

ANTENATAL EĞİTİMİN NULLİPAR KADINLARDA MATERNAL VE PERİNATAL SONUÇLAR ÜZERİNE ETKİSİ

Effects of Antenatal Education on Maternal and Perinatal Outcomes in Nulliparous Women

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ÖZET

Amaç: Ev yerine hastanede yapılan doğumların bir sonucu olarak, kadınları doğum için hazırlamak amacıyla antenatal eğitim programları geliştirilmiştir. Antenatal eğitimin gebelik sonuçları ve doğum süreci üzerindeki etkisi henüz net değildir. Sunulan çalışmanın amacı, antenatal eğitimin nullipar kadınlarda maternal ve perinatal sonuçları etkileyip etkilemediğini değerlendirmektir.

Gereç ve Yöntemler: Retrospektif vaka kontrol çalışmasında, Ocak 2010-Aralık 2016 tarihleri arasında üçüncü basamak bir merkezde doğum yapan 513 düşük riskli nullipar kadının tıbbi kayıtları incelendi. Antenatal eğitim alan 85 kadın çalışma grubuna, eğitim programına katılmayan 428 kadın kontrol grubuna dahil edildi. Grupların demografik ve klinik özellikleri ile maternal ve perinatal sonuçları karşılaştırıldı.

Bulgular: Antenatal eğitim alan kadınların kontrol grubuna göre ortalama yaşı (26.0 ± 4.4 vs. 23.5 ± 4.4 ; $p < 0.001$) düşük öyküsü oranı (5.9% vs. 0% ; $p < 0.001$) daha yüksek; sezaryen doğum oranı ise (11.8% ve 25.5% , $p 0.006$) daha düşüktü. Grupların sezaryen endikasyonları, doğum evrelerinin süresi, vajinal doğum yapan kadınlarda epizyotomi oranları, postpartum komplikasyon oranları ve perinatal sonuçları ise benzerdi.

Sonuç: Antenatal eğitim düşük sezaryen doğum oranları ile ilişkili bulundu. Antenatal eğitimin diğer maternal ve perinatal sonuçlar üzerine etkisi ise saptanmadı.

Anahtar kelimeler: Antenatal eğitim; Sezaryen sekiyo; Vajinal doğum; Nulliparite; Maternal sonuç; Perinatal sonuç

ABSTRACT

Aim: As a result of births in hospital instead of homes, antenatal education programs have been developed with the aim of preparing women for birth. The effect of antenatal education on pregnancy outcomes and birth process has not yet been fully clarified. The aim of the presented study was to evaluate whether antenatal education affects the maternal and perinatal outcomes in nulliparous women.

Material and Methods: In this retrospective case-control study, medical records of 513 low-risk nulliparous women who gave birth between January 2010 and December 2016 at a tertiary care centre were reviewed. 85 women with antenatal education were included in the case group and 428 women who did not participate in the education program were included in the control group. The demographic, clinical characteristics, maternal and perinatal outcomes of groups were compared.

Results: Mean age of women (26.0 ± 4.4 vs. 23.5 ± 4.4 ; $p < 0.001$), history of abortion rate (5.9% vs. 0% ; $p < 0.001$) were higher and caesarean section rate (11.8% vs. 25.5% , $p 0.006$) was lower in women with antenatal education than in the control group. Caesarean indications, length of labour stages, episiotomy rates of women with vaginal delivery, postpartum complication rates, and perinatal outcomes of groups were similar.

Conclusion: Antenatal education was associated with lower caesarean birth rates. There was no effect of antenatal education on the other maternal and perinatal outcomes.

