



DİNOPROSTON UYGULANAN VE UYGULANMAYAN GEBELERDE DOĞUM ALGISI VE ÇIKTILARININ KARŞILAŞTIRILMASI

COMPARISON OF PERCEPTION OF BIRTH AND OUTPUTS IN PREGNANT WITH AND WITHOUT DINOPROSTONE: A COMPARATIVE STUDY

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Özet

Giriş: Araştırma, dinoproston uygulanan ve uygulanmayan gebelerde doğum algısı ve çıktılarının karşılaştırılması amacıyla yapılmıştır.

Gereç- Yöntem: Araştırmaya alınma kriterlerini taşıyan 160 gebe (dinoprostan uygulanan 80 gebe ve dinoprostan uygulanmayan 80 gebe) katılımıyla tanımlayıcı-karşılaştırmalı bir çalışma yapıldı. Veriler "Kişisel Bilgi Formu", "Görsel Kıyaslama Ölçeği (GKÖ)", "APGAR Skoru Değerlendirme Skalası" ve "Annenin Doğumu Algılaması Ölçeği (ADAÖ)" kullanılarak toplanmıştır. Araştırmanın evreni Haziran 2020-Aralık 2020 tarihleri arasında Sanlıurfa Eğitim ve Araştırma hastanesi doğumhanesine kabul edilen gebeler oluşturmuştur. Verilerin analizinde tanımlayıcı istatistikler ve ki-kare önemlilik testi kullanılmıştır. İstatistiksel anlamlılık düzeyi $p < 0.05$ olarak kabul edilmiştir.

Bulgular: Araştırma kapsamındaki gebeler tanıtıcı ve obstetrik değişkenler bakımından homojenlik göstermektedir. Gebelerin GKÖ puan ortalamaları karşılaştırıldığında; dinoprostan uygulanmayan gebelerde ağrı algılama düzeyleri dinoprostan uygulanan gebelere göre uterus kontraksiyonları sonrası ve aktif fazda diğer fazlara göre yüksek olduğu ve ağrı puan ortalamaları arasındaki farkın istatistiksel açıdan anlamlı olduğu saptanmıştır ($p=0.007$). Dinoproston uygulanan ve uygulanmayan grupları arasında doğum sürelerinin karşılaştırılmasında toplam süre için gruplar arasındaki farkın istatistiksel olarak önemli olduğu belirlenmiştir ($p=0.001$). Dinoproston uygulanan ve uygulanmayan gruplarda 1. ve 5. dakikadaki Apgar skorları arasındaki puan farkının istatistiksel açıdan anlamlı olmadığı belirlenmiştir ($p=0.73$). Araştırmada, ADAÖ toplam puan ortalaması dinoprostan uygulanan grupta 84.38 ± 11.96 ve dinoprostan uygulanmayan grupta 76.98 ± 14.98 olarak bulunmuş ve gruplar arasında istatistiksel olarak fark saptanmıştır ($p=0.001$).

Sonuç: Araştırmada kullanılan dinoprostanın doğum ağrısında ve annenin doğumu algılamasında etkili olduğu görülmüştür. Çalışma sonucunda dinoproston tedavisinin yenidoğan APGAR skorlarını etkilemediği görülmüştür.

Anahtar Kelimeler: Dinoprostan, Doğum Ağrısı, Doğum Algısı, Doğum Çıktısı, Gebelik.

Abstract

Objective: The research was carried out to compare the perception of birth and outcomes of pregnant women who were both administered and not administered dinoprostone.

Material- Methods: A descriptive-comparative study involving 160 pregnant women (80 with dinoprostone, 80 without) was conducted. Data were collected using a Personal Information Form, Visual Analog Scale, APGAR Score Evaluation Scale, and Maternal Birth Perception Scale. The universe of the study consisted of pregnant women admitted to the Sanlıurfa Training and Research Hospital delivery room between June 2020 and December 2020. Descriptive statistics and a chi-square significance test were used to analyze the data. The statistical significance level has been accepted as $p < 0.05$.

