Comparing the effect of active and expectant managements of the second stage of labor on perineal status

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Original Article

Abstract

Introduction: Pregnancy and parturition process affects considerably the society's health. Female genital injuries caused by vaginal parturition are very prevalent. This study aims at comparing active and expectant managements of the second stage of labor on frequency of perineal injuries and using episiotomy, as a solution.

Methods: In this quasi-experimental study, a total of 160 qualified pregnant women, diagnosed by a qualified physician, were divided into one of two groups, expectant management group (experimental group, n=80) and active management group (control group, n =80). For the experimental group, in the second stage of labor, researcher did not touch the perineum before the baby's head delivered and just supported the frontal area and urethra. For the control group, the researcher supported perineum using Ritgen Maneuver. Data were analyzed using SPSS 16, T-test, Fisher's exact test and Chi-Squared test.

Results: In the experimental group, women's perinea were significantly healthier than those of women in the control group ($P<0.001$) (38.8% vs. 10%); however, there was not a significant difference between two groups in terms of spontaneous rupture. Need to perform episiotomy in experimental group was 33.8%; whereas control group members' need to episiotomy was 66%, which it was a significant difference ($P<0.001$).

Conclusion: The expectant management of the second stage of labor (perineal control with hand-off technqiue) is accompanied with fewer perineal injuries; therefore, it can be used as a safe technique by the birth centers.

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Introduction:

Genital injuries caused by vaginal parturition are very prevalent among women and most injuries are caused by episiotomy and spontaneous ruptures or both (1). Perineal injury during childbirth is a common complication (2). Perineal tear is usually followed by certain complications such as perineal pain, painful sex, urinary tract problems, and incontinence (3). Episiotomy is an incision designed to enlarge the opening for the baby to pass through

(4). However, it seems that it is a wrong old belief that postpartum pain is lesser and healing process is easier and better for women who experienced episiotomy during their childbirth in contrast to the women who experienced perineal tear. A number of observational studies and casual trials have shown that routine episiotomy is associated with more sphincter and rectal ruptures (5). Recently, the limited usage theory rather its popular function has been agreed and its limited usage is only supported in the necessary medical indications (6). Aralkumaran (2006) argues women who do not receive routine episiotomy need more time to stretch and protect their peritoneum, which in turn prevent degree 3 and 4 tears (7).

Royal College of Obstetricians and Gynecologists argues that the limited use of episiotomy rather its routine use is accompanied with less injury in posterior area of perineum and also fewer stitches; however, more injuries are seen in anterior area of perineum (8). Presently, more than 80% of first and second labors in Iran are accompanied with episiotomy (9); whereas WHO suggests that this technique shall be used in less than 10% of labors (6). Researchers are looking for techniques to minimize the spontaneous peritoneal ruptures. Different manual techniques and maneuvers are used to minimize ruptures and tears by the childbirth therapists; however they have not been completely assessed, yet (10,11).

In Ritgen maneuver in which a child's head is delivered by pressure on the perineum, the speed of delivery is controlled by pressure with the other hand on the chin of fetus. At the same time, with another an upward pressure is applied over occiput. This maneuver facilitates head's controlled delivery and head with its smallest diameters passes the vagina. Some researchers question Ritgen maneuver because of its potential to increase third degree tears in peritoneum and more need to episiotomy and they preferred "hand off" technique in which the therapist does not touch the peritoneum during childbirth. In this technique, a tear similar to adjusted Ritgen maneuver occurs, however, there are fewer third degree tears are seen (5,12). McCandlish et al. (1998) studied 1547 women in Britain and Johnson et al. (2008) studies 1161 women in Australia with the aim of comparing the effect of Ritgen maneuver with hand-off technique on perineal injury; with fewer perineal tears were reported in hand-off technique (13,14). Karoki Dakousta et al. (2005) studied 70 primipara women and they reported a similar result for tears and degree of perineal injury caused by hand-off technique and Ritgen maneuver and their results showed that perineal tear has occurred in 81.4% of women (15). On the other hand, Ikin et al. used Cohort method to study 1068 women and they indicated that using Ritgen maneuver increases the possibility of a healthy peritoneum in the primipara women (16). Since, a comprehensive assessment is necessary for finding the best method to support peritoneum during childbirth; it seems that the research group decided to start a study with the aim of comparing the effect of two active and expectant management of second stage of labor on perineal injuries.