Keywords: Antenatal education; Caesarean section; Vaginal birth; nulliparity; Maternal outcome; Perinatal outcome

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INTRODUCTION

Before the 1930s, many women gave birth at home and birth was considered a normal activity in the life of a woman (1). Women learned birth and motherhood by observing pregnant women, participating in their births, and helping baby care. The enlargement of cities and the disappearance of small rural communities have led women to seek out sources other than their mothers, sisters, and neighbours to learn about pregnancy and childbirth (2). Births in hospitals instead of homes, the presence of health personnel instead of family members and friends during the labour increased the fear and anxiety of women related to the birth process. As a result of today's changing lifestyle, antenatal education programs have been developed with the aim of preparing women for labour and delivery, increasing social support, reducing anxiety, providing pain control, encouraging breastfeeding, and reducing perinatal morbidity and mortality. The most common antenatal training models are Lamaze and Bradley Methods (3,1). Hypno Birthing-Mongan, Mindfulness-Based and Birthing from Within methods are also used. (4,5,6)

Recent studies about antenatal education mostly reported the effect of education on birth fear (7,8). Sercekus et al (7). Reported that antenatal education reduced maternal fear and improves maternal self-efficacy associated with birth, and the antenatal education had no effect on parental attachment. It is still unclear whether antenatal education influences maternal or perinatal outcomes. There are conflicting results in current studies investigating the effect of antenatal education on caesarean birth rate, duration of labour, maternal, and perinatal complications (3,9-15). The aim of the present study is to investigate whether antenatal education affects the maternal and perinatal outcomes in low-risk nulliparous women.

METHODS

Medical records of 286 women with antenatal education in tertiary care centre, between January 2010 and December 2016 were studied in the retrospective case-control study. Multiparous women, women with hypertension, preeclampsia, gestational diabetes mellitus (GDM), placenta previa, preterm

delivery, and preterm premature rupture of membrane (PPROM), multiple pregnancies, dead fetus, non-head presentation, and women who did not complete the education program were excluded from the study. 85 women with antenatal education who met the study criteria were included in the case group. Included in the control group, were 428 women who gave birth the same dates met the study criteria but did not participate in the education program.

The demographic and clinical characteristics of the women, maternal and perinatal outcomes were obtained from medical records. All patients signed informed consent thereby allowing our institution to use their clinical data. As this work represents a retrospective chart review, the local ethics committee approval was not required.

A total of 5 weeks of antenatal education as two hours of exercise and three hours of theoretical lectures per week was given to the case group. The education programs included lectures about the anatomy, the modes of birth, beginning and the stages of labour, monitoring of normal pregnancy, psychological changes during prenatal and postnatal periods, proper nutrition intake during pregnancy and postpartum period, puerperium, family planning, pregnancy exercises and clinical plates, breathing exercises and relaxation techniques which are applied during labour, anaesthesia methods, benefits of breastfeeding and proper breastfeeding techniques, normal development of a child between the age of 0 and 2, childhood illnesses and vaccinations, and baby massage. Statistical Package for Social Science (SPSS Inc, Chicago IL, USA) version 24.0 was used for statistical analyses. The normality for continuous variables was checked by using Kolmogorov-Smirnov test. Descriptive statistics were presented as mean \pm standard deviation or median (minimum-maximum) for continuous variables and case numbers and percentages for categorical variables. Student's t-test or Mann-Whitney U test was used for the comparison of continuous data. Pearson's Chi-square or Fisher Exact test was used in examining the differences between groups of categorical variables. A p value of less than 0.05 was considered statistically significant.

RESULTS

A total of 513 nulliparous women were analyzed: 85 women with antenatal education and 428 women without antenatal education. As shown in Table 1, the demographic and clinical characteristics of the groups were similar except age and history of abortion. The mean age was higher in women with antenatal education than the control group (26.0±4.4 vs. 23.5±4.4; p<0.001) and 5 (5.9%) of women with antenatal education had a history of abortion in a previous pregnancy. The control group had no history of abortion (p<0.001).