Results: Pregnant women within the scope of the study show homogeneity in terms of introductory and obstetric variables. When the mean mean scores of the pregnant women were compared; It was found that the pain perception levels of the pregnant women who were not administered dinoprostane were higher after uterine contractions and in the active phase compared to the other phases. The difference between the mean pain scores was statistically significant ($p=0.007$). In comparing delivery times between groups that administered and did not administered dinoprostone, it was determined that the difference between the groups for the total time was statistically significant ($p=0.001$). It was determined that the difference in APGAR scores at the 1st and 5th minutes in the groups administered and not administered dinoprostone was not statistically significant ($p=0.73$). In the study, the mean POBS total score was found to be 84.38 ± 11.96 in the group administered dinoprostane and 76.98 ± 14.98 in the group not applied dinoprostane, and a statistically significant difference was found between the groups ($p = 0.001$).

Conclusion: It has been observed that dinoprostane used in the study is effective in labor pain and the mother's perception of delivery. As a result of the study, it was observed that dinoprostone treatment did not affect the newborn APGAR scores.

Keywords: Dinoprostane, Birth Pain, Birth Perception, Birth Output, Pregnancy.

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INTRODUCTION

Many changes occur in the uterus and cervix during labor. For cervical softening at birth, there must be changes in the connective tissue, collagen, and basic components of the cervix. At the end of pregnancy, the cervix swells and softens, gaining flexibility and expansion ability due to the increase in hyaluronic acid and fluid content, a decrease in the dermatan sulfate-chondroitin sulfate ratio, and a decrease in collagen (1). Dinoprostone is the most widely used agent in cervical ripening, and with regular release, it minimizes uterine hyperstimulation by preventing tissue exposure to dinoprostone (2). It induces cervical maturation by increasing collagenase and elastase activity, causing relaxation in cervical smooth muscles and contractions in the fundal myometrium. Thus, the uterus becomes more sensitive to oxytocin (3, 4).

Dinoprostone, which facilitates cervical opening and effacement, also induces myometrial contractions in the uterus. Vaginal ovules, frequently used in clinical practice, are preparations applied to pregnant women to prepare the immature cervix for labor (5). These preparations have been approved by the Ministry of Health in Turkey for use in labor induction after 38 weeks (6). Currently, this timing has not been determined by definitive rules and is planned according to the clinical condition of the pregnant woman. Comprehensive clinical studies recommend considering induction of labor in pregnant women at and above 41 weeks of gestation, and induction in pregnancies at and above 42 weeks of gestation. The use of labor induction at these gestational weeks is practiced because it is associated with reducing the risk of perinatal mortality (7, 8).

The health status of the newborn is evaluated using many indicators during pregnancy and delivery, including the mother's health status, gestational age, duration of labor, rupture of membranes, type, and timing of drugs used during labor, administration

methods, and difficulties encountered during labor. Another method used during delivery is the APGAR scoring system, which allows for a quick assessment of the need for resuscitation (9).

Birth is an event that changes a woman's life. The care given during labor affects women both physically and emotionally (10). Supporting labor by midwives is crucial for a positive outcome of the birth process (11). Pregnant women often experience anxiety and fear due to uncertainty about what to expect during labor. A woman needs professional support and to feel cared for to ensure a healthy birth process. The professional support provided at birth also influences the woman's ability to cope with labor pain, helping to prevent negative experiences and positively affecting her perception of birth. The care given during labor positively impacts maternal and newborn health and reduces interventions (12, 13). This study was conducted to compare the perception and outcomes of birth in pregnant women who received and did not receive dinoprostone.