Methods:

A quasi-experimental study on 160 pregnant women in Tehran's Shahid Akbarabadi Medical and Training Center within period of June to September, 2011. The inclusion criteria of this study were all first to fifth-time pregnant women (gestational age 37 to 40 weeks), age range of 18 to 35 years old, live, singleton in cephalic presentation, newborn's estimated weight varies from 400 to 2500 gr, dilatation less than 8 cm and having necessary condition for natural childbirth. Exclusion criteria in this study were prolongation of labor to more than 18 hours, fall of fetus heart rate, using oxytocin, dystocia and delivery with instruments. Simple sampling method was used. After the consent forms were signed by all subjects, the subjects were placed in one of experimental and control groups based on the doctor's diagnosis and the author did not contribute in grouping process. Hence, a total of 160 women were placed in experimental group (psychological management, n=80) and control group (active management, n=80). Because of the study' nature, it was not possible to blind the study for both researcher and pregnant mother. Out of total 160 participants in this study, 14 women in active management group and two women in expectant group were sent to cesarean because of prolongation of labor stages,

fetal pains and meconium and they were replaced by other samples.

In the experimental group (hand-off technique), the assistant of researcher only contributed in observing pass the head and shoulders and only supported the anterior area and urethra when the head passed the vagina. No hand was used to control peritoneum. When the head passed through and a propipette was used to discharge throat and nose secretions, if shoulders failed to pass within 15 minutes, they passed through by the therapists. In this group, medio-lateral episiotomy was used regarding the therapist assistant diagnosis. In control group (hand-on technique), Ritgen maneuver was used to deliver head. In this group, as a general routine, medio-lateral episiotomy method was used for all primipara women and if necessary other women. The research was in control of labor and transported the sample into the labor room when the condition was proper and his assistant performed all labor surgeries. Both mother and newborn results were observed and recorded by the researcher. For collecting data, a checklist about data was prepared through conducting interviews and reviewing cases of patients. The first part of the questionnaire included the demographic data of participants and its second part included some information about childbirth, which were recorded by the researcher. Statistical analysis was performed by SPSS and t-test, Fisher's exact test and Chi- Squared test were used for comparison.

Results:

In this study, 160 pregnant women who have refereed to Tehran's Shahid Akbarabadi Medical and Training Center were included; they were similar in terms of demographic properties and there was not significant statistical different between them (Table 1). Similalrly, the t-test results showed that there was not a significant difference between control and experimental groups in terms of lengths of first and second stages of labor (Table 2).

Postpartum perineal status in three aspects: how much perineum is intact, level of spontaneous ruptures and degree of tears and episiotomy rate in both groups was analyzed (Table 3).

Results of Chi-Squared test showed that there is a significant relationship between a normal perineum in the experimental group ($P<0.001$); as perinea were more normal in this group in contrast to the experimental group (38.8% vs. 10%).

Dividing women based on primipara and multipara women will show similar results, as in the expectant group, 21.4 of the primipara women and 57.9% of multipara women had a normal perineum which indicates that the ratio of normal perineum in the expectant management group, both for primipara women ($P=0.006$) and multipara women ($P=0.001$), was more than that in the active management group and there was a significant relationship.

