

# The Effect of the Full-time Nursing Staff Accompanying to Elderly Parturients Combined with Percutaneous Electrical Stimulation

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**Abstract:** This study is to investigate the effect of the full-time nursing staff accompanying to elderly parturients combined with percutaneous electrical stimulation. In our hospital from January 2017 to December 2017, 95 elderly primiparas were randomly divided into control group (48 cases) and nursing group (47 cases). The control group was given perinatal routine care, the observation group was given full-time nursing staff accompanying combined percutaneous electrical stimulation. The delivery pain score, labor process, postpartum bleeding volume, postpartum urinary retention and neonatal Apgar score were compared between the two groups. When the mother's cervical opening is 3cm, the VAS score of nursing group patients was  $8.34 \pm 1.28$ , but the VAS score in control group was  $5.16 \pm 1.87$ . However, when the mother's cervical is fully opened, The VAS between the two groups is not statistically different. As can be seen from Table 3, in the nursing group of the whole-process companion nursing combined with the percutaneous electrical stimulation treatment, the time of the labor process is two hours lower than the control group. Postpartum bleeding in nursing group was  $159.25 \pm 40.23$  ml, but postpartum bleeding in nursing group was  $210.22 \pm 40.46$  ml. Therefore, the postpartum hemorrhage in nursing group is obviously reduced. In the nursing group, the number of patients with postpartum urine storage was 2, but in the control group, it rose to 11. These results including the time of labor process, postpartum bleeding and the cases of postpartum retention of urine were statistically different between two groups ( $P < 0.05$ ). Apgar score for neonates after birth at 1 minute, 5 minutes or 10 minutes was similar between two groups ( $P > 0.05$ ). The whole course accompanying nursing combined with percutaneous electrical stimulation therapy is used in the natural delivery of elderly parturients to reduce the pain of delivery, shorten the labor process, improve the postpartum hemorrhage and reduce the incidence of postpartum urinary retention. But it had no obvious effect on neonatal Apgar score. In conclusion, the full-time nursing staff accompanying with percutaneous electrical stimulation therapy is safe and reliable.

**Keywords:** Elderly Parturient, Percutaneous Electrical Stimulation, Full-time Nursing Staff Accompanying, Delivery Pain, Postpartum Urine Retention

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## 1. Introduction

At present, it is recognized that mental factors and birth canal, labor force and fetus are the four major elements of delivery [1]. Delivery pain is a complex physical and psychological superposition. Most of the pain is due to the contraction of uterine muscle fibers. At the same time, the parturient is full of tension and fear of delivery, which aggravates the pain. According to literature reports, more

than 56.2% of parturients have fear and anxiety [2]. Severe pain can lead to poor contraction of uterine muscle fibers, resulting in dystocia and increased postpartum bleeding. In addition, it can also lead to insufficient placental blood supply, resulting in fetal hypoxia in the uterus and neonatal asphyxia. These will pose a serious threat to the safety of parturients and infants [3]. The medical model has gradually changed, and more and more attention has been paid to the relationship between psychosocial factors and health [4].

Obstetrics and gynaecology medical staff pay more and more attention to how to reduce the pain and anxiety of elderly parturients, make them feel safe and comfortable in the process of delivery, and ensure the safety of maternal and infant life. In order to explore a comfortable, safe and effective method of labor analgesia, this study is to investigate the effect of the full-time nursing staff accompanying to elderly parturients combined with percutaneous electrical stimulation.

## 2. Methods

### 2.1. General Data

From January 2017 to December 2017, 100 elderly parturients were enrolled in this study. All of them were single fetus, head position, good cervix, normal pelvis, fetal movement and normal fetal heart. B-ultrasound showed that the size of uterus was the same as that of gestational week, and antenatal examination was normal, no systemic diseases and other pregnancy complications, complications, regular antenatal examination and follow-up. Contraindications were excluded: 1 cardiac pacemaker; 2 Epilepsy; 3 mental abnormality; 4 other severe internal and surgical diseases; 5 cases with electrical stimulation sensitive; 6 skin damage. All parturients signed informed consent. Among them, 2 cases in the observation group chose other analgesia because of unbearable pain, 2 cases in the control group chose drug analgesia because of unbearable pain, and 1 case underwent cesarean section. A total of 95 cases were truly enrolled in this study. There was no significant difference in age, body weight and gestational age between the two groups (Table 1) ( $P > 0.05$ ).

Table 1. General data of two groups.