MATERIAL- METHODS

Study Design and Participants

The research was conducted in a descriptive and comparative nature. The study was conducted with primiparous pregnant women admitted to the delivery room between June and December 2020 in a Training and Research Hospital in the southeast. G*Power 3.1.10 program was used to calculate the sample size. The minimum sample size was calculated to be 160 pregnant women. The sample complies with the criteria for inclusion in the study (no medical indication over 41 weeks, Bishop score below 4, No head and pelvis incompatibility, single fetus in the vertex position, and an estimated fetal weight below 4000 g determined by ultrasonography), agreeing to participate in the study, 80 primiparous pregnant women who were asked to administer dinoprostan on physician order and 80 primiparous pregnant women who were not administered dinoprostan were included.

Limitations and Generalizability of the Study

The study is limited to the Şanlıurfa Education and Research Hospital affiliated with the Şanlıurfa Provincial Health Directorate. The results of the study can be generalized to pregnant women who agree to participate in the study.

Data Collection Tools and Features of Tools

The data for the study was collected between June 2020 and December 2020 at the Şanlıurfa Training and Research Hospital maternity ward. The data collection process was personally conducted by the researcher in accordance with the study's objectives and scope. Verbal consent was obtained from the pregnant participants, and personal information forms were completed.

The data used in the study was analyzed in two groups:

The universe of the study consisted of pregnant women admitted to the Şanlıurfa Training and Research Hospital delivery room between June 2020 and December 2020.

Pregnant Women Administered Dinoprostone: The timing of dinoprostone administration was recorded, and it was carefully placed vaginally. Each patient was monitored for at least 30 minutes using NST (Non-Stress Test). Pregnant women with a fetal heart rate between 120–160 bpm were considered normal and allowed to mobilize. Dinoprostone ovules were monitored in 4-hour intervals and kept in place for a maximum of 12 hours per patient. A new ovule was administered after 12 hours if necessary. Vaginal findings were recorded during this process. Pain levels of the pregnant women were measured at the onset of the latent phase, the active phase, and the transition phase using the VAS (Visual Analog Scale) pain scale. After delivery, the APGAR scores of the newborns were recorded at the 1st and 5th minutes, and the Birth Perception Scale was applied to the mothers.

Pregnant Women Not Administered Dinoprostone: This group received routine care, and the Birth Perception Scale was applied postpartum to assess the mothers' perception of childbirth.

Evaluation and Independent Observers

The study data were evaluated by two independent observers to ensure scientific validity. The independent observers were not involved in the data collection process but participated in the analysis phase. The data were systematically recorded using standardized forms and scales.

Research data were collected using the Personal Information Form, Visual Analogue Scale (VAS), Apgar Score Evaluation Scale, and Maternal Birth Perception Scale (MBPS).

Personal Information Form

It consists of 9 questions prepared by researchers about the socio-demographic and obstetric characteristics of pregnant women.

Visual Analogue Scale

The Visual Analog Scale (VAS) is a commonly used tool to measure labor pain. VAS was developed by Bond and Pilowsky in 1966 (14), and its validity and reliability for Turkish society were established by Eti Aslan in 1998 (15). The VAS consists of a 10 cm ruler on which the patient marks their pain, with no pain at one end and excruciating pain at the other. In the evaluation of VAS results, 0 cm indicates “no pain,” 0.5-3 cm indicates “mild pain,” 3.5-6.5 cm indicates “moderate pain,” and 7-10 cm indicates “severe pain” (16). In this study, the VAS was used horizontally.

Apgar Score Evaluation Scale

Reducing neonatal morbidity and mortality is possible by evaluating the baby well at the time of birth and making an intervention in a short time. For this, the APGAR scoring system is used as the initial assessment. The APGAR scoring system is evaluated at the 1st and 5th minutes after birth according to 5 criteria developed by Virginia APGAR,

including color, muscle tone, respiration, reflex, and heart rate (17-19).

