The Coexistence of Postpartum Depression with Infantile Colic and Sleep Problems

Doğum Sonrası Depresyon ile Bebeklik Koliği ve Uyku Sorunlarının Birlikteliği

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ABSTRACT

Objective: This study aims to examine the frequency and the factors that can cause postpartum depression (PPD) in the mothers who gave birth at Şan Med Hospital in Şanlıurfa.

Material and Methods: The study was performed on volunteer mother-baby couples who were born in Şanlıurfa Şan Med Hospital and were admitted to Şan Med Hospital Pediatrics Polyclinic between September 2017 and December 2017. Participants were asked to provide some information about themselves and their babies, as well as their babies' crying and sleeping patterns. The Edinburgh postpartum depression scale (EPDS) was administered to the mothers.

Results: It was determined that the frequency of PPD increased by 2.73-folds for mothers whose babies cried excessively, and by 2.79-folds for the mothers whose babies had unconsolable crying/restlessness lasting 2-3 hours a day. The results indicated that the risk of PPD was 6.86-folds higher in mothers of infants who awoke frequently, as compared to the mothers of infants who had regular sleep patterns.

Conclusion: Infantile colic and prolonged crying are associated with higher maternal depression scores.

Key Words: Infantile colic, Postpartum depression, Prolonged crying

ÖZ

Amaç: Çalışmamızda Şanlıurfa'da Şan Med Hastanesinde doğum yapan annelerde doğum sonrası depresyon (PPD) sıklığı ve etki eden faktörlerin incelenmesini amaçladık.

Gereç ve Yöntemler: Şanlıurfa Şan Med Hastanesinde doğumu gerçekleştirilen ve Şan Med Hastanesi Çocuk Sağlığı ve Hastalıkları polikliniğine Eylül 2017 ve Aralık 2017 tarihleri arasında gelen ve çalışmaya katılmak isteyen anne bebek çiftleri çalışmaya alındı. Anne ve bebek özellikleri, bebeklerin ağlama ve uyku düzenleri sorgulandı. Annelere Edinburg postpartum depresyon ölçeği (EPDS) uygulandı.

Bulgular: Aşırı ağlaması olan bebeklerin annelerinde PPD sıklığının 2.7 kat, 2-3 saat ağlayan bebeklerin annelerinde 2.8 kat arttığı saptandı. Ayrıca sık uyanması olan bebeklerin annelerinde, düzenli uykusu olan bebek annelerine göre 6.9 kat arttığını saptadık.

Sonuç: İnfantil kolik ve uzun süreli ağlama yüksek anne depresyon puanları ile ilişkilidir.

Anahtar Sözcükler: İnfantil kolik, Doğum sonrası depresyon, Uzun süreli ağlama

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Contribution of the Authors / Yazarların katkısı*: *GÜNEŞ B: Constructing the hypothesis or idea of research and/or article, Planning methodology to reach the Conclusions, Organizing, supervising the course of progress and taking the responsibility of the research/study, Taking responsibility in patient follow-up, collection of relevant biological materials, data management and reporting, execution of the experiments, Taking responsibility in logical interpretation and conclusion of the results, Taking responsibility in necessary literature review for the study, Taking responsibility in the writing of the whole or important parts of the study, Reviewing the article before submission scientifically besides spelling and grammar. ***YALÇIN S:*** Constructing the hypothesis or idea of research and/or article, Planning methodology to reach the Conclusions, Organizing, supervising the course of progress and taking the responsibility of the research/study, Taking responsibility in patient follow-up, collection of relevant biological materials, data management and reporting, execution of the experiments, Taking responsibility in logical interpretation and conclusion of the results, Taking responsibility in necessary literature review for the study, Taking responsibility in the writing of the whole or important parts of the study, Reviewing the article before submission scientifically besides spelling and grammar.

