and the majority of pregnant women use the services of prenatal clinics. The Bedouin Arabs reside in small towns scattered throughout the desert area. Prenatal services are provided to all pregnant women in a network of clinics operated by the Ministry of Health for a small fee covering 6 months of maternal and child health services [11].

Pregnancy outcome was compared between patients with and without concommitant psychiatric illness. Data were retrieved from the perinatal database. Information on psychiatric illness was recorded by an admitting physician taking history and referral information. Further perinatal data were recorded by an obstetrician immediately after delivery, and were routinely reviewed by professional medical secretaries before entry into the database. Codes were applied after careful evaluation of the medical prenatal care records as well as the routine hospital documents. This procedure ensured the completeness and accuracy of the database, which was recently validated with an excellent kappa of 90% [12].

All current psychiatric diagnoses were included regardless of whether medical treatment was given. Excluded from the study were 30 (0.02%) women with a psychiatric diagnosis of mental retardation.

Data were collected regarding maternal age; obstetric information (parity, gestational diabetes, hypertension, and chronic illness); labor and delivery details (gestational age, induction of labor or spontaneous delivery); labor intervention (use of uterotonics, analgesia, and anesthesia); and adverse events (premature rupture of the membranes, placental abruption, emergency surgical or instrumental delivery, and perineal or vaginal tear). Data regarding postpartum adverse events (postpartum hemorrhage, blood transfusions, and revision of uterine cavity), birth weight, and Apgar scores were derived from delivery records. Neonatal outcomes of fetal malformations diagnosed prior to neonatal discharge and of perinatal mortality were noted from neonatal records which were coupled with obstetric records. These adverse outcome records were reviewed by an obstetrician and a pediatrician in accordance with hospital regulations.

Statistical analysis was performed using the SPSS package (SPSS, Chicago, IL, USA). To test the statistical significance of the categorical variables the χ^2 test or Fisher exact test were used, as appropriate. The t test was used for continuous variables. Mantel–Haenszel was used for calculating adjusted odds ratio for variables. A logistic regression model was used with backwards elimination to investigate the independent association between psychiatric disorders and perinatal mortality, as well as congenital malformations, while controlling for confounders that were found statistically and clinically significant using univariate analysis.

Table 1 Obstetric risk factors for patients with and without psychiatric disorder

Characteristics	Psychiatric group (n=607)	Comparison group (n=181,479)	P value
Hypertension (gestational and chronic)	78 (12.9)	11303 (6.2)	<0.001
Diabetes—gestational class A	48 (7.9)	10092 (5.6)	0.013
Diabetes mellitus—class B-R	18 (3)	2326 (1.3)	<0.001
Cervical incompetence	8 (1.3)	1002 (0.6)	0.012
Placenta previa	7 (1.2)	749 (0.4)	0.003

Values are given as number (percentage) unless otherwise indicated.

Table 2 Intervention during labor and delivery of patients with and without psychiatric disorder

Characteristics	Psychiatric group (n=607)	Comparison group (n=181,479)	P value
Induction of labor	226 (37.2)	49,843 (27.6)	<0.001
Augmentation of labor	165 (27.2)	36,648 (20.3)	<0.001
Revision of uterine cavity	14 (2.3)	7001 (3.9)	0.046
Epidural analgesia	114 (18.8)	22,892 (12.7)	<0.001
Cesarean delivery	146 (24.1)	25,368 (14)	<0.001
Tubal ligation	24 (4.0)	2604 (1.4)	<0.001

Values are given as number (percentage) unless otherwise indicated.

Table 3 Pregnancy outcome of patients with and without psychiatric disorder

Characteristics	Psychiatric group (n=607)	Comparison group (n=181,479)	P value
Perinatal mortality	21 (3.5)	2455 (1.4)	<0.001
True knot of cord	14 (2.3)	2086 (1.2)	0.008
Fetal malformations	43 (7.1)	8922 (4.9)	0.015
Apgar score<7 at 1 min	43 (7.3)	7564 (4.3)	<0.001
Apgar score<7 at 5 min	8 (1.4)	1061 (0.6)	0.017
Birth weight, g	3128±596.1	3131±598.7	0.893
Birth weight <2500 g	96 (15.8)	17,331 (9.6)	<0.001
2500–4000 g	481 (79.2)	155,051 (85.7)	
>4000 g	30 (4.9)	8490 (4.7)	
Fetal distress	21 (3.5)	3319 (1.8)	0.003
Placental abruption	5 (0.8)	1375 (0.8)	0.487

Values are given as number (percentage) unless otherwise indicated.