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Water Immersion: An Effective Method to Shorten the First and Second Stages of Labor.

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Abstract

Background: *Birth in water; It is an alternative form of birth where the first stage of birth and / or the second stage is performed in a pool filled with warm water at 37 degrees. Our aim is to investigate the effect of immersion in water during labor which is a method that we often apply recently on the birth stages.*

Methods: *The study groups consisted of 104 women undergoing vaginal delivery with immersion in water during labor (group 1) and the control group (group 2) of 104 women undergoing vaginal delivery. All data were taken from patients who have delivered with spontaneous vaginal delivery. The time from the beginning of the active phase to the 10 cm cervical dilatation and the time from the full dilatation to the expulsion of the baby were recorded. First and second stage times have been evaluated.*

Results: *The study groups consisted of 104 women undergoing vaginal delivery with immersion in water during labor (Group 1) and the control group (Group 2) of 104 women undergoing vaginal delivery at the hospital. The women in the two groups were matched with respect to age, parite, birth weight and gestational age . The mean first stage time of labor in the first group was 5.50±1.51 hours and in the second group was 6.08±1.58 hours. The mean second stage time of labor in the first group was 24.4±11.6 minutes and in the second group was 29.7±14.5 minutes.*

Conclusion: *Water immersion during labor in terms of reduction in first and second stage of labor and not cause an increased risk of adverse effects to the fetus/newborn.*

Keywords: *Labor stages; vaginal delivery; water birth*

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İntroduction

In many countries of the world, different alternatives are offered to the mother in the delivery of birth and other applications related to childbirth [1,2,3]. Birth in water; It is an alternative form of birth where the first stage of birth and / or the second stage is performed in a pool filled with warm water at 37 degrees [4,5,6]. The reason for developing different applications about birth is to make the mother feel more comfortable [7]. Being in water; for freedom of movement and the option of giving birth in a comfortable environment so immersion during the first stage of labour is an acceptable birthing alternative to landbirth [8,9]. The birth is a special and unique experience and usually occurs in three stages [10]. First stage; from the onset of regular painful contractions associated with descent of the presenting part and progressive dilatation of the cervix until the cervix is fully dilated. Second stage; from full dilatation of the cervix up to the birth of the singleton baby or the last baby in a multiple pregnancy. At the start of the second stage, the fetal presenting part may or may not be fully engaged (meaning that the widest diameter has passed through the pelvic brim), and the woman may or may not have the urge to push. Third stage; from the birth of the baby until expulsion of the placenta and membranes [11]. In the first and second stage of labor, pain reduction options should be discussed with the woman before the beginning of the birth and offered according to her own wishes and health facility protocols and norms should be used [12]. The need for painkillers is highly variable among individuals and should be evaluated individually. Epidural anesthesia can be applied to suitable patients. Non-pharmacological methods can be offered in appropriate patients [13]. Psychosocial interventions, such as being a birth friend and providing supportive care, may reduce the need for analgesia. Massage applications, hypnosis and water birth are among the methods that are used in our clinic [14,15]. There is evidence that water immersion during the first stage of labour reduces the use of analgesia and reported maternal pain, without adverse outcomes on labour duration, operative delivery or neonatal outcomes [16]. In this study, our aim is to investigate the effect of immersion in water during labor which is a method that we often apply recently on the birth stages.

Material and Methods

This retrospective study was conducted at the Delivery Department of Obstetrics of University of Health Sciences Zekai Tahir Burak Women's Health Education & Research Hospital between April 2017 and January 2019. Study and control groups included women undergoing vaginal delivery with immersion in water during labor and women undergoing vaginal delivery. Data were collected regarding all women's age, gestation age, parity, birth weight , body mass index, first stage time of