Table 1. Frequency distribution of demographic properties in both groups

Groups	Experimental group	Control group	P
Properties	Mean ± SD		
Age of mother	23.68±4.767	24.83±4.968	0.269
Pregnancy age (week)	38.98±0.98	38.95±0.87	0.562
Pregnancy rate	1.79±1.015	1.76±0.917	0.870
BMI	25.90±3.38	26.51±3.21	0.250
Weight of newborn	287.24±3049.75	3159±319.52	0.196

Table 2: Comparing length of labor stage in both groups

Groups	Experimental group	Control group	P
Variable	Mean ± SD		
Length of first stage of labor (min)	161.44±99.34	146.06±100.01	0.868
Length of second stage of labor (min)	32.10±27.30	37.51±28.30	0.219

Table 3: Frequency distribution of pregnancy rates and postpartum perineal status in both groups

Groups		Experimental group (n=80)		Control group (n=80)		P
		Frequency	Percentage	Frequency	Percentage	
Rate of Pregnancy	Primipara 45	52.5%	46	57.5%		
	Multipara 38	47.5%	34	42.5%		0.634
Normal Perineum	All women 31	38.8%	8	10%		<0.001
	Primipara 9	21.4%	1	0.2%		0.006
	Multipara 22	57.9%	7	20.6%		0.001
Episiotomy	All women 27	33.8%	53	66.2%		<0.001
	Primipara 20	47.6%	38	82.6%		0.001
	Multipara 7	18.4%	15	44.1%		0.018
Spontaneous Rupture	All women 22	27.5%	19	23.8%		0.587
	Primipara 13	31%	7	13%		0.079
	Multipara 9	23.7%	12	35.2%		0.279
First Dagree Tear	19	23.8%	21			26.2%
Second Dagree Tear	3	3.8%	5			6.2%

Comparing control and experimental groups in terms of spontaneous ruptures and degree of tears, the findings showed that although tears in the experimental group were more than those in the control groups (27.5% vs. 23.8%), there was not a significant relationship between them (P=0.0587).

Tears level by primipara and multipara women were consistent with the general results of women and there was a significant relationship between them. Likewise, the results show that the degrees of tears were 1 and 2 and most women in both groups had first degree ruptures (23.8% in expectant management group vs. 26.2% in active management group). Comparing groups in terms of need to episiotomy, there was a significant relationship between expectant and active management groups (P<0.001); i.e. women in the experimental group (33.8%) and women in the control group (66.2%) experienced episiotomy incision. Dividing women based on their status as primipara and multipara, it was observed that this parameter in the primipara women and multipara women in the experimental groups was 47% and 18.4%, respectively, which was lower than that in the active group. Comparing groups in terms of need to episiotomy, both in primipara (P=0.001) and multipara (P=0.018) women, no significant relationship was found.

Conclusion:

In this study, hand-off perineal control method in the second stage of labor increased the perineal health percentage with a significant difference. In spite of higher rate of tears in the experimental group in contrast to control group, the difference was s\not significant statistical. In this study, no case of third or fourth degree tears was reported. Jahdi et al. (2010) showed that there was a significant difference between experimental and control groups in terms of healthy status of perineum (P=0.0001) and in the hand-off group, the rate of normal perineum was higher (44.9% vs. 10%) (12).

Perineal control with hand-off method in contrast to perineal control with hand-on method was accompanied with less use of episiotomy (33.8% vs. 66.2%) which it was significant difference (P<0.001). McCandlish et al. showed a significant difference (P=0.008) in less use of episiotomy in the hand-off group in contrast to Ritgen group (13). Johnson et al. did not show any significant difference between expectant and active management groups in terms of rat of third and fourth degree tears (14). These results are consistent with our results.

Karouki Costa et al. reported injured perineum in 81.4% of women in both hand-off and Ritgen groups. 82.5% of tears were of first degree (15).

Ikin et al. showed that perineum in primipara women who used hand-on method (Ritgen maneuver) was healthier than that in another group (16), these results were not consistent with our result, which it can be somehow due to racial difference of mother in the two studies.

The results show that the expectant management of the second stage of labor has not any effect on

frequency and severity of tears in primipara and multipara women. Similarly, the expectant management of the second stage of labor in contrast to the active management is associated with fewer use of episiotomy and perineal injuries and since episiotomy increases the risk of perineal lesions, this method can be used as a safe and effective method instead of other current methods for controlling baby's head during childbirth for both primipapar and multipara women. Since, it was impossible in this study to divide casually subjects in two groups; some studies without this constraint for achieving the best method of management of the second stage of labor are suggested.

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