Mother's Perception of Birth Scale

The scale is a tool that evaluates how mothers perceive their experiences in normal or unplanned cesarean deliveries (20). It was developed into a Likert-type scale with 25 items and 5 sub-dimensions by Fawcett and Knauth in 1996. The sub-dimensions of the scale include experiences at the time of birth, experiences during the pain period of birth, postpartum experiences, partner participation, and awareness (21). The Turkish validity and reliability study of the scale was conducted by Güngör and Beji in 2004 (22). The Cronbach Alpha value of the scale was reported as 0.90. In this study, the Cronbach Alpha value reliability coefficient was determined as 0.86.

Data Collection

The purpose and scope of the study were explained to the pregnant women who met the inclusion criteria and their consent was obtained. Pregnant women who were asked to apply dinoprostan on the order of the physician were included in the application group.

Procedures in pregnant women treated with dinoprostone:

- 1-Personal information form has been filled out.
- 2- Cervical evaluation was performed on the pregnant woman.

The 3-Dinoprostone insert was placed in the posterior fornix of the cervix. It was placed horizontally to prevent the vaginal insert from falling off on its own, and the time the insert was applied was recorded.

- 4-The applied dinoprostone insert was kept for a maximum of 12 hours in each patient. Dinoprostone was removed after 12 hours and a new one was placed.

- 5-Vaginal findings were evaluated and recorded in 4-hour periods.

- 6- Pregnant women who were administered dinoprostan were closely monitored with NST (Non Stress Test) for at least 30 minutes. During

the 30-minute follow-up, the pregnant women with normal tracing were allowed to be mobilized and NST was repeated in 4-hour periods.

- 7-Fetal heart rate of 120-160 beats/min was considered normal in cardiotocographic follow-up.

- 8-By using the VAS pain scale, pregnancy pain was evaluated at the beginning of the latent phase, at the beginning of the active phase, and the beginning of the transitional phase.

- 9-The APGAR score of the newborn was evaluated and recorded at the 1st and 5th minutes after birth.

- 10-Perception of birth was evaluated by applying the birth perception scale to the mother after birth.

Pregnant Women Not Administered Dinoprostan:

- 1-Personal information form has been filled out.
- 2- Cervical evaluation was performed on the pregnant woman.

- 3-Vaginal findings were evaluated and recorded in 4-hour periods.

- 4-Fetal heart rate of 120-160 beats/min was considered normal in cardiotocographic follow-up.

- 5-By using the VAS pain scale, pregnancy pain was evaluated at the beginning of the latent phase, at the beginning of the active phase, and the beginning of the transitional phase.

- 6-The APGAR score of the newborn was evaluated and recorded at the 1st and 5th minutes after birth.

- 7-Perception of birth was evaluated by applying the birth perception scale to the mother after birth.

RESULT

The descriptive characteristics of the groups (pregnant women administered and not administered Dinoprostone) are shown in Table 1. As a result of the statistical analysis, it was determined that the groups were homogeneous according to their descriptive characteristics (Table 1, $p > 0.05$).

Table 1. Comparison of the Descriptive Characteristics of the Groups.

Features	Dinoprostone Not Applied		Dinoprostone Applied		Test and p value
	n	%	n	%	
Age					
20-24 years	59	73.8	53	66.3	$X^2=1.78$ $p=0.61$
25-29 years	15	18.8	17	21.3	
30-34 years	4	5.0	8	10.0	
35 and above	2	2.45	2	2.4	
Educational Status					
Literate	41	51.3	28	35.0	$X^2=7.07$ $p=0.07$
Primary education	24	30.0	39	48.8	
High school	9	11.3	10	12.5	
University	6	7.4	3	3.7	
Employment status					
Employed	3	3.7	2	2.5	$X^2=0.20$ $p=0.65$
Unemployed	77	96.3	78	97.5	
Living place					
Village	29	36.3	25	31.2	$X^2=4.07$ $p=0.13$
Town	26	32.5	18	22.5	
Province	25	31.2	37	46.3	
Perception of Economic Situation					
Bad	32	40.0	23	28.8	$X^2=4.92$ $p=0.08$
Middle	30	37.5	44	55.0	
Good	18	22.5	13	16.2	
Family type Nuclear					
Extended	40	50.0	43	53.8	$X^2=0.22$ $p=0.63$
	40	50.0	37	46.2	
Planned Pregnancy Status					
Planned	71	88.8	74	92.5	$X^2=0.66$ $p=0.41$
Not planned	9	11.2	6	7.5	
Number of Prenatal Care Receiving					
1	22	27.5	16	20.0	$X^2=5.41$ $p=0.06$
2	2	2.5	9	11.3	
3 and above	56	70.0	55	68.7	
Gender of the Newborn					
Girl					$X^2=2.03$ $p=0.15$
Male	33	41.3	42	52.5	
	47	58.7	38	47.5	