Table1. Demographic and clinical characteristics of case and control groups

Characteristics	Case group (n=85)	Control group (n=428)
Age (years)*	26.0±4.4	23.5±4.4
Previous abortion*	5 (5.9)	0 (0)
Smoking	0 (0)	4 (0.9)
Chronic disease	7 (8.2)	32 (7.5)
Thyroid disease	3 (3.5)	22 (5.1)
Heart disease	2 (2.4)	3 (0.7)
Hypertension	1 (1.2)	3 (0.7)
Asthma	1 (1.2)	4 (0.9)
Antenatal care	85 (100)	413 (96.5)
Data are mean± SD or number (%).		
*p < 0.001		

Birth data of women are shown in Table 2. The mean gestational week (38.9 ± 1.1 weeks vs. 39.1 ± 1.2 weeks), mean cervical dilatation (3.6 ± 1.4 cm vs. 3.4 ± 1.3 cm) and cervical effacement (60.3 ± 10.4% vs. 58.0 ± 13.5%) at admission to hospital were similar in women with and without antenatal education (p> 0.05). The caesarean birth rate was lower in women with antenatal education than in the control group (11.8% vs. 25.5%, p 0.006). There was no statistically significant difference between the groups in terms of caesarean indications. In women with vaginal birth, length of stage 1 (104.8 ± 58.0 min vs. 107.5 ± 69.9 min; p 0.763), stage 2 (38.8 ± 21.8 min vs. 41.5 ± 19.3 min; p 0.297), and episiotomy rates (98.7% vs. 99.7%, p 0.262) were not different between the groups.

Table 2. Maternal outcomes of case and control groups

Outcome	Case group (n=85)	Control group (n=428)
Gestational age at birth (weeks)	38.9±1.1	39.1±1.2
Cervical dilatation at admission (cm)	2.8±1.6	2.8±1.5
Cervical effacement at admission (%)	50.5±20.1	50.4±21.6
PROM	19 (22.4)	69 (16.1)
Prolonged pregnancy	7 (8.2)	32 (7.5)
Oligohydramnios	3 (3.5)	12 (2.8)
Polyhydramnios	0 (0)	1 (0.2)
Antepartum bleeding	0 (0)	1 (0.2)
Caesarean birth*	10 (11.8)	109 (25.5)
Caesarean birth indications		
Fetal distress	4 (40.0)	35 (32.1)
Placental abruption	0 (0)	1 (0.9)
Cord prolapse	1 (10.0)	0 (0)
CPD	1 (10.0)	46 (42.2)
Arrested labour	4 (40.0)	19 (17.4)
Failed induction	0 (0)	2 (1.8)
Elective caesarean	0 (0)	6(5.5)
Vaginal birth		
First stage length (min)	104.8±58.0	107.5±69.9
Second stage length (min)	38.8±21.8	41.5±19.3
Episiotomy	74 (98.7)	318 (99.7)
Postpartum complications		
Vajinal laceration	4 (4.7)	16 (3.7)
Uterine atony	0 (0)	4 (0.9)
Hematoma	0 (0)	2 (0.5)
Cervical laceration	0 (0)	1 (0.2)
Postpartum fever	0 (0)	1 (0.2)
Retained placenta	0 (0)	1 (0.2)
Prenatal Hb (gr/dl)	12.05±1.35	11.94±1.46
Potnatal Hb (gr/dl)	10.61±1.29	10.33±1.49

PROM, premature rupture of membrane; CPD, cephalopelvic disproportion; Hb, hemoglobin
 Data are mean± SD or number (%).
 *p= 0.006

Postpartum complication rates of the groups were also similar. The most common postpartum complication in both groups was vaginal laceration (4.7% vs. 3.7%, p 0.64).

Perinatal outcomes of groups are shown in Table 3. Newborn birth weight (3310.8 ± 346.3 gr vs. 3277.6 ± 404.3gr), first minute Apgar score (8.9 ± 0.2 vs. 8.9 ± 0.3) and the need for a newborn intensive care unit were not different between the groups (3.5% vs. 7%) (p> 0.05). The fifth minute Apgar score was 9.4 ± 0.5 in the case group and 9.0 ± 0.2 in the control group (p< 0.001).