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INTRODUCTION

Postpartum depression (PPD) is a significant health problem and the most common psychological condition encountered by mothers and others around them, it occurs in almost a third of women (1). A study by Poçan et al.(1) found that the incidence of PPD was 28.9%, according to Edinburgh Postpartum Depression Scale (EPDS) scores, with EPDS > 12 values defined as indicating PPD. In a meta-analysis by Keser Özcan et al. (2), the prevalence of PPD in Turkey overall was reported as being 23.8% (21.2% in developed cities and 25% in developing cities). In a study by Wang et al., (3) which included 565 studies from 80 different countries or regions, PPD was detected in 17.2% of the global population. While significant differences were seen between countries according to the level of development, it was reported that the risk of PPD was lower in developed countries (3). Postpartum period is when a new mother is most likely to develop postpartum depression. It frequently has serious detrimental effects on the infant (4). Mostly, PPD can begin within four weeks of birth and last up to 1 year (5). Multiple conditions and circumstances were seen as increasing the risk of PPD, including: socioeconomic difficulties, a lack of social support, a sense of loneliness, marital problems, exposure to physical violence, unplanned pregnancies, first pregnancy, being pregnant at an early age, a fear of childbirth, multiple pregnancies, being depressed in previous pregnancies, inability to breastfeed, a history of pregnancy and birth that ended in loss, early mother-infant separation (often due to the baby receiving neonatal intensive care treatment due to illness or divorce),and a family history of mental illness. It has also been found that depression in mothers during and after pregnancy negatively affects the health and development of the fetus and the baby, with subsequent negative effects on the physical and mental development of the baby after birth (6,7). It is normally the case that the baby of a depressed mother has sleep problems and a compulsive temperament, which only serves to increase the mother's depression (8-10).

The symptoms of infantile colic in an otherwise healthy baby are unexplained and inconsolable crying attacks, drawing the legs to the abdomen, reddening of the face, bloating and gas. Infantile colic occurs with 10-30% of infants, with crying attacks beginning in the second week after birth and normally disappearing by the third month. It is known that infantile colic can be a cause of maternal PPD. Furthermore, the parental frustration caused by incessant crying can result in child abuse and even infanticide (11).

It is for these reasons that the early management of PPD is important for maternal and infant health. This study therefore contributes to this goal of effective management by examining the relationship between PPD frequency, as well as maternal and infant characteristics, in mothers who have given birth at Şan Med Hospital in Şanlıurfa.

MATERIALS and METHODS

In this study, Mother-baby pairs born at the Şanlıurfa Şan Med Hospital, and who came to the Pediatric Health and Diseases Outpatient Clinic between September 2017 and December 2017, and wished to participate in the study were included. The mothers were first informed about the study and a written consent form was obtained from all participants. The protocol of the study was approved by Hacettepe University's Non-Interventional Research Ethics Committee (Project Number: GO 17/687).

In this cohort type study, anthropometric measurements of the mother-infant couple were taken at birth, after one week, and after one month. Information on the tracking form includes the age of the parents, the mother's working and the parents' educational status, mode of pregnancy, if the parents smoke or not, incidence of health problems during pregnancy, time of birth, birth weight, type of birth, order of birth, gender, incidence of health problems in the baby, initiation of breastfeeding within the first hour, breastfeeding characteristics such as pre-feeding nutritional status, and crying and sleep characteristics. In addition, EPDS was applied in the first month after birth, with the mother providing her impressions of her baby's crying, sleeping patterns and frequent waking.

Edinburgh Postpartum Depression Scale is a 10-item evaluation scale that is completed solely by the mother in which she is asked to consider the emotions she has experienced during the last 7 days (12). Each question of EPDS is assigned a score between 0 and 3, with a result of over 13 indicating a clear risk of depression. The scale takes around 5 minutes to complete (13-16), with the validity and reliability study of EPDS for Turkey being conducted by Engindeniz et al. (17).

Statistical Analysis

Data were analyzed with the SPSS v.22 program and presented as mean, standard deviation (SD), or percentage ratio. The effect of the parameters on the incidence of depression was examined with the Chi-square test. The effects of maternal and infant factors on depression were analyzed using multiple logistic regression analysis. Odds ratio and 95% confidence intervals (CI) were calculated by logistic regression analysis. A value of $p<0.050$ was considered significant.

RESULTS

The study comprised of a total of 126 mother-infant couples who completed both the baby follow-up and the one-month follow-up components. Mean maternal age was 27.9 (SD =5.4) years, and paternal age was 31.6 (SD =5.4) years. It was found that 9.5% of mothers smoked during pregnancy and 43.7% of them had contact with cigarettes in the environment. A total of 46% of the infants were found to have had exposure to smoking