Group	n	Age (year)	Weight (kg)	Gestational age (week)
Control	48	37.2±3.5	67.8±7.8	38.27±1.62
Nursing	47	37.5±3.3	68.1±7.4	38.81±1.27

### 2.2. Nursing Method

All parturients were treated according to the routine obstetrics, oxygen inhalation, routine monitoring of vital signs, establishment of venous channels and fetal heart rate monitoring. The control group delivered according to the traditional midwifery mode. When the parturients had regular uterine contraction, the parturients were sent to the waiting room, which were completed by the waiting room, delivery room and postpartum observation. The midwifery was carried out in two shifts, and the routine nursing was carried out after entering the delivery room.

The observation group carries out one-to-one full-time companionship, which is completed by midwives who have experience in childbirth and received professional birth course nursing training. When the parturient appeared regular uterine contraction, the midwife closely observed the uterine contraction, and the parturient could enter the delivery room

when the cervical orifice was open for more than 2 cm. Two hours after ending of the birth, she will be sent back to the rest and recuperation room. During this period, parturients are given physical, psychological, emotional support and help in a full range of services. When the uterine neck opening is more than 3 cm, the parturient will be treated with Label delivery Analgesia (provided by Wuhan Runze Hongye Medical Technology Co., Ltd.). The second stage of labor is over and the machine will be stopped. The electrode film was used alternately between T12~L1. Half hour after delivery, one piece of electrode film was attached to the middle of the lower abdomen, one piece was pasted to the pubic symphysis and sacral tail, and the treatment lasted for 20 minutes for 2 times. Pulse intermediate frequency electrical stimulation, current intensity 0.1-0.3 mA, it is appropriate for parturients to experience tingling, muscle tremor and tolerance.

### 2.3. Observational Indexes

The observed indicators include the VAS, the labor cycles, postpartum bleeding, postpartum retention of urine and Apgar score for neonates.

VAS score less than 1 was painless. A VAS score of 1 to 3 is mild pain; Moderate pain ranges from 4 to 6. Severe pain was classified as 6~9; A score above 9 indicates severe pain [5].

Apgar score for neonates: The Apgar score for neonates includes muscle tension, respiration, pulse and frowning stimulation. The Apgar score for neonates is normal with a maximum score of 10, moderate asphyxia with a maximum score of 7-10, mild asphyxia with a maximum score of 4-7, and severe asphyxia with a maximum score of less than 4 [6].

### 2.4. Statistical Analysis

The data of 95 patients were analyzed by SPSS20.0 software. Measurement data are presented as mean ± standard deviation (SD). Enumeration data were evaluated with the chi square test and categorical data were compared by the Wilcoxon signed rank test. And P-value of <0.05 was considered statistically significant.

## 3. Results

### 3.1. VAS Score of Labor Process

When the mother's cervical opening is 3cm, the VAS score of nursing group patients was 8.34±1.28, but the VAS score in was 5.16±1.87, and the results was similar to cervical opening 3 cm when the mother's cervical opening is 7-8cm. However, when the mother's cervical is fully opened, The VAS between the two groups is not statistically different. This indicates that percutaneous electrical stimulation is effective in reducing pain during the incubation period, but the analgesic ability is not good during the active stage of labor.

**Table 2.** Comparison of VAS score between the two groups ( $\bar{x} \pm s$ ).

Group	n	degree of openness of the cervix		
		3cm	7-8cm	Full open
Control	48	8.34±1.28	8.69±1.31	8.26±1.08
Nursing	47	5.16±1.87	5.95±1.37	8.57±1.43
P		<0.0001	<0.05	>0.05

### 3.2. Labor Process, Postpartum Bleeding and Postpartum Retention of Urine Between the Two Groups

As can be seen from Table 3, in the nursing group of the whole-process companion nursing combined with the

**Table 3.** Comparison of VAS between the two groups ( $\bar{x} \pm s$ ).

Group	n	labor process (h)	Postpartum bleeding (ml)	Postpartum retention of urine (n)
Control	48	8.15 ± 2.45	159.25±40.23	2 (4.17%)
Nursing	47	10.24±2.75	210.22±40.46	11 (23.04%)
P		<0.05	<0.05	<0.05

### 3.3. Apgar Scores for Neonates Between the Two Groups

Apgar score for neonates at 1 minute after birth in control group was 9.30±0.12, and the nursing group Apgar score for neonates is 9.26±0.26. The results of two groups is very similar, and there is not statistically different between two groups ( $P>0.05$ ) (Table 4). In addition, Apgar score for neonates after birth at 5 minutes or 10 minutes was similar between two groups. It can be seen that the whole course of accompanying nursing care combined with the labor analgesia device has no significant impact on the basic vital signs of newborn, which is safe and reliable.