When the first bimanual examination findings of the pregnant women who were not administered dinoprostone were examined; It was determined that 58.7% had a dilatation

finding of 1-2 cm, 73.8% had an effacement level of 0-30, 52.5% had a hard consistency, 50.0% had a middle position, and 63.8% had a -3 level (Table 2.)

Table 2. Comparison of the first bimanual examination findings of the groups.

Findings	Dinoprostone Not Applied		Dinoprostone Applied		Test and p value
	n	%	n	%	
Dilation					
0	33	41.3	42	52.5	X ² =2.03
1-2 cm	47	58.7	38	47.5	p=0.15
Effacement					
0-30	59	73.8	64	80.0	X ² =0.87
40-50	21	26.2	16	0.0	p=0.34
Consistency					
Hard	42	52.5	49	61.3	X ² =2.35
Medium	25	31.3	24	30.0	p=0.305
Soft	13	16.2	7	8.7	
Position					
Posterior	24	30.0	20	25.0	X ² =0.80
Mid	40	50.0	40	50.0	p=0.66
Anterior	16	20.0	20	25.0	
Level					
-3	51	63.8	64	80.0	X ² =5.74
-2	29	36.2	16	20.0	p=0.05

When the first bimanual examination findings of pregnant women who were administered dinoprostone were evaluated; It was determined that 47.5% had a dilatation finding of 1-2 cm, 80.0% had an effusion level of 0-30, 61.3% had

a hard consistency, 50.0% had a middle position, and 80.0% had a -3 level. It was determined that the results of the first bimanual examination findings of the groups were homogeneous (Table 2, p> 0.05).

Table 3. Comparison of birth findings of the groups.

Findings	Dinoprostone Not Applied	Dinoprostone Applied	Test and p value
	$\bar{X} \pm SS$	$\bar{X} \pm SS$	
Dilatation Time (min)	404.91±243.94	1032.37±552.93	t=9.28,p=0.001
Effasman Time (min)	404.91±243.94	1268.62±2298.19	t=3.34,p=0.001
Total Birth Time (min)	434.17±254.62	1068.35±551.48	t=9.33,p=0.001
In the Latent Phase			
VAS	5.12±1.83	2.52±2.08	t=8.36,p=0.001
In Active Phase			
VAS	7.23±1.56	6.58±1.41	t=2.75,p=0.007
In the Transition Phase			
VAS	9.28±1.25	9.27±1.12	t=0.06,p=0.94
APGAR in the 1 st minute	7.70±0.95	7.61±1.08	t=0.54,p=0.59
APGAR in the 5th minute	9.51±1.05	9.45±1.28	t=0.33,p=0.73

It was determined that the mean dilatation time of the pregnant women who did not apply dinoprostone was 404.91±243.94, and the mean dilatation time of the pregnant women who did not apply dinoprostone was 1032.37±552.93. The difference between the

groups was found to be statistically significant (Table 3, p ≤ 0.05).

It was found that the mean effacement time of the pregnant women who were not administered dinoprostone was 404.91±243.94, while the mean effacement time of the pregnant

women who were administered dinoprostone was 1268.62 ± 2298.19 . It was determined that the difference between the groups was statistically significant (Table 3, $p \leq 0.05$).

