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Research Article

## THE MANAGEMENT PROCEDURE FOR THE FOURTH STAGE OF LABOR IN SOUTHWESTERN IRAN

Ashtari faranak <sup>1</sup>, Afshari Poorandokht <sup>2\*</sup>, Najar Shahnaz <sup>3</sup><sup>1</sup> MS.c in Midwifery Jundishapur University of Medical Sciences, Ahvaz, Iran<sup>2</sup> MS.c in Midwifery, Lecturer in Midwifery Department, Reproductive Health Promotion Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran<sup>3</sup> MS.c in Midwifery Jundishapur University of Medical Sciences, Ahvaz, Iran

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**Abstract:**

**Introduction:** In each of the four stages of labor, including dilatation, embryo withdrawal, placental withdrawal, and an hour after labor, there is a potential for multiple complications that can lead frequent increase in maternal mortality and morbidity. Despite the vital importance of maternal control at the first hour after labor, referred to as the fourth stage of delivery due to its importance, unfortunately, there are still few studies with emphasis on the fourth stage of labor in the world and Iran. Therefore, the present study aims to determine the management procedure for the fourth stage of labor in Khuzestan Province.

**Method:** This study was a descriptive study conducted on 14 randomly selected hospitals in Khuzestan. The information form used was a researcher-made form, the validity and reliability of which were confirmed by content validity and simultaneous observation. The researcher completed the first part questions after entering the delivery department, and then then personally observed the process of controlling parturient woman from the beginning of the fourth stage and completed other parts of the information form in accordance with the measures taken by the childbirth agents.

**Results:** Uterine massage was immediately performed after labor and follow-up on the basis of the routine of the hospital and not according to the country's protocol of natural delivery. Inadequate care needed in the early hours after delivery, during which the highest maternal mortality and maternal complications occur, was seen in a number of cases. Family planning education, baby care, postpartum nutrition and personal health care were performed in 64.9%, 67.7%, 59% and 77.8% of deliveries, respectively.

**Conclusion:** It is recommended that authorities put emphasis on the implementation of childbirth practices consistent with the national protocol for normal delivery and the assessment of maternity hospitals based on this protocol.

**Keywords:** Fourth stage of labor, postpartum hemorrhage, maternal postpartum education

**Corresponding author:****Afshari Poorandokht,**

MS.c in Midwifery, Lecturer in Midwifery Department,

Reproductive Health Promotion Research Center,

Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

E-mail: P\_afshary@yahoo.com

Phone No: 00989217573237

Fax No: 00986113738333

QR code



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**INTRODUCTION:**

Delivery has a special physical and emotional significance for the mother and the baby, and although it is considered to be a natural process, it can potentially be dangerous in some cases [1]. In each of the four stages of labor, which include dilatation, embryo withdrawal, placental withdrawal, and an hour after delivery, there is a risk of multiple complications that can increase maternal mortality and morbidity [2]. Typically, postpartum hemorrhage refers to loss of 500cc or more of blood after the completion of the third stage of labor [3]. Postpartum hemorrhage is one of the main causes of maternal mortality and morbidity, and its prevalence is different in terms of criteria used for its definition, and is approximately between 1% and 5% of deliveries [4]. Postpartum hemorrhage [PPH] accounts for nearly a quarter of all maternal pregnancy deaths [5]. Diagnosis of postpartum hemorrhage refers to loss of blood greater than 500ml after vaginal birth and 1000 ml after cesarean section [6]. Also, excessive postpartum hemorrhage is characterized by a 10% drop at the hematocrit level and a need for post-partum blood transfusion. This severe hemorrhage occurs in 4% of vaginal and 6% of cesarean deliveries [7]. Many studies have shown that many PPH-related deaths can be reduced with immediate and timely diagnosis and aggressive treatment [8]. Population-based studies in Canada [9] and Australia [10] indicate an increase in PPH incidence over the past decade. This increase is due to an increase in delivery of cesarean section, an increase in the number of births, an increase in the number of pregnancy rates and an increase in number of elderly mothers [11]. The common cause of PPH is the weakness of the uterine contraction, and about 80% of the cases may be attributed to excessive uterine distension, infection, placental abnormalities, or bladder distension [12]. Oxytocin is a primary and standard treatment to prevent PPH. This compound may not be suitable for preventing PPH, especially in patients with pre-eclampsia, heart patients, or prolonged delivery. Therefore, the use of misoprostol, a potent uterine contraction, is especially increasing in controlling PPH [13]. However, prostaglandin derivatives are not used routinely in the management of the third stage of labor, but they are used in cases of Uterine relaxation in the fourth stage; however, these materials are sometimes associated with complications such as nausea, vomiting, diarrhea and fever [14]. In their study on the effect of date on the prevention of PPH, Mojahed et al. concluded that the mean hemorrhage level in the oxytocin group was greater than the oxytocin+date group at the end of the first 2 hours postpartum [15]. In a study on the complications of the fourth stage of labor in two groups of women according to the time of admission, Naghizadeh et al. found that the rate of uterine atony, placenta retention,

