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Research Article

Does Applying Epidural Analgesia During Delivery Delay Breast-Feeding?

Ali Bestemi Kepekci

Department of Anesthesia, Health Occupation High-School, Istanbul Yeni Yuzyil University, Istanbul, Turkey

Abstract

Objectives: In recent years, more pregnant women have been demanding pain relief during delivery. The type of delivery or the method of analgesia applied can affect the duration of breastfeeding. This study aimed to estimate the relationship between women who received Epidural Analgesia during labor and breastfeeding early and after.

Methods: In this retrospective study, vaginal deliveries in our hospital in Istanbul between January 1, 2018 and December 31, 2019 are included.The patients were evaluated in two groups as women undergoing Epidural Analgesia during labor and women without Epidural Analgesia. Mother's age, father's age was obtained from a prenatal survey. Parity, gestational week, birth weight, duration of labor, satisfaction status were obtained from obstetric records. Data on the nutritional status of the baby and breastfeeding problems within the first 24 hours after birth were obtained from the breastfeeding history form. Nutritional status and breastfeeding problems were obtained from the policlinic records in the 4th week after birth. Nutritional status was classified into three types as breastfeeding only, formula feeding or mixed nutrition. The causes of babies fed formula are listed. The relationship between Epidural Analgesia during labor and breastfeeding was investigated. Statistical significance was accepted as $p<0.05$. The degree of correlation between the variables was calculated using Spearman's correlation test.

Results: 754 women who met the working conditions were included in the study and 124 of them were found to have Epidural Analgesia. A positive correlation was found between women who received Epidural Analgesia and the time of first breastfeeding ($p<0.05$). There was no significant difference between the two patient groups in terms of nutritional types and breastfeeding problems ($p>0.05$).

Conclusion: The first breastfeeding times of the babies of the mothers who underwent epidural analgesia were significantly earlier. Expanding the application of Epidural Analgesia during labor can contribute to early initiation of breastfeeding in newborns.

Keywords: Breastfeeding, epidural analgesia, labor, pregnant, newborn, vaginal delivery

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In recent years, more pregnant women have been demanding pain relief during delivery.[1] Epidural analgesia (EA) is considered the gold standard in relieving pain at delivery.[2]

Many studies have shown that EA administration is safe and effective for relieving delivery pain.[3,4]

Breastfeeding, which is critical for the health of the baby, is very important when it is first started.[5] The World Health Organization recommends breastfeeding for health benefits to adulthood.[6] The benefits of feeding the baby only with breast milk are well known, especially in the first six months of life.[7] The type of delivery or the

Address for correspondence: Ali Bestemi Kepekci, MD. Istanbul Yeni Yuzyil Universitesi Saglik Meslek Lisesi, Anestezi Bolumu, Istanbul, Turkey
Phone: 444 50 01 **E-mail:** alibestemi.kepekci@yeniyuzyil.edu.tr

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method of analgesia applied can affect the duration of breastfeeding.

It has been shown in many studies that intravenous anesthetics applied to the mother during labor have a negative effect on the duration of breastfeeding, especially when administered at high doses and continuously.[8] In a meta-analysis involving twenty-three studies, 12 studies concluded that there was a negative correlation between EA and breastfeeding, and 1 study had a positive correlation; 10 studies have shown that there is no significant relationship.[9]

It is important to understand the effect of EA on breastfeeding today when birth analgesia applications are increasing. It was stated that there is no consensus between obstetricians and anesthesiologists about the effect of EA application on breastfeeding during labor.[10]

This study aimed to estimate the relationship between women who received EA during labor and breastfeeding early and after.

Methods

Ethics statement: Istanbul Yeni Yuzyil University Ethics Committee approved the study. (Date: 12.05.2020 Number: 2020/0405)

Study Design and Patients

This retrospective study included vaginal deliveries at the Istanbul Meltem Hospital between January 1, 2018 and December 31, 2019. The inclusion criteria were determined as single pregnancies, whose gestation weeks were ≥37 weeks, and the vaginal delivery was completed. Exclusion criteria were determined as multiple pregnancies, those with a history of pregnancy complications (such as diabetes mellitus during pregnancy, hypertensive disorder), preterm birth, cesarean delivery, newborn with a congenital anomaly, newborn with metabolic disorders, babies taken to the intensive care unit after birth, and those with information missing in their files.

Data of 902 participants in total were analyzed in this study and 754 patients were found suitable for analysis.

The patients were evaluated in two groups as women undergoing EA during labor and women without EA.

For women who underwent EA, it was carried out with a standard protocol for EA.

EA Application Protocol: An epidural catheter was inserted into the L2-L3 or L3-L4 intervertebral space in the lumbar spine. First, 10 ml of physiological saline was injected with 0.125% bupivacaine and 75 µg of fentanyl as an analgesic drug. Continuous epidural analgesia was continued throughout the entire labor.

