Clinic Article

Effect of continuous support during labor on duration of labor and rate of cesarean delivery

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1. Introduction

The labor and delivery experience is one of the most significant events in a woman's life, and can have strong physical, emotional, and psychological effects [1]. Reducing the negative elements associated with labor and increasing the positive aspects are important considerations. In a study from the Netherlands [2], women were asked about their negative or positive recall of the birth experience 3 years post partum. More than 16% reported a negative experience, and this was more common in primiparous women, those who had instrumental deliveries, and those who did not receive pain relief. The authors concluded that changes to maternity care that would reduce or modify the controllable factors associated with negative recall should be investigated.

The role of continuous support provided to women during labor by a nurse or midwife has also been investigated [4]. The authors suggested that the practice of “being with a woman” during labor should be evaluated in different societies and cultures, and various midwifery services and settings. The practice should be examined for overall satisfaction of the labor and birth experience.

In countries with limited resources, support during the first stage of labor by a female relative has been considered a first step in improving the quality of maternity services [1]. This study found that the number of cesarean deliveries and the necessity for sedation during labor was lower in the supported group, and patient satisfaction was higher [1].

Labor support provided by relatives is not routine practice in Iran. In public centers, 5–7 women will typically share one large room and continuous or one-to-one support of women during labor by a midwife or nurse is not routine practice. Education on the labor process is not provided at admission, and supervision is provided by midwives, who monitor the women under the supervision of obstetricians. In addition, prenatal education on the childbirth experience is performed in few maternity centers. Consequently, most women have a negative recollection of their birth experience and prefer to undergo cesarean delivery in subsequent pregnancies, seen by the high rate of cesareans performed in Iran.

The aim of the present study was to evaluate the effect of continuous support provided to women during labor on the duration of the different stages of labor and the rate of cesarean delivery.

2. Patients and methods

A randomized controlled trial was performed in the Department of Obstetrics and Gynecology of Iran University of Medical Sciences, Tehran, between March and September 2003. According to our pilot study, the difference between the 2 groups for the mean duration of the second stage of labor was estimated to be 20±35 minutes. With an alpha error of 5% and 80% power, we determined that a minimum
...sample size of 48 women in each group would be needed. Written consent was obtained from all eligible participants and the study was granted institutional review board and institutional ethics committee approval.

Inclusion criteria were nulliparous women aged between 18 and 34 years (low risk women), with a gestational age of between 38 and 42 completed weeks, a live singleton fetus, cephalic presentation, an estimated fetal weight of 2500–3400 g, cervical dilatation of 3–4 cm with appropriate contractions (the beginning of active phase of labor), and a reactive non stress test. Fetal weight was estimated using the Johnson formula [5]: fetal weight (g) = fundal height (cm) – n × 155; “n” was considered to be 11 if the head was engaged (vertex below ischial spines) and 12 if the head was not fully engaged (vertex above ischial spines) [5].

Exclusion criteria were any physical or mental disease, genital abnormalities, probable cephalopelvic disproportion (unfavorable pelvis at vaginal examination), fetal distress, placenta previa, and probable placental abruption (any vaginal bleeding), any previous surgical scar on the uterus, any fetal anomaly, and obvious indications for cesarean delivery (e.g. active genital herpes).

Women who met the inclusion criteria were enrolled in the study and randomly allocated to one of two groups using 4-part, block randomization and sealed envelopes labeled A, B, C, and D: envelopes A and C (intervention group) and B and D (routine care group). Patients then chose an envelope, which was opened by the investigator.

Women allocated to the intervention group were shown to an isolated room and were supported by an experienced midwife. The women were free to choose their position, and able to eat and walk about freely. During labor, the midwife explained the process of labor and the importance of body relaxation. Midwife-led support included close physical proximity, touch, and eye contact with the laboring women, and teaching, reassurance, and encouragement. The midwife remained with the woman throughout labor and delivery, and applied warm or cold packs to the woman’s back, abdomen, or other parts of the body, as well as performing massage according to each woman’s request.

Women allocated to the routine care group were admitted to the delivery room were nurses, midwives, and doctors. In Iran, the partograph and electronic fetal monitoring are not used regularly.

Recordings were made of the durations of the active phase (interval between cervical dilatation of 3–4 cm with appropriate contractions until cervical dilatation of 10 cm), second stage (10 cm dilatation until delivery), and third stage of labor (delivery of the neonate until delivery of the placenta), delivery mode, and oxytocin use. Statistical analysis was performed using EPI Info (CDC, Atlanta, GA, USA) and SPSS (SPSS, Chicago, IL, USA) software.