grade-3 and 4 rupture, need for uterine massage from abdomen, uterine cureage, methergine prescription was respectively 3.6%, 8.8% 0.0%, 59.2%, 12.8%, 4.8% and 1.6% in the group admitted to hospital in the latent phase. These rates were respectively equal to 0.4, 6.8% 0.4%, 38%, 8.8%, 3.2% and 0% in women admitted to hospital in latent phase. Ultimately, though, more measures were taken to control early postpartum hemorrhage in the latent phase group than the active phase, these measures were only significant for the uterine massage from the abdomen [ $p= 0.001$ ] [16]. Despite the vital importance of maternal control at the first hour after labor, referred to as the fourth stage of delivery due to its importance, unfortunately, there are still few studies with emphasis on the fourth stage of labor in the world and Iran. Therefore, the present study aims to determine the management policies in the fourth stage of labor in Khuzestan Province.

**METHOD:**

This study was descriptive research that was conducted on 14 hospitals randomly selected from among 37 maternity hospitals in the province. Sampling was carried out after obtaining permission from the the head of the hospitals. For each hospital, the sample size was determined by a statistician based on the delivery ratio of each hospital in the last year. The instrument was a researcher-made information form, the validity and reliability of which were confirmed by content validity and simultaneous observation. This information form was comprised of 3 parts. The first part contains 9 questions on the demographic status of the mother. The second part included 18 items on the measures taken by the hospital staffs for the mother during the fourth stage of labor. The third part included 9 questions on the childbirth implications. This study included all the mothers who referred to the selected maternity wards for normal delivery. The researcher completed the first part questions after entering the delivery department, and then then personally observed the process of controlling the parturient woman from the beginning of the fourth stage and completed other parts of the information form in accordance with the measures taken by the childbirth agents. He also monitored measures such as controlling vital signs, controlling the amount of hemorrhage, the relationship between the childbirth agent and the parturient woman, the breastfeeding monitoring, maternal nutrition, and the necessary training given to the parturient woman. Finally, questions on the childbirth outcomes, such as the amount of hemorrhage and the measures taken in case of this problem, were completed. Chronometer [WESTAR] and eye estimation method were used to respectively calculate the time and to determine the amount of PPH according to the national protocol on natural delivery. It should be noted that the researcher

attempted to visit the hospital based on the work shifts of all midwives of the hospital so that describing the selected samples in hospitals reflect the actual and general situation; so that all sampling are carried out in different shifts and the actions of most midwifery personnel will be observed. The data were analyzed using SPSS ver. 21.