Mother's age, father's age was obtained from a prenatal survey. Parity, gestational week, birth weight, duration of labor, satisfaction status were obtained from obstetric records. Data on the nutritional status of the baby and breastfeeding problems within the first 24 hours after birth were obtained from the breastfeeding history form.

Nutritional status and breastfeeding problems were obtained from the policlinic records in the 4th week after birth. The feeding types and breastfeeding problems of the babies after 4 weeks were made only among the babies who came to the outpatient clinic control at that time.

Nutritional status was classified into three types as breastfeeding only (if no additional nutrients other than vitamins or drugs are given), formula feeding (if it is not fed with breast milk, but only with formula) or mixed nutrition (feeding on both breast milk and formula). The causes of babies fed formula are listed.

The relationship between EA during labor and breastfeeding was investigated.

Statistical Analysis

Statistical analysis of the data was done using IBM SPSS (USA) software for Windows 23.0 and statistical significance was accepted as $p<0.05$. While the variables of qualitative data are expressed as numbers and percentages, the variables of quantitative data are expressed as mean or minimum-maximum ranges. Chi-square test and independent-sample t-test were used to compare categorical variables. The degree of correlation between the variables was calculated using Spearman's correlation test.

Results

754 women who met the working conditions were included in the study, and 124 of them were found to have EA during labor. The demographic properties of maternal and newborn according to whether EA is applied or not are presented in Table 1. It was seen that younger parents and nulliparous pregnants were those who preferred EA ($p<0.05$). In the comparison of gestational week and newborn birth weight, we could not find a statistically significant difference between the two groups ($p>0.05$). In women who underwent EA, the first and second stages of labor tended to be longer ($p<0.05$).

The times when babies start to breastfeed are shown in Table 2. A positive correlation was found between women who received EA and the time of first breastfeeding ($p<0.05$).

The feeding types of the babies included in the study in the first 24 hours after birth and after 4 weeks are shown in Table 3. However, 75 of EA applicants and 389 of non-EA

Table 1. Demographic characteristics of the subjects

Variables	Total n=754	EA n=124	Non-EA n=630	p
Woman's age (Mean±SD)	27.90±6.00	26.20±5.80	28.17±6.03	0.001
Husband's age (Mean±SD)	32.70±6.09	30.95±5.56	33.02±6.13	0.001
Gravidity, n (%)				
Primigravida (n)	248 (33)	75 (60)	173 (27)	0.001
Multigravida (n)	506 (67)	49 (40)	457 (73)	0.001
Gestational age, weeks				
37-38 weeks (n)	273	51	222	0.241
39-41 weeks (n)	481	73	408	0.071
Duration of first stage of labor, minutes (Mean±SD)	359.04±60.6	405.3±80.9	350.10±10.6	0.001
Duration of second stage of labor, minutes (Mean±SD)	41.12±15.4	57.43±17.9	38.67±13.9	0.001
Newborn birth weight, g (Mean±SD)	3.355.95±426.41	3.289.15±395.73	3.366.64±433.42	0.058

EA: Epidural analgesia, Non-EA: Non-epidural analgesia.

Table 2. Comparison of breastfeeding start times between two groups

Time after birth	EA n (%)	Non-EA n (%)	p
In the first hour after birth	85 (68.55)	390 (61.90)	0.043
1-3 hours after birth	31 (25.00)	137 (21.75)	
3-24 hours after birth	6 (4.84)	72 (11.43)	
After the first 24 hours of birth	2 (1.61)	31 (4.92)	

EA: Epidural analgesia, Non-EA: Non-epidural analgesia.

applicants came to polyclinic controls. There was no statistically significant difference between the nutritional types between the two patient groups (p>0.05).

A comparison of breastfeeding problems in two groups at different times is shown in Table 4. There was no significant difference between the groups in terms of breastfeeding problems (p>0.05).

Discussion

Due to the increasing use of EA during labor to relieve birth pain in recent years, we evaluated the relationship between the application of EA during labor and the onset and continuation of breastfeeding.

It is stated that nullipar women prefer EA more during labor.[11] In this study, it was observed that those who preferred EA were younger parents and nulliparous pregnant women.

There are many studies showing that epidural analgesia application has minimal effects on lactation.[12]

Intrapartum pregnant women, intravenous or intramuscular opioid administration, especially meperidine administration, has been shown to reduce breastfeeding success.[13]

In some studies, it has been described that EA is associated with conditions such as an increase in body temperature, difficulty in the onset of breastfeeding, hypotension, the

Table 3. Comparison of feeding type of babies in two groups at different times

Time	EA n (%)	Non-EA n (%)	p
Within 24 hours after birth			
Only breastfeeding	111 (89.52)	591 (93.81)	0.096
Only formula	5 (4.03)	22 (3.49)	
Both	8 (6.45)	17 (2.7)	
In the follow-up of the 4th week after birth			
Only breastfeeding	56 (74.67)	293 (75.32)	0.861
Only formula	2 (2.67)	7 (1.8)	
Both	17 (22.67)	89 (22.88)	

EA: Epidural analgesia, Non-EA: Non-epidural analgesia.

