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Conditions affecting postpartum depression in the Covid-19 pandemic

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Abstract

Objective: Covid-19 infection was first diagnosed in Wuhan, China, and became a pandemic. Afterward, it had a devastating effect on mental and physical health. Postpartum depression (PPD) is a common health problem that needs attention to improve women's healthcare. Herein, we aim to search for the PPD incidence in the pandemic period.

Methods: A prospective cross-sectional study was conducted. A total of 126 pregnant women were included for the study. None of the patients had Covid-19 infection. Inclusion criteria included; women were aged 18 or over and ability to communicate fluently provided informed consent to participate. Women who had late fetal loss and stillbirth or neonatal death were excluded. Patients age, gravida, medical history, previous or ongoing psychological disease, and drug use, alcohol use and smoking, obstetric follow-up regarding any complication for the fetus or mother, socio-economic status, spouse support, sleep disorder, hyperemesis gravidarum, type of delivery, fetal birth weight, height, AGGAR scores 1-5th min, neonatal intensive care unit (NICU) admissions were recorded. Postpartum depression diagnosis was evaluated via Edinburgh Postpartum Depression Scale (EPDS). Patients were grouped into two, group 1 consisted of patients who are at low risk for postpartum depression and group 2 was at high risk for depression according to their EPDS scores.

Results: The mean age of the patients was 28.90±5.26 (18-41). 68 (54%) of the patients had vaginal deliveries and 58 (46%) of them had cesarean section. The average weight of newborn babies was 3324±586.11 grams (2750-4950), 1st minute APGAR score was 7.75±0.9 (4-8), 5th minute APGAR score was 8.88±0.45 (7-9). 23 (18.3%) of the newborns were admitted to neonatal intensive care (Table 1). According to the EDPS scores, only 12% of the patients were classified as having high risk group for depression. Lower income, previous psychiatric illness, higher education levels and having newborn needs NICU were found to significantly related to PPD ($p = 0.029$, $p = 0.034$, $p=0.046$ and $p = 0.001$ respectively) (Table 2). The other parameters were not found to be significantly related to PPD scores.

Conclusion: Covid-19 was not found to increase the rate of PPD in short term notice in our center, which was affected seriously. Studies with a higher number of patients and in different regions are necessary to state a precise conclusion.

Keywords: Covid-19, postpartum depression, fetal outcome, newborn, pregnancy, pregnancy outcome

Introduction

The Covid-19 pandemic caused the development of many negative psychological effects on people on all over the world. These effects include fear, stress, panic, paranoia, mental health disorders, anxiety, depression, impaired quality of life, sleep disorders and insomnia (1-4). Li wen et al recommended that social programs and plans should be made in order to reduce outbreak-related stress disorders (2).

Precautions and practices have been taken into reduce/stop the transmission of the virus between people, restriction of social events, and even curfews in most countries. These restrictions have different problematic psychological effects among people. These negative effects were found to more common in patients with Covid-19 and psychiatric disorders, suspected to have Covid-19, in women, elderly people and young aged population (12-21 ages) (5-7). Also, healthcare professionals, especially doctors and nurses were seriously affected psychologically during the outbreak. Identifying the groups affected by the negative process and their degree of the effect is important in determining the actions to be taken for management and to prevent future complications (8,9).

Experiencing stressful life events during pregnancy or the early postpartum period is known to be related to postpartum depression. The prevalence rate of postpartum depression was found to be about 10% (10,11). Diagnosing postpartum women with depression is essential as untreated postpartum depression may cause devastating outcomes.

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The American College of Obstetricians and Gynecologists recommends that obstetrician-gynecologists and other obstetric care providers should screen all the pregnant women at least one time during pregnancy and postpartum period using a standardized and validated tool (11,12).

As Covid-19 is a stressful event for every people, we had conducted a research in order to measure the postpartum depression rate in our clinic to decide the appropriate management of the postpartum women.