It was determined that the mean total delivery time of the pregnant women who were not administered dinoprostone was 434.17 ± 254.62 , and the mean total delivery time of the pregnant women who were administered dinoprostone was 1068.35 ± 551.48 . The difference between the groups was found to be statistically significant (Table 3, $p \leq 0.05$).

It was determined that the mean pain in the latent phase of the pregnant women who were not administered dinoprostone was 5.12 ± 1.83 , and the mean pain of the pregnant women who were administered dinoprostone was 2.52 ± 2.08 . It was determined that the difference between the groups was significant (Table 3, $p \leq 0.05$).

It was determined that the mean pain in the active phase of the pregnant women who were not administered dinoprostone was 7.23 ± 1.56 , and the mean pain in the active phase of the pregnant women who were administered was 6.58 ± 1.41 . The difference between the groups was found to be significant (Table 3, $p \leq 0.05$).

There was no significant difference between the mean pain in the transition phase of the pregnant women who were not administered dinoprostone and those who were administered it. It was determined that there was no significant difference between the 1st and 5th APGAR averages of the pregnant women who were not administered dinoprostone and the newborns of the pregnant women who were administered (Table 3, $p > 0.05$).

Table 4. Comparison of groups' Maternal Birth Perception Scale (MBPS) mean scores.

Scale	Dinoprostone Not Applied	Dinoprostone Applied	Test and p value
	$\bar{X} \pm SS$	$\bar{X} \pm SS$	
MBPS	76.98 ± 14.98	84.38 ± 11.96	$t=3.45, p=0.001$

It was found that the mean MBPS total score of the pregnant women who were not administered who were administered dinoprostone had a mean score of 84.38 ± 11.96 . The difference between the groups was found to be statistically significant when the mean scores of the pregnant women who did not receive dinoprostone were compared (Table 4, $p \leq 0.05$).

DISCUSSION

In the study, a significant difference was found between the dilatation and effusion times of primiparous pregnant women who were administered dinoprostone and those who were

dinoprostone was 76.98 ± 14.98 , while the pregnant women not administered dinoprostone. This is because dinoprostone affects the cervix, which is the target organ, effectively and slowly (23).

A significant difference was observed between the total delivery times of primiparous pregnant women who were administered dinoprostone and those who were not (24). In one study, the time from insertion of the dinoprostone vaginal insert to the onset of labor was reported to be similar (25). It was noted that the use of the insert containing PGE2 extended the duration of labor after its application (26).

A significant difference was found between the VAS scores of the primiparous pregnant women who were administered dinoprostone and those who were not administered dinoprostone in the latent phase and active phase. Slow-release dinoprostone was found to be effective and safe for the induction of labor in low-risk pregnant women (27).

Pain perception was found to be lower in pregnant women who received dinoprostone. The practice shows that dinoprostone is effective in perceiving pain in pregnant women. After the administration of dinoprostone, the fact that the pregnant woman is not tied to the bed can be mobile and the active substance affects the target organ. All these factors cause pregnant women to feel better psychologically and to perceive pain less (23).

There was no significant difference between the VAS scores of the primiparous pregnant women who were administered dinoprostone and those who were not administered dinoprostone at the beginning of the transitional phase.

This difference may be because uterine contractions become effective in pregnant women who reach the transitional phase of labor. There was no difference between the mean 1st and 5th minute apgar scores of newborns in the pregnant groups administered and not administered dinoprostan. In the Apgar scoring system, newborns with an Apgar score of 7 or above are considered healthy (27). In our study, the 1st and 5th minute APGAR scores of newborns were within the normal range. In the study, when Apgar scores were evaluated in terms of neonatal outcomes, no statistically significant difference was found between the groups (28).

In her study comparing dinoprostone and oxytocin in cervical ripening and labor induction, stated that there was no significant relationship between the 1st and 5th-minute APGAR scores between the groups (25). The findings of the studies conducted and the studies presented show the finding The findings of our research are similar to the findings of the studies

conducted. In the study, a significant difference was determined between the birth perception point averages of mothers who received and did not receive dinoprostone.