**Table 4.** Comparison of Apgar scores for neonates between the two groups.

Group	n	Apgar score for neonates after birth		
		1 min	5 min	10 min
Control	48	9.30±0.12	9.74±0.20	9.86±0.14
Nursing	47	9.26±0.26	9.69±0.19	9.73±0.27

## 4. Discussion

The commonly used methods of labor analgesia are drug analgesia and non-drug analgesia [7, 8]. Drug analgesia (spinal block labor analgesia) is widely used because of the exact analgesic effect, but this analgesia method is invasive, and the risks can not be ignored [9]. Elderly parturients are a special group of pregnant women, there are some differences between psychological and general age parturients [10]. Therefore, our department takes the whole course accompanying nursing combined with the skin electric stimulation treatment as the countermeasures. During the whole process accompanying nursing, we paid special attention to the physiological and psychological requirements of the elderly parturients, aiming at the tension, anxiety and pain and discomfort of the patients, to achieve timely and appropriate posture guidance, continuous psychological, physiological and emotional support, timely detection of problems and intervention as soon as possible.

Lopez instrument belongs to the scope of percutaneous electrical stimulation, and is more and more widely used in

percutaneous electrical stimulation treatment, the time of the labor process is two hours lower than the control group. Postpartum bleeding in nursing group was 159.25±40.23 ml, but postpartum bleeding in nursing group was 210.22±40.46 ml (Table 3). Therefore, the postpartum hemorrhage in nursing group is obviously reduced. In the nursing group, the number of patients with postpartum urine storage was 2, but in the control group, it rose to 11. These results including the time of labor process, postpartum bleeding and the cases of postpartum retention of urine were statistically different between two groups ( $P<0.05$ ).

clinical labor analgesia. Some studies have shown that it is beneficial to activate the self-analgesia system and promote the secretion of endogenous analgesic substances such as opioid peptides [11]. Through the instrument setting, the stimulation frequency can be synchronized with the contraction frequency of uterine smooth muscle, and muscle stimulation can be used to hinder nerve conduction and achieve the purpose of relieve pain [12]. Therefore, it can promote the smooth delivery, have the advantages of good safety. Some scholars believe that the analgesic principle of stimulating bilateral Hegu acupoints is through deep tissue receptors, causing the participation of central nervous system and body fluid, increasing the pain threshold [13]. Acupuncture can stimulate sensory fibers of trunk nerve, introduce it into spinal cord center to excite it, and then excite pelvic nerve cluster through sympathetic nervous system, which leads to physiological change of uterine muscle and uterine contraction [14]. In addition, based on the traditional theory, we think that vaginal delivery in elderly parturients, due to the decrease of pelvic floor muscle strength and perineal tissue elasticity, may prolong the labor process and increase the incidence of urinary retention. Postpartum urinary retention is a common complications after delivery, which brings obvious physical burden and mental pressure to parturients [15]. We adopted the method of early treatment and active prevention. 0.5 hours after delivery, we gave the lower abdomen and lumbosacral muscles skin electrical stimulation, strengthened the observation of postpartum urination, reduced the pain of parturients and promoted postpartum recovery.

In conclusion, we treat the high-age parturient through the process of the whole-course company nursing and the Lopez delivery analgesia instrument, effectively block the vicious circle of pain-anxiety-pain, reduce the labor pain, shorten the labor process, improve the postpartum hemorrhage of the parturient, and reduce the incidence of post-partum urine retention. It has no obvious effect on the basic vital signs of newborns, is safe and reliable, has positive effect, and is worth popularizing. We also believe that with the multi-disciplinary integration of medicine, psychological medicine,

physiotherapy medicine and perinatal science multi-disciplinary in-depth development of each other, obstetrical care will continue to develop, increasingly perfect, better and more comprehensive to meet clinical needs.

## 5. Conclusion

The whole course accompanying nursing combined with percutaneous electrical stimulation therapy is used in the natural delivery of elderly parturients to reduce the pain of delivery, shorten the labor process, improve the postpartum hemorrhage and reduce the incidence of postpartum urinary retention. But it had no obvious effect on neonatal Apgar score. In conclusion, the full-time nursing staff accompanying with percutaneous electrical stimulation therapy is safe and reliable and it can be widely promoted in clinical applications.

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