### RESULTS:

The most frequent age group and level of education was 18-35 years [88.9%] and middle school education [24.7%], respectively. University education with 6.9% was less frequent than the other education levels. Our findings indicated that housewives accounted for 97% of the participants. The highest parity was seen in the second to fourth pregnancy group [58.8%]. A total of 64.29% of the hospital managers stated that their staffs had received the necessary training on the national delivery protocol; however, the performance of maternity staffs in 13 hospitals [92.86%] is implemented in accordance with the opinions and instructions of the specialist physician of the same hospital. The verbal communication of the childbirth agent with the mothers was performed in 87.3% of deliveries. According to the national delivery protocol [2011], a proper visual, verbal and emotional

communication should be established with mothers. Mothers should be also supported psychologically, should never be left alone, should be talked with and their questions should be answered [17]. The results of the present research indicate that the situation is desirable in this regard. National delivery protocol on the maternal privacy states that parturient woman's privacy should be respected since her admission in the maternity ward, which indicates that beds should be separated [at least with paravan, curtains or walling], which was performed in 60.67 % of deliveries in the present study. The results of the present research indicate that the situation is relatively desirable in this regard. Mothers were explained about taking care and treatment measures in 37% of the deliveries. Uterine massage was immediately performed after labor and follow-up on the basis of the routine of the hospital and not according to the country's protocol of natural delivery. Inadequate care needed in the early hours after delivery, during which the highest maternal mortality and maternal complications occur, was seen in a number of cases [Table 1]. Family planning education, baby care, postpartum nutrition and personal health care were performed in 64.9%, 67.7%, 59% and 77.8% of deliveries, respectively [Table 2].

**Table1: Frequency distribution of the management of the fourth stage of labor for research subjects**

| Variable   |                  | Number | Percent | Total deliveries [percentages] * |
|--|------------------|--------|---------|----------------------------------|
| Uterotonics injection                                |                  | 405    | 100     | 405 [100]                        |
| Uterine massage                                      |                  | 405    | 100     | 405 [100]                        |
| Uterine massage intervals                            | Every 15 minutes | 190    | 53/1    | 405[100]                         |
|  | Every 30 minutes | 144    | 40/2    |                                  |
|  | Irregular        | 24     | 6/7     |                                  |
| Ensuring the urinary excretion                       | Yes              | 341    | 84/2    | 405[100]                         |
|  | No               | 64     | 15/8    |                                  |
| Control of vital signs                               | All items        | 182    | 45/7    | 398[100]                         |
|  | Imperfectly      | 216    | 54/3    |                                  |
| Time criterion for controlling blood pressure        | Every 15 minutes | 148    | 36/6    | 404[100]                         |
|  | Every 30 minutes | 110    | 27/2    |                                  |
|  | Not checked      | 54     | 13/4    |                                  |
|  | Other cases      | 92     | 22/8    |                                  |
| Time criterion for controlling pulse and respiration | Every 15 minutes | 120    | 29/7    | 404[100]                         |
|  | Every 30 minutes | 71     | 17/6    |                                  |
|  | Not checked      | 111    | 27/5    |                                  |
|  | Irregular        | 102    | 25/3    |                                  |
| Temperature control                                  | Yes              | 301    | 74/5    | 404[100]                         |
|  | No               | 103    | 25/5    |                                  |
| Hemorrhage control                                   | Yes              | 401    | 100     | 401[100]                         |
|  | No               | 0      | 0       |                                  |

**Table2: Frequency distribution of training procedure adopted for mothers**

| Variable                       |     | Number | Percent | Total deliveries [percentages] * |
|--------------------------------|-----|--------|---------|----------------------------------|
| Family planning education      | Yes | 263    | 64/9    | 405[100]                         |
|                                | No  | 142    | 35/1    |                                  |
| Individual health education    | Yes | 315    | 77/8    | 405[100]                         |
|                                | No  | 90     | 22/2    |                                  |
| Baby care education            | Yes | 272    | 67/7    | 402[100]                         |
|                                | No  | 130    | 32/3    |                                  |
| Postpartum nutrition education | Yes | 239    | 59      | 405[100]                         |
|                                | No  | 166    | 41      |                                  |