The mean birth perception score of mothers who received dinoprostan was found to be higher than those who did not. There are no studies on mothers' perception of birth by applying dinoprostone. As a result of our research, it is thought that the mothers perceived the birth positively because the pregnant women who received dinoprostone perceived labor painless. A positive experience can be remembered as an empowering life event connected to personal growth and self-knowledge affecting the transition to motherhood (11).

CONCLUSION

It was determined that dilatation, effacement, and total labor duration were prolonged in pregnant women who received dinoprostan during labor compared to those who did not. It was determined that the pain perception levels in the latent and active phases of pregnant women who were administered dinoprostan were lower than those who were not administered dinoprostan. However, it was found that the pain perception levels of pregnant women in the transitional phase were similar. It was determined that the newborn APGAR score was similar in the 1st-minute and 5th-minute APGAR scores in the dinoprostone and non-dinoprostone groups. It was found that mothers who received dinoprostan had a high level of positive perception of birth. In light of these findings, dinoprostan administration may be preferred because of its maturing effect on the cervix and the advantage of initiating uterine contractions.

Ethical Considerations

For the research, ethics committee permission was obtained from the Clinical Research Ethics Committee (Document Number and Date: 2020/03/15-29.03.2020) and institutional permission was obtained from the hospital where the research was conducted. Written and verbal voluntary consent was obtained from pregnant women who agreed to

participate in the study. The study was conducted by the principles of the Declaration of Helsinki. Permission for use of the scale was obtained from the authors who validated the scale.

Author Contributions

Idea/Concept: HO, NA Design: HO; Supervision: HO; Data Collection: NA; Processing: NA; Analysis/Interpretation: HO, NA; Literature Review: NA, HO; NA Manuscript Writing: NA; Critical Review: HO.

Conflicts of Interest

The authors declare no conflict of interest associated with this study.

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REFERENCES

1. McDonald JS. Obstetric pain. In: McMahon SB, Koltzenburg M, editors. Wall and Melzack's Textbook of Pain. 5th ed. Edinburgh: Churchill Livingstone; 2006:793-816.
2. Lyrenas S, Clason I, Ulmsten U. In vivo controlled release of PGE2 from a vaginal insert (0.8 mm, 10 mg) during induction of labour. Br J Obstet Gynaecol. 2001;108:169-78.
3. Bhattacharyya TK, Shandil MS. Comparison of intracervical prostaglandin E2 and intravenous oxytocin in induction of labour. Med J Armed Forces India. 1998;54:225-8.
4. Leszczyńska-Gorzelak B, Laskowska M, Oleszczuk J. Comparative analysis of the effectiveness of misoprostol and prostaglandin E2 in the preinduction and induction of labor. Med Sci Monit. 2001;7:1023-8.
5. Yörük Ö, Öksüzoğlu A, Engin-Üstün Y, Aktulay A, Yapar Eyi EG, Erkaya S. Comparison of the use of dinoprostone and oxytocin in labor induction in pregnant women with a Bishop score of 4 and below. J Perinatol. 2013;21:107-12.
6. Çetinkaya SE, Söylemez F. Factors affecting success in labor induction and labor induction methods. Ankara Univ Fac Med Mag. 2013;66:25-32.
7. De Bonrosto Torralba C, Tejero Cabrejas EL, Envid Lázaro BM, Franco Royo MJ, Roca Arquillué M, Campillos Maza JM. Low-dose vaginal misoprostol vs vaginal dinoprostone insert for induction of labor beyond 41st week: A randomized trial. Acta Obstet Gynecol Scand. 2019;98:913-9.
8. Wang X, Zhang C, Li X, Qi H, Liu Q, Lei J. Safety and efficacy of titrated oral misoprostol solution versus vaginal dinoprostone for induction of labor: A single-center randomized control trial. Int J Gynaecol Obstet. 2021;154:436-43.
9. Beyer J, Jäger Y, Balci D, Kolb G, Weschenfelder F, Seeger S, et al. Induction of labor at term with oral misoprostol or as a vaginal insert and dinoprostone vaginal insert: a multicenter prospective cohort study. Geburtshilfe Frauenheilkd. 2022;82:868-73.
10. Iravani M, Zarean E, Janghorbani M, Bahrami M. Women's needs and expectations during normal labor and delivery. J Educ Health Promot. 2015;4:31-7.
11. Nilvér H, Begley C, Berg M. Measuring women's childbirth experiences: a systematic review for identification and analysis of validated instruments. BMC Pregnancy Childbirth. 2017;17:203.
12. Gungor I, Beji NK. Development and psychometric testing of the scales for measuring maternal satisfaction in normal and caesarean birth. Midwifery. 2012;28:348-57.