Table I: The effects of family and infant characteristics and mother on the EPDS

Variables Groups	Total n (%)*	EPDS >12 n %**	OR (95% CI)
Maternal age, years			
<25	34 (27)	12 (35.3)	ref
25-34	76 (60.3)	17 (22.4)	0.53 (0.22-1.28)
≥35	16 (12.7)	2 (12.5)	0.26 (0.05-1.35)
Paternal age, years			
<25	9 (7.1)	4 (44.4)	ref
25-34	83 (65.9)	22 (26.5)	0.45 (0.11-1.83)
≥35	34 (27)	5 (14.7)	0.22 (0.04-1.09)
Maternal employment status			
Housewife	113 (89.7)	27 (23.9)	ref
Employed	13 (10.3)	4 (30.8)	1.42 (0.40-4.96)
Maternal education status			
<8 years	54 (42.9)	11 (20.4)	ref
≥8 years	72 (57.1)	20 (27.8)	1.50 (0.65-3.48)
Paternal education status			
<8 years	23 (18.3)	5 (21.7)	ref
≥8 years	103 (81.7)	26 (25.2)	1.22 (0.41-3.60)
Pregnancy type			
Spontaneously	113 (89.7)	27 (23.9)	ref
with treatment	13 (10.3)	4 (30.8)	1.42 (0.40-4.96)
Smoking exposure during the antenatal period			
No	68 (54.0)	12 (17.6)	ref
Yes	58 (46.0)	19 (32.8)	2.27 (0.99-5.22)
Health problem in pregnancy			
No	109 (86.5)	26 (23.9)	ref
Yes	17 (13.5)	5 (29.4)	1.33 (0.43-4.13)
Delivery mode			
Normal	39 (31.0)	13 (33.3)	ref
Cesarean section	87 (69.0)	18 (20.7)	0.52 (0.22-1.21)
Gestational week			
<37	15 (11.9)	3 (20.0)	ref
≥37	111 (88.1)	28 (25.2)	1.35 (0.35-5.13)
Low birth weight			
<2500 g	13 (10.3)	4 (30.8)	ref
≥2500 g	113 (89.7)	27 (23.9)	0.71 (0.20-2.48)
Birth order			
First child	45 (35.7)	11 (24.4)	ref
2nd child	38 (30.2)	13 (34.2)	1.61 (0.62-4.18)
≥3 childs	43 (34.1)	7 (16.3)	0.60 (0.21-1.73)
Infant's gender			
Boy	64 (50.8)	18 (28.1)	ref
Girl	62 (49.2)	13 (21.0)	0.68(0.30-1.54)
Breastfeeding within the first hour			
No	57 (45.2)	15 (26.3)	ref
Yes	69 (54.8)	16 (23.2)	0.85 (0.38-1.90)
Infants feeding before breastfeeding			
No	82 (65.1)	23 (28.0)	ref
Yes	44 (34.9)	8 (18.2)	0.57(0.23-1.41)
Excessive crying of the baby, which exhausts the mother			
No	76 (60.3)	13 (17.1)	ref
Yes	50 (39.7)	18 (36.0)	2.73(1.19-6.26)
Baby's inconsolable crying/restlessness lasting 2-3 hours/day			
No	83 (66.4)	15 (18.1)	ref
Yes	42 (33.6)	16 (38.1)	2.79 (1.21-6.44)
Baby's sleep patterns			ref
Regular	49 (39.5)	7 (14.3)	2.18 (0.82-5.83)
Irregular	60 (48.4)	16 (26.7)	6.86 (1.88-
Frequent waking	15 (12.1)	8 (53.3)	24.96)
Total	126 (100)	31 (24.6)	

***** *Percentage of columns,* ****row percent,*** ***ref;*** *Edinburgh Postpartum Depression Scale (EPDS)*

in the prenatal period. 50.8% of the babies were male, 10.3% had low birth weight, and 11.9% were premature. 35.7% of the babies were first child, and 69% of them were delivered by caesarean section. It was determined that 54.8% of the babies began breastfeeding within the first hour. The nutritional status before breastfeeding was detected in 34.9% of the infants. It was recorded that 39.7% of the babies tired their mothers due excessive crying, while 33.6% of babies cried inconsolably or were restless for 2-3 hours a day.

Sleep disorder was detected in 48.4% of the babies, and 12.1% had frequent waking problems. The mean EPDS score of the mothers in the first month was 9.0 (SD=5.7), and this score was seen to be 13 points or higher in 24.6%.

Maternal and paternal age, education, maternal employment status, mode of pregnancy, smoking exposure, health problems during pregnancy, mode of delivery, preterm delivery status, infant birth weight, birth order, sex, infant health problems, and problems with breastfeeding were found to have no effect on the frequency of PPD.

It was determined that the frequency of PPD increased by 2.73-folds (95% CI=1.2-6.3) for mothers whose babies cried excessively, and by 2.79-folds (95% CI=1.2-6.4) for the mothers whose babies had unconsolable crying/restlessness lasting 2-3 hours a day. The results indicated that the risk of PPD was 6.86-folds (95% CI = 1.9-25.0) higher in mothers of infants who awoke frequently, as compared to the mothers of infants who had regular sleep patterns. When other maternal and infant parameters were considered, the incidence of PPD was higher in the mothers of infants with excessive crying or sleep disorders.