**DISCUSSION:**

In this study, the actions of childbirth agents were observed in the fourth stage of labor in 405 deliveries. The results suggest that uterotonics were injected following all deliveries. The results of this study are consistent with the standard method. Also, uterine massaging was performed in 100% of deliveries observed. However, massages were performed with different time intervals [Table 1]. According to the national vaginal delivery protocol [2011], the uterine fundus should be massaged immediately after the complete withdrawal of the placenta, and make sure that is contacted. This procedure should be repeated every 15 minutes during the first two hours postpartum. After each uterine massage, it must be ensured that the uterus is not soft and loose. Massage of the the uterine fundus immediately after delivery leads to myometric stimulation thereby uterine contraction, homeostasis and release of the clots. This massage only takes place when the fundus is not rigid, since excessive myometric stimulation can contribute to the tiredness and relaxation of the muscle [17]. In a study, Matar [2010] reported that the uterine massage was performed in 80% of deliveries [18]. In a study, Nagizadeh has also reported that uterine massage was performed in 59.2% of mothers [16]. In a study on the quality of care in severe hemorrhage in the three regions of France, Boviri et al. also showed that a lower standard of care was seen in 38% of the severe obstetric hemorrhages in France [19]. In addition, Kamalifard et al. also stated that preventive measures for postpartum hemorrhage were appropriate in 68.5% of cases and believed that proper education of preventive measures for postpartum hemorrhage is necessary in this regard, [20]. The results of the present

study are not consistent with the results of the above studies on the intervals of massages, which seem to be attributed to lack of midwifery staffs and surgery based on the hospital routines; however, the results of the present study are consistent with other preventive

measures. The results showed that abnormal PPH was 7.1% and atony and genital tract injuries account for 88.9% and 11.1% of cases, respectively. In a study on the complications of the fourth stage of labor in two groups of women according to the time of admission, Naghizadeh et al. found that the rate of uterine atony was 3.6% in the group admitted to the hospital in the latent phase. These rates were 0.4 in women admitted to hospital in active phase [16].

In this study, urinary excretion was assured in 84.2% of obstetric deliveries. Therefore, the status of the study population is desirable in this regard. According to the national protocol for natural delivery, maternal urinary excretion should be ensured at this stage. The expected rate of urinary drainage is 150cc. Mothers should be encouraged to empty the bladder. If they were not able to empty their bladder up to 4 hours after delivery, conditions of the bladder, vagina and vulva should be first examined in terms of hematoma. Urinary retention is a risk sign [17]. In the present research, all of the vital signs were completely checked in 45.7% of the total deliveries. According to the national protocol on vaginal delivery, blood pressure, pulse and respiration should be controlled in every 15 minutes and temperature one time in the fourth stage of labor [17]. The American Academy of Pediatrics and the American College of Obstetricians and Gynecologists have recommended that the maternal blood pressure and pulse rate should be measured and recorded immediately after childbirth and every 15 minutes for one hour [21]. The results of the present research are not consistent with the vaginal delivery protocol, which seems to be due to lack of midwifery staffs, fatigue due to the work shift of midwifery personnel, lack of awareness of deadly risks due to lack of control of vital signs or lack of prioritizing this task in the hospital's routine system. Patient education is one of the important measures that should be taken into consideration in the hospital. In the present research, level of attention to individual education was desirable

and newborn care education, family planning, and postpartum nutrition was relatively desirable.

### CONCLUSION:

The results of the research indicate that midwives need continuous in-service training in order to be familiarized with newly developed protocols and a new therapeutic strategy in the midwifery field, especially for the prevention and treatment of postpartum hemorrhage. In this regard, Kruskoe writes: The quality of education offered to empower midwives has a profound effect on the provision of health cares by midwives in postpartum period [22]. Therefore, planning and improving the education status for qualification is important in formulating appropriate strategies to reduce maternal mortality and morbidity [23].

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