13. Rudman A, El-Khoury B, Waldenström U. Women's satisfaction with intrapartum care: a pattern approach. *J Adv Nurs*. 2007;59:474-87.
14. Bond MR, Pilowsky I. Subjective assessment of pain and its relationship to the administration of analgesics in patients with advanced cancer. *J Psychosom Res*. 1966;10:203-8.
15. Eti Aslan F. Pain assessment methods. *J Cumhuriyet Univ Sch Nurs*. 2002;6:9-16.
16. Cline ME, Herman J, Shaw ER, Morton RD. Standardization of the visual analogue scale. *Nurs Res*. 1992;41:378-80.
17. Apgar V. A proposal for a new method of evaluation of the newborn infant. *Curr Res Anesth Analg*. 1953;32:260-7.
18. Apgar V, Holiday DA, James LS, Weisbrot IM, Berrien C. Evaluation of the newborn infant: Second report. *JAMA*. 1958;168:1985-8.
19. American Academy of Pediatrics and American Heart Association. Textbook of Neonatal Resuscitation. 6th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2011.
20. Marut JS, Mercer RT. Comparison of primiparas' perceptions of vaginal and cesarean births. *Nurs Res*. 1979;28:260-5.
21. Fawcett J, Knauth D. The factor structure of the perception of birth scale. *Nurs Res*. 1996;45:83-6.
22. Gungor I, Beji NK. Effects of fathers' attendance at labor and delivery on the experience of childbirth in Turkey. *West J Nurs Res*. 2007;29:213-31.
23. Jolivet S, Delavallade M, Giraud A, Chauleur C, Raia-Barjat T. Mode of delivery after labor induction with vaginal dinoprostone versus oral misoprostol for women with unfavorable cervix at term. *Eur J Obstet Gynecol Reprod Biol*. 2023;285:7-11.
24. Ting NS, Ding DC, Wei YC. Comparison of the dinoprostone vaginal insert and dinoprostone tablet for the induction of labor in primipara: a retrospective cohort study. *J Clin Med*. 2022;11:3519.
25. Yamaguchi M, Takakura S, Enomoto N, Teishikata Y, Kitamura A, Maki S, et al. Comparison of perinatal outcomes between controlled-release dinoprostone vaginal delivery system (PROPESS) and metreurynter for cervical ripening in labor induction: a retrospective single-center study in Japan. *J Obstet Gynaecol Res*. 2021;47:4256-62.
26. Anh ND, Duc TA, Ha NT, Giang DT, Dat DT, Thuong PH, et al. Dinoprostone vaginal insert for induction of labor in women with low-risk pregnancies: a prospective study. *Med Arch*. 2022;76:39-44.
27. Montgomery KS. Apgar scores: examining the long-term significance. *J Perinat Educ*. 2000;9:5-9.
28. Sire F, Ponthier L, Eyraud JL, Catalan C, Aubard Y, Mazeau PC. Comparative study of dinoprostone and misoprostol for induction of labor in patients with premature rupture of membranes after 35 weeks. *Sci Rep*. 2022;12:14996