3. Results

A total of 152 women were assessed for eligibility and 52 were excluded because they did not meet the criteria (n = 35), refused to participate (n = 14), or for other reasons (n = 3) (2 cases of unfavorable pelvis and 1 case of vaginal bleeding). Of the remaining 100 women enrolled in the study, 50 were allocated to the supportive care group and 50 to the routine care group.

There were no statistically significant differences for age, gestational age, neonatal weight, employment status, or educational and economic status between the two groups (Table 1).

The duration of both the active phase (167.9 ± 76.3 vs 247.7 ± 101 min; P < 0.001) and the second stage of labor (34.9 ± 25.4 vs 55.3 ± 33.7 min; P = 0.003) were shorter in the supportive care group compared with the routine care group. In addition, fewer women underwent cesarean delivery in the supportive care group than in the routine care group (4 vs 12, P = 0.026) (Table 2).

The rate of oxytocin use, duration of the third stage of labor, and Apgar scores of less than 7 at 5 minutes were similar between the groups (Table 2).

4. Discussion

In the present study, continuous support provided to women during labor showed a shorter duration of the active phase and the second stage of labor, and reduced the rate of cesarean deliveries. The findings of the study may enable researchers to reduce the negative impact of labor and delivery on women, and therefore reduce the likelihood of a woman choosing an elective cesarean delivery in a subsequent pregnancy as a result of a previous negative experience. Consequently, it may convince managers of health services to start the practice of continuous support in Iran, and help to make it routine. Many educated midwives are unemployed in Iran and it would be practical to make this method of continuous support available to women in labor. This approach is less expensive compared with the costs of performing the high number of cesarean deliveries, and may help reduce the maternal mortality and morbidity due to unnecessary cesarean operations.

Bruggemann et al. [6] showed that patients supported by a companion of the patient’s choice were more satisfied with the birth process. In a study by Khresheh [1], pregnant women were supported by one of their relatives during labor. The number of cesarean deliveries performed and sedative use were both lower in the supported group than in the control group, but labor duration was not significantly different between the two groups. At the end of the study, the supported group reported a more positive labor experience than did the control group [1]. Hatem et al. [7], showed that women who received midwife-led care were less likely to experience use of regional anesthesia, episiotomy, and instrumental delivery, and more likely to experience no intrapartum analgesia/anesthesia and spontaneous vaginal delivery. The effect of psychosocial support provided by doulas has also been investigated in Mexico [8]. The supported women showed increased exclusive breastfeeding for 6 months and shorter duration of labor, without significant effects on drug interventions. The researchers suggested that this kind of support by relatives should be studied in countries where it is not currently available.

Support during pregnancy provided to pregnant women at risk of having low birth weight babies may be helpful in reducing the

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* Values are given as mean ± SD or number (percentage).
likelihood of cesarean delivery, although it is unlikely to reduce the occurrence of preterm deliveries and low birth weight infants [9]. Continuous support of women provided during labor by any type of “supporter,” including nurses, midwives, or lay people, has been reported as beneficial for shorter duration of labor, a spontaneous vaginal delivery, less requirement for intrapartum analgesia, and a more positive birth experience [10]. This benefit was observed even when the support was provided by a person who was not a member of the hospital staff [10], showing that special expertise is not required to provide support.

Supporting behavior may include physical, emotional, instructional, informative, and advocacy [11]. Fathers can be good supporters during labor, and greater acceptability of this role has been shown, but this issue should be evaluated in different cultures [12]. For example, in a study of Turkish and German fathers [12], the researchers concluded that the birth support role of the father had increased over a 10-year period; however, ethnic Turkish men were more likely to participate in a birth support role alongside female family members, showing that cultural differences still play a role and should be considered as an important factor.

Another study showed that food intake during labor did not increase the rate of maternal and fetal complications, or vomiting [13]. Duration of labor and number of operative deliveries were similar among women who were allowed to eat and those who only drank water during labor.

For middle-class women in the USA who did have the support of a male partner during labor, and were fully educated about the process of labor, additional support provided by a doula significantly decreased the likelihood of cesarean delivery and requirement for epidural analgesia [14].

In conclusion, the present study adds to the existing evidence that continuous support of women during labor may improve the outcome and birth experience of women by reducing the duration of labor and the number of cesarean deliveries; this model of support should be available to all women and should be introduced as routine practice in Iran.

Conflict of interest

The authors declare that they have no conflict of interest.

References