DISCUSSION

The current study shows that PPD is detected in one out of every four women, which is similar to the finding of other studies conducted in Turkey (1,2). The worldwide average for PPD is 17.2% (3). One possible reason that a higher rate is reported in the current study may be that EPDS was stringently applied to all mothers. It is also the case that general comparisons are inaccurate due to a lack of global consistency in the tests and limit values being applied to PPD determination.

The frequency of maternal PPD of infants' crying and sleep problems reported according to mother's perception was seen to more than double, with increases of up to 6.9-folds when the sleep problem was in the form of waking frequently. According to a study by Radesky et al. (18), when maternal EPDS was taken as being ≥ 9, crying/restlessness that lasts more than 3 hours a day doubled the risk of depression (95% CI; 1.1-3.7). In cases where inconsolable crying lasted longer than 20 minutes, it was reported that the condition increased by 4-folds (95% CI; 2.0-9-8.1). Being unable to calm a crying baby is a major challenge for many mothers and a significant cause of increased exhaustion. In some cases, the mother may be so tired that they may even neglect their parenting duties and just allow the baby to continue crying. An imbalance between infant and maternal needs increases the risk of adverse outcomes such as PPD and/or infant abuse (19). Another possible result is the mother becoming afraid of being able to provide adequate care, or even harming her baby. In extreme cases, severe depressive symptoms and suicidal thoughts or attempts may occur. Also, PPD also has the potential to have an adverse effect on the mother's life in the future. Although PPD is a common condition, there are several reasons why it is often not diagnosed. These include factors such as the mother experiencing a sense of isolation and so not being able to share her feelings, a reluctance to consult a psychiatrist due to shame, being unable to visit a doctor when called for routine control or not knowing which department to apply to, or a sense of being unable to voice complaints because everyone, including the mother, is solely focused on the newborn baby. It is due to reasons such as these that PPD can often be overlooked. However, it is essential that women who suffer from PPD have extensive follow-up psychiatric consultations (4,5).

Previous studies have reported that sleep problems are more common in children with infantile colic and prolonged crying episodes, with the mothers of such infants more likely to suffer from PPD (11,18-21). Infantile colic and prolonged crying are associated with higher maternal depression scores (21). Due to the increasing evidence that depression affects not only the mother's mental state but also that of the baby, there is increasing interest in prenatal and postnatal depression. A mother's mental health during pregnancy, as well as in the first year after birth, is crucial to her child's mental, social and emotional development (7). In their study, Bang et al. examined 212 pregnant women at 16-20 weeks, and then again at 6 months postpartum, and analyzed studies completed by 97 mothers. Results show that the mother's mood both before and after birth affects the baby. It was suggested that the mother experiencing anxiety and depression during pregnancy can result in bad tempered babies, and such babies were also found to be more prone to infantile colic (22). A study by Netsi et al. (8) showed that there is a significant relationship between the presence of emotional problems with the mother immediately after birth, and crying problems with the baby, as reported by the midwife. In other words, a depressed mother can cause the baby to have crying problems, irregular sleep and a bad temperament, which in turn exacerbates maternal depression (9,10). This conclusion is supported by a number of studies. One by Hanington et al. (23) shows that PPD affects the temperament of infants, while in a work conducted by Bang, 137 mothers were administered EPDS at 1 month after birth and it was found that the babies of mothers with PPD had worse temperaments as compared to babies in a control group (24). A study by Dias et al examined 164 mother-baby couples and compared maternal depression symptoms at the 3rd trimester, the 2nd week postpartum, and the 3rd and 6th months. The study also investigated the effects of prenatal and postnatal anxiety and EPDS scores on infant sleep problems at 6 months. It was found that both prenatal and postnatal early depression symptoms of the mother had a negative effect on the emergence of sleep problems in the baby (25).

Limitations and Strengths

In our study, the progress of the babies during their first 30 days was monitored. While not using a scale for sleep and crying was an important limitation, taking into account the perception of the mother was a strength of the study. It was seen that a mother with PPD may perceive the usual crying time or frequent waking to feed as being a problem.

CONCLUSION

It was determined that the frequency of PPD increased with mothers who considered their babies to be crying excessively or have sleep disorders. It is concluded that the mothers of babies admitted to the outpatient clinic due to excessive crying and sleep disorders should be evaluated for PPD, while the crying and sleep patterns of babies whose mothers have been diagnosed with PPD should be examined.

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