Table 3. Perinatal outcomes of case and control groups

Outcome	Case group (n=85)	Control group (n=428)
Birth weight (gr)	3310.8±346.3	3277.6±404.3
Apgar score		
1st minute	8.9±0.2	8.9±0.3
5th minute*	9.4±0.5	9.0±0.2
NICU need	3 (3.5)	30 (7.0)
Respiratory distress	1 (1.2)	12 (2.8)
Newborn jaundice	2 (2.4)	7 (1.6)
Meconium aspiration	0 (0)	4 (0.9)
Abdominal mass	0 (0)	2 (0.5)
Prematurity	0 (0)	2 (0.5)
Hypothermia	0 (0)	1 (0.2)
Infection	0 (0)	1 (0.2)
Congenital anomaly	0 (0)	1 (0.2)
NICU, neonatal intensive care unit		
*p < 0.001		

DISCUSSION

Today, the search for accurate and up-to-date information about the pregnancy and birth process, the postpartum period and newborn care has increased the interest in prenatal preparatory classes. However, the number of women receiving antenatal training is still insufficient. Younger, unmarried, and women with low income, mostly do not prefer to participate in an antenatal education program (12,16). Bergström et al. also reported higher planned pregnancy rates in

women who are willing to get antenatal education (12). Similarly, in the presented study, mean age was higher in women with antenatal education. A present study showed that prior poor pregnancy experience is also a factor which increases the number of patients willing for antenatal education. Five women with antenatal education had a history of abortion, whereas there was not any history of abortion in the control group.

One of the main purposes of antenatal education is to eliminate fear of childbirth by teaching how to cope with pain during labour and reduce the caesarean birth rates. Literature has conflicting results of studies investigating the effect of antenatal education on the rates of caesarean delivery. Artieta-Pinedo et al and Mainburg et al reported similar caesarean birth rates in nulliparous women with and without antenatal education (13,17). On the other hand, other studies have found that antenatal education reduces the caesarean birth rates which are similar to our findings (12,18). Mehdizadeh et al reported more daily physical activity and less dystocia and caesarean section rates in women with antenatal education (18). They concluded that antenatal education increases the vaginal birth rates by providing psychological support, improving awareness level, and reducing dystocia and malpresentation with exercises.

Conflicting results about the association between the antenatal education and length of labour are present. Paz-Pascual et al reported the shorter duration of cervical dilatation and expulsion period and lower episiotomy rates in women participating in antenatal training courses (14). In contrast, Artieta-Pinedo et al. found that the antenatal training reduced the anxiety during labour in low-risk nulliparous women, whereas the length of the first and second stages of labour and perineal injury rates were not different between the women with and without antenatal training (13). Similarly, the present study showed no effect of antenatal education on the length of labour stages, episiotomy and perineal injury rates. However, the education of the woman is not the only variable affecting these outcomes. The attitude and the level of knowledge of the health personnel who assisted the birth have an important role in the birth outcomes.

Increased awareness and education of health personnel can lead to different results.

Our study is one of the few reports investigating the effect of antenatal education on perinatal outcomes. We found no differences in perinatal outcome between the women with and without antenatal training. The presented study showed that the antenatal training did not affect the gestational age at the beginning of labour and birth weight of the newborn. It is expected that there will be no difference between the gestational age and birth weight of the groups. Because women with preterm labour and other complicated pregnancies were not included in the study. Similar results were also reported in previous studies, including preterm births. Kellams et al reported that gestational age and birth weight was not different in women with and without antenatal education (11). In the presented study, Apgar score at 5th minute was statistically different between the groups, but the score was ≥ 9 in both groups. This statistical difference had no clinical significance and this finding did not make a difference in the need for newborn intensive care units.

The major limitation of our study is its retrospective design. Data were obtained via retrospective chart review. Therefore, there was no data that can affect the results such as the educational level and socioeconomic status, anxiety and pain level during labour, and planned pregnancy rates. The limited number of women participating in antenatal education program is another limitation.

In conclusion, our study showed that caesarean delivery rates were lower in women with antenatal education. The effects of antenatal training on the other maternal and perinatal outcomes were not found. Antenatal education may help the reduction of caesarean birth rates by allowing patients to be willing for vaginal birth and to have a more conscious and effective role in birth process. If our findings are confirmed in larger prospective studies, antenatal education can attract attentions of more countries and can be taken into routine antenatal care program.

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