Materials and Methods

A prospective cross-sectional study was planned to evaluate the women with the Edinburgh questionnaire in terms of postpartum depression who gave birth in our hospital until the start of the normalization process of pandemics. For this purpose, a sample of 126 pregnant women who delivered between 15 March and 15 May 2020 were included in the study. All pregnant Turkish-speaking women who delivered in our clinic approached and invited to participate in this study. Inclusion criteria were that women were aged 18 or over and the ability to communicate fluently provided informed consent to participate. Women who had late fetal loss and stillbirth or neonatal death were excluded. Due to the incomplete questionnaires and complicated pregnancies, 26 (20.6%) of the patients were excluded from the study. The sociodemographic characteristics, maternal and fetal outcome information of the patients were recorded from the hospital database. Ethics committee approval was taken from the local ethics committee of the Health Sciences University Kartal Dr. Lutfi Kırdar Training and Research Hospital and the Ministry of health. (Ethics committee approval number: 2020-0512T14-07-12)

Patients age, gravida, medical history, previous or ongoing psychological disease, and drug use, alcohol use and smoking, obstetric follow-up regarding any complication for the fetus or mother, socio-economic status, spouse support, sleep disorder, hyperemesis gravidarum, type of delivery, fetal birth weight, height, APGAR scores 1-5th min, neonatal intensive care unit (NICU) admissions were recorded. Postpartum depression possibility was evaluated via Edinburgh Postpartum Depression Scale (EPDS). This questionnaire was applied to the patients after one month from delivery, and it was questioned by medical staff. t is a 10-item questionnaire that is easy to apply and considered as an effective tool for depression screening (12,13). This scale is used to define the risk of depression in women in the postpartum period. (14) Adaptation of the EPDS scale to Turkish, validity, and reliability studies were carried out in 1997 and it became a frequently preferred test in the clinic (15-16). It measures the psychological state of the individual in the last 7 days. Each item is rated on a four-point Likert scale between 0 and 3 ("Yes, always," "Yes, almost time," "No, not very often" and "No, not at all." The total score ranges from 0 to 30. EPDS threshold Women 12 and older may be considered as possible PPD. (17-18)

The SPSS 20.0 software (IBM Corp. Released in 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) was used to analyze the study data. Data were presented as mean ± standard deviation, median (minimum-maximum), percentages, and frequency of variables. Normality and homogeneity of variances were prerequisites to analyze variables using the Shapiro-Wilk and Levene tests. In the analysis of data, the independent Samples t- test (Student's t-test) was used in comparisons between two independent groups, if prerequisites were met, and the Mann-Whitney U test was used if prerequisites were not met. Fisher's exact test and the chi-square test was used to analyze categorical data. When the expected frequencies were less than 20%, the Monte Carlo simulation method was used to include these frequencies in the analysis. The statistical significance level for these tests was set at p values of <0.05 and <0.01.

Results

The mean age of the patients was 29.01±5.43 (18-41), mean body mass index 27.4±2.34 (21.4- 33.8), mean gravida 2.67±1.42 (1–7), parity 2.16±1.05 (1-5), number of living babies 2.09±0.98 (1- 5), the gestational week was 38.68±1.82 (30-42), the weight gained during pregnancy was 11.96± 4.38 kg (2-28), and the mean of the day of puerperium at questionnaire application was 2.51±1.73 days (0-6). Patients' mode of delivery was the cesarean section in 58 (46%) of the patients and vaginal delivery in 68 (54%) of the patients. The average weight of newborn babies was 3324±586.11 grams (2750-4950), 1st minute APGAR score was 7.75±0.9 (4-8), 5th minute APGAR score was 8.88±0.45 (7-9). 23 (18.3%) of the newborns were admitted to neonatal intensive care. 89 patients (70.6%) reported sleep disorders whereas 37 (29.4%) of them did not have sleep disorders. 105 (83.3%) had stated that they had spouse support. Most of the patients, 114 (90%), were not smoking cigarettes. None of the patients were using alcohol. Chronic disease history

32 (25.1%) of the patients reported previous chronic disease history and 56 (45%) of them had previous surgery history. 98 (98%) of the patients had uncomplicated pregnancies. Socio-demographic and obstetric features of the study population were summarized in Table 1.