labor, second stage time of labor, need for oxytocin use, need of nicu admission and apgar scores. The cervical dilatations of the patients at the time of admission were recorded and the beginning of the first phase of labor was accepted as 4 cm. The time from the beginning of the active phase to the 10 cm cervical dilatation and the time from the full dilatation to the expulsion of the baby were recorded. Exclusion criteria were underwent cesarean delivery for any reason, epidural anesthesia, pre-existing hypertension, pre-eclampsia, pre-existing diabetes mellitus, glucose intolerance, chronic diseases, premature rupture of fetal membranes and other gestational disorders. Patients receiving epidural anesthesia were not included in the study because they would independently affect the duration of labor. All data were taken from patients who have experienced uneventful spontaneous vaginal delivery. Fetal heart monitoring was performed at regular intervals with Doppler or NST. In the second stage of labour, care was taken to ensure the controlled delivery of the head of the fetus. Delivery of the fetal head was completed outside the pool. The study was approved by the local ethic committee of our hospital. Statistical analysis was performed by using IBM SPSS Statistics Software (22.0, SPSS Inc., Chicago, IL). Data has been evaluated for normal distribution by using the Kolmogorov-Smirnov test. The continuous variables were presented by means ± standard deviation and compared by using the independent samples t test when the distribution was normal. The nonparametric variables and data without normal distribution were tested by using the Mann- Whitney U test. The comparison of categoric variables was made by using Fisher's exact test, or the chi-square test according to the relevant statistical test based on patient numbers regarding compared variables. All p values < 0.05 were considered statistically significant.

Results

The study groups consisted of 104 women undergoing vaginal delivery with immersion in water during labor (group 1) and the control group (group 2) of 104 women undergoing vaginal delivery at the hospital. The women in the two groups were matched with respect to age, parity, birth weight and gestational age. Age, parity, gestational age in weeks, birth weight in grams, body mass index, , first stage time of labor, second stage time of labor, need for oxytocin use, need of nicu admission and apgar scores among study and control groups have been compared. The mean age of the women were 29.8±5.0 years and 30.9±4.7 years respectively. The mean gestational age were 39.1±1.2 weeks and 38.7±1.2 weeks. The mean parity were found as 1.7±0.9 and 1.3±1.0 . The mean first stage time of labor in the first group was 5.50±1.51 hours and in the second group was 6.08±1.58 hours. The mean second stage time of labor in the first group was 24.4±11.6 minutes and in the second group was 29.7±14.5 minutes (Table 1).

Table 1. Demographic, clinical and laboratory characteristics of the study group (N:208)

Parameter	Water immersion (n=104)	Control group (n=104)	P value
BMI (kg/m2)	28.4±2.7	27.4±2.5	0.426¶
Age (year)	29.8±5.0	30.9±4.7	0.339¶
Gestational age (week)	39.1±1.2	38.7±1.2	0.175¶
Birth weight (gram)	3368±324	3278±418	0.090¶
First stage of labor (hour)	5.50±1.51	6.08±1.58	0.008¶
Second stage of labor (minute)	24.4±11.6	29.7±14.5	0.008¶
Parity	1.7±0.9	1.3±1.0	0.757¶
Oxitocin use	33(31.7)	37(35.5%)	0.139¶
Apgar 1	7.68±0.75	7.66±0.77	0.959¶
Apgar 2	9.71±0.57	9.72±0.58	0.563¶
Dilatation (cm)	4.5±0.94	4.4±1.0	0.773¶
Nicu admission	5(4.8%)	6(5.8%)	0.832¶

BMI: body mass index, Nicu: neonatal intensivecare unit
Mean ±standard deviation and number (percentage). ¶Chisquare test. A p value<0.05 is considered statistically significant.

Discussion

Water birth is an option for birth all over the world. Carefully managed water birth is both an attractive and low-risk birth management for healthy pregnancies [1]. Water immersion during the first stage of labour significantly reduces epidural/spinal analgesia requirements and reported maternal pain, without adversely affecting labour duration, operative delivery rates, or neonatal wellbeing [16]. In our study, we tried to investigate the effect of immersion in water during birth on the stages of childbirth. Several reports have shown that water immersion shortens the process of labour [17] and some others found no significant difference for the duration of the first stages of labour [18,19].

We found that the first and second stages of labor were shorter in the study group compared to the control group (p:0.008). Besides shortened delivery times; we noted that there was no difference in the need for oxitosin and neonatal outcome between the two groups.

The study demonstrates the advantages of water immersion during labor in terms of reduction in first and second stage of labor and not cause an increased risk of adverse effects to the fetus/newborn.

Conclusion

Warm water immersion hydrotherapy during labor provides comfort, supports relaxation, and is a safe and effective non-pharmacologic pain relief strategy that promotes physiological childbirth also supports dysfunctional labor.

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