Table 4. Comparison of breastfeeding problems in two groups

Breastfeeding problems	EA n (%)	Non-EA n (%)	p
Within 24 hours after childbirth			
Mastitis-cracked nipples	17 (30.91)	21 (26.58)	0.776
Babies with thrush	2 (3.64)	3 (3.80)	
Unwillingness to suck in newborns	13 (23.64)	19 (24.05)	
Low milk supply	16 (29.09)	18 (22.78)	
Maternal fatigue	6 (10.91)	15 (18.99)	
Presence of tongue bond in newborn	1 (1.82)	3 (3.80)	
Follow-up period			
Mastitis-cracked nipples	6 (28.57)	7 (21.21)	0.650
Babies with thrush	0 (0.00)	2 (6.06)	
Unwillingness to suck in newborns	2 (9.52)	4 (12.12)	
Low milk supply	13 (61.90)	20 (60.61)	
Maternal fatigue	0 (0.00)	0 (0.00)	
Presence of tongue bond in newborn	0 (0.00)	0 (0.00)	

EA: Epidural analgesia, Non-EA: Non-epidural analgesia.

second stage of labor and an increase in interventional vaginal delivery among pregnant women.[14]

In a study conducted on 922 women, it was shown that there was no relationship between the timing of breastfeeding (within the first hour after birth) and breastfeeding in the following 6 months and the application of EA during labor.[15]

In a study using fentanyl concentrations lower than 2 mg/ml, it was reported that applying EA during labor did not correlate with early termination of breastfeeding.[16]

Regardless of which method is used, there are publications reporting that there is a relationship between the application of analgesia during labor and the onset of delayed breastfeeding.[17]

It has been reported that EA application reduces the stress response after birth and labor.[18] In another study, it was reported that plasma oxytocin levels were changed in women who received EA, and breastfeeding was positively affected.[19] It is very important that the analgesia methods applied during labor do not have a negative effect on breastfeeding. In a study with 383 women who had vaginal delivery, it was shown that the onset of breastfeeding was not different in women who underwent EA and who non-EA.[20]

In our study, breastfeeding has been shown to be positively affected by women undergoing EA. It was observed that breastfeeding started in the first 1 hour after birth in 68.55% of women who received EA. In 61.90% of women non-EA, breastfeeding started within the first hour.

Early postpartum breastfeeding is strongly recommended by the World Health Organization.[21,22] Current breastfeeding recommendations are to ensure skin-skin contact with the mothers of newborns immediately after birth and to start breastfeeding within 1 hour after birth.[21,23] Early breastfeeding stimulates breast milk production, produces antibody protection for the newborn, and reduces postpartum hemorrhage. In addition, early breastfeeding is effective in giving breastfeeding successful and longer.[24] Many studies have shown that breastfeeding within the first hour after birth is associated with a lower risk of neonatal mortality.[25,26]

It has been stated that the probability of breastfeeding after childbirth increases, as it reduces postpartum depression in women who have undergone EA during labor. In the same study, it was shown that unsuccessful breastfeeding and postpartum mother's fatigue and birth pain were related.[27]

In the polyclinic controls performed 4 weeks after birth, the absence of a significant difference between the patients who were EA during labor and those who non-EA in terms of the type of feeding and breastfeeding indicates that breastfeeding was not adversely affected in women undergoing EA.

In a study conducted in China, it was reported that no difference was found between women who EA during labor and women who non-EA in terms of breastfeeding in the 6th month of birth.[15] Therefore, our results are compatible with the literature.

The results of our study have some limitations. The sample size of 754 patients is an acceptable number, and although it is generalizable to the total population, it is our first limi-

tation that the data is compiled from a single center. Birth analgesia management may differ from the management of other centers, and the study sample may not represent pregnant women undergoing EA. Second, because the study is planned retrospectively, other potentially impressive factors may not be fully excluded. Thirdly, nutritional data of all babies were not available in the 4th week.

Listing the starting times of breastfeeding and examining different problems that may affect breastfeeding are the strengths of the study.

Conclusion

Our data revealed a positive relationship between EA applied during labor and breastfeeding.

First breastfeeding times of babies of mothers who received EA were significantly earlier. However, no relation was found between breastfeeding and EA application in the following periods.

Expanding the application of EA during labor can contribute to early initiation of breastfeeding in accordance with global breastfeeding recommendations.

EA's effects on breastfeeding may include complex interactions of various factors. Therefore, there is a need for research in multicentre and larger sample groups to evaluate the relationship between breastfeeding and the application of EA during labor.

Disclosures

Ethics Committee Approval: Istanbul Yeni Yüzyıl University Ethics Committee approved the study. (Date: 12.05.2020 Number: 2020/0405)

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Conflict of Interest: None declared.

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