According to the EDPS scores, only 12% of the patients were classified as high risk for depression. Patients were grouped into two, group 1 is described as patients with low risk for postpartum depression, and group 2 has consisted of patients with high risk for depression. Sociodemographic characteristics and maternal and fetal obstetrics features were compared between groups. Patients with low income had a higher risk for depression comparing patients with higher income ($p = 0.029$). Also, patients with a previous psychiatric illness before pregnancy had significantly higher risk for PPD than patients without history ($p = 0.034$). Patients whose babies needed NICU were also classified at high risk for PPD ($p = 0.001$) comparing patients without fetal complications. Patients with higher education levels had significantly more risk for PPD than patients with low education levels ($p=0.036$). Patients having babies with more weight were found to be significantly at low-risk for PPD ($p=0.046$). The other parameters were found to be significantly related to PPD scores. Comparison of the patients with high and low risk for PPD regarding the socio-demographic and obstetric factors were summarized in Table 2.

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Table 1. Socio-demographic characteristics and medical history of the study population

	Mean±SD	(maximum-minimum)
Age (years)	29.01± 5.43	18-41
BMI (kg/m^2)	27.4±2.34	21.4- 33.8
Gravida	2.67± 1.42	1–7
Parity	2.16± 1.05	5-Jan
Baby alive	2.09± 0.98	5-Jan
Gestational age (weeks)	38.68± 1.82	30-42
Weight gain in pregnancy (kg)	11.96± 4.38	28-Feb
Time passing after birth (days)	2.51±1.26	0-6
Newborn weight (grams)	3324± 586.11	2750-4950
APGAR score 1st minute	7.75± 0.90	8-Apr
APGAR score 5th minute	8.88± 0.45	9-Jul
Mode of delivery	n, (%)	
Vaginal delivery	58 (46 %)	
Caserean section	68 (54 %)	
Sleep disorders		
Absent	89 (70.6%)	
Present	37 (29.4 %)	
Spouse support		
Absent	21 (16.7 %)	
Present	105 (83.3%)	
Cigarette smoking		
Smoker	12 (9.5%)	
Non-smoker	114 (90.5%)	
Chronic disease history		
Present	32 (25.1 %)	
Absent	94 (74.6%)	
Previous psychiatric illness		
Present	3 (2.4 %)	
Absent	123 (97.6 %)	
Income status		
Low income	77 (61.1%)	
Middle income	33 (26.2%)	
High income	16 (12.7%)	
Education status		
Primary school	40 (31.8%)	
Middle school	37 (29.4%)	
High school	25 (19.8 %)	
University	24 (19 %)	
NICU admission		
Present	23 (18.3%)	
Absent	103 (81.7%)	

Table 2. Comparison of high risk and low-risk patients for PPD regarding predisposing factors

	High risk patients for PPD (n= 36)	Low risk patients for PPD (n= 90)	p
Sleep disorder present	12 (9.5%)	25 (19.8%)	0.536
Spouse support absent	6 (4.8%)	15 (11.9%)	1
Smoking	6 (4.8%)	6 (4.8%)	0.84
Chronic disease history	9 (7.1%)	23 (18.3%)	0.948
Income status	Low 18 (14.3%) Middle 24 (19%) High 7 (5.6%)	59 (46.8 %) 9 (7.1%) 9(7.1%)	**0.029**
Education status	Primary 18 (14.3%) High 6 (4.8%) University 12 (9.5%)	59 (46.8%) 19 (15.1%) 12 (9.5)	**0.036**
Primary school	18 (14.3%)	59 (46.8%)	
Mode of delivery	Cesarean delivery 18(14.3%) Vaginal delivery 18 (14.3%)	40 (31.7%) 50 (39.7%)	0.572
NICU admission	Present 6 (4.8%) Absent 30 (23.8%)	17 (13.5%) 73 (57.9%)	**0.001**
Previous psychiatric illness	Present 3(2.4%) Absent. 33(26.2%)	0 (0%) 90 (71.4%)	**0.006**
Maternal complications during pregnancy	Present 3 (2.4%) Absent 33 (26.2%)	7 (5.6%) 83 (71.6%)	0.585
Age (years)	28.92±4.21	28.9±5.64	0.987
BMI (kg /m^2)	28.1±1.42	27.1±1.65	0.117
Gestational week at birth	38.08±2.32	38.77±1.71	0.072
Fetal birth weight (grams)	3125±431.90	3346±598.40	**0.046**
APGAR score 1th min	7.67±1.12	7.72± 0.94	0.779
APGAR score 1th min	8.83±0.56	8.87±0.48	0.766

Discussion

The first Covid-19 case was diagnosed on March 10, 2020, in our country. Afterwards, a rapid increase was observed and became the 7th country with the highest number of cases. The highest number of cases were diagnosed in Istanbul, the largest and most crowded city in the country. Our hospital was quickly organized as a pandemic hospital by the Ministry of Health after the first case was seen. Therefore, it is one of the most experienced center in pandemics regarding the highest number of treated covid-19 patients. Although elective surgeries were stopped in gynecology, maternity follow-up and birth processes continued without interruption during this period. From March 10 to May 15, the pandemic spread rapidly in our country and serious measures were taken.

Pandemics negatively affected the psychological condition of the entire world population (1). In the study conducted by Rajkumar et al, anxiety and depression rates were reported to be between 16 and 28% to the Covid-19 pandemics (1-2). Huang and his friends stated that public awareness of the pandemic was low in China and there was no targeted psychological instruction needed in the pandemic period. For this reason, they stated that the psychological state of the society should be routinely monitored during the life-threatening pandemics. Thus, early mental health interventions will be established in the early period of pandemics (20). In studies investigating the effect of the pandemic on anxiety, depression, and quality of life in the world, it was found that different groups are affected in different degrees (16-21). For this reason, it is proposed to plan management approaches for the ones who have a high risk for psychological disorders (11,13,15,20).

The incidence of PPD ranges from 10 to 20% today. Many factors affect incidence. Many social, personal, cultural factors even different periods of time could affect the incidence of PPD (23,24). While PPD prevalence is 9.6% in countries with high per capita income, this rate rises to 19.6% in low and middle-income countries (24,25).

Sliwerski et al conducted a study in China in 2018 before pandemic, the incidence of PPD was found to be 17.2%. There are studies that show an increase in depression in the community during the pandemic period, but there is no study related to PPD rates in the literature (24).

Uncomplicated pregnancy period is essential for the mental and physical health of the baby and the mother. In our study, the complicated pregnancy rate was low so our results were not confounded with the related psychological stress of chronic illness. (25-26) As we are searching for the effect of Covid-19 this could make our result more relevant to Covid-19 pandemic. Also, previous studies showed that psychiatric illness is a risk factor for PPD. We also found that patients with a history of the psychiatric disease are at high risk for PPD than the others (27,28). We can argue that this situation is also acceptable in pandemics. PPD was found to be related to low socioeconomic status similar to our study (27). Socio-economic was defined as both supportive and preventive factors for PPD. The precise effect remains controversial (28).

Health problems of the newborn were shown to increase the risk of PPD in the literature in accordance with our results (29,30). Also, disabled newborn was found to be a reason for maternal depression (29,30). Moreover, we found that the low weight of the newborn is associated with PPD. As far as we know this is not mentioned in the literature before. Studies with high number of patients could be done to justify this relationship.

In our hospital, 12% of women who gave birth during this period were found to be at high risk for PPD. This result is compatible with the previous research before pandemics in our country 12.9% (30). Based on this, the unlike the general population, pandemics seem to be not related to an increase in postpartum depression rates during the initial and rapid spreading periods of pandemics. Our population could be classified as low-risk population for PPD, so effects of Covid-19 could not be misjudged due to the confounding factors. It is thought that the most important factor that prevents postpartum women could be related to mother-baby attachment.

Conclusion

We observed that the Covid-19 pandemic did not increase the incidence of postpartum depression. The increase in depression and anxiety which seen in the general community was not seen in postpartum patients. Study population mostly consisted of patients with a good mental health.

There were no additional risk factors for psychological illness in most of the patients. Also feeling of gratitude for having a healthy baby in pandemics may improve the postpartum well-being. Mother-infant attachment could also play a supportive role in maternal psychology. There was a significant increase in risk for PPD, especially, in pregnant women with psychiatric conditions and in those who developed maternal, fetal, or neonatal complications during pregnancy. Furthermore studies with high number of patients with more centers would enable us to come to a precise conclusion about the Covid-19 pandemic effect on postpartum depression.

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