

Effect of TENS Treatment Mode for Labor Pain and its Influence on Perinatal Women

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Abstract

This study is to observe the analgesic effect of TENS and its influence on postpartum stress hormone. The patients were randomly divided into three groups: comfortable care+TENS group, comfortable care+PCA group, comfortable care+false TENS group. 1. One hour after operation before analgesia. VAS score of postpartum pain was performed at 7 time points (before analgesia, 5 min after analgesia, 15 min after analgesia, 30 min after analgesia, 60 5min after analgesia, 24 h after analgesia, 48 h after analgesia); The VAS score of comfortable care+TENS group decreased significantly compared with that of sham TENS group after 30 minutes of analgesia ($P<0.05$); There was no significant difference in VAS between comfort care+TENS group and comfort care+PCA group 30 minutes after analgesia ($P>0.05$).

Keywords

Transcutaneous Electrical Nerve Stimulation; Labor Analgesia.

1. Introduction

In a series of medical and social problems related to labor pain, pain is the most prominent problem [1]. Delivery pain and uterine contraction pain are more severe within 24 hours to 72 hours after operation, which not only brings physical and mental pain to the parturient, affects the rest of the parturient, but also is an important factor of post delivery complications. Analgesia is different from other analgesia. In addition to labor pain, there are also uterine contraction pain and pulling pain. Postoperative use of analgesics can alleviate the pain of the parturient, but it will have a certain impact on the milk [2-3]. Therefore, we urgently need an effective and economical analgesic method to improve the stress state of parturient. The purpose of this study was to observe the analgesic effect of TENS on parturients and its effect on postpartum stress hormones (adrenocorticotrophic hormone and prostaglandin), so as to promote the health of mothers and infants in a simpler and more economical way.

2. Object and Method

2.1. Experimental Grouping

All the selected cases were from 25 eligible primipara who were delivered in a gynecology and obstetrics hospital in Jiaying. The patients were randomly divided into two groups: ① comfortable nursing+TENS group (9 cases); ② Comfortable nursing+patient controlled analgesia PCA group (10 cases); ③ Comfortable care+false TENS group (6 cases) ".**Operation method**

2.2. Establishment of TENS Treatment Mode for Labor Pain

TENS treatment started 1 hour after operation, once a day. First, use 100Hz to induce for 10 minutes, and then use 2/100Hz for 30 minutes. The time point of analgesia was 0 min after 10 minutes of 100 Hz induction. 5 min of 2/100Hz action is 5 min after analgesia, 15 min of 2/100Hz action is 15 min of analgesia, 30 min of 2/100Hz action is 30 min of analgesia, and so on.

TENS related parameter settings:

The instrument uses SV-LF201 multi-function low-frequency therapeutic instrument (Shenzhen Xinghui Technology Co., Ltd.). Dual channel, pulse range 46 μ S-2.5ms, the pulse frequency is in the range of 0-1000Hz, the frequency accuracy is \pm 10%, the accuracy of some waveforms is \pm 1%, and the effective value of output current is 0-80mA. In this study, the researcher controls the current switch and grouping of TENS equipment, and provides comfort care and true and false TENS stimulation according to the grouping.

Specific operation: There are two output lines A and B on the front of TENS host. Each output line has two electrode plates. The two electrode plates of channel A are respectively connected to the "Hegu point" (the highest point of the tiger's mouth when the index finger is close to the thumb) on the left and right hand of the parturient; The two electrode strips of route B are respectively connected to the "uterine points" on both sides of the lower abdomen of the parturient (4 inches in the middle and lower part of the umbilical cord, 3 inches in the side of the middle pole). Adjust the current intensity according to the treatment parameters. For route A, it is better to beat the thumbs of both hands; The B route is suitable to cause slight abdominal muscle tremor and the parturient can tolerate it. The time is 40min.

Comfort nursing is the responsibility of experienced nurses in the obstetric ward. Under the condition that the rest of the lying-in women is not affected, psychological nursing, environmental nursing, breastfeeding guidance, posture nursing, etc. are properly used to achieve the most pleasant state in physiology, psychology and society, or reduce the degree of unhappiness [4].

2.3. Comfort care+PCA Group

Comfort care as above. PCA analgesia: all patients were injected 0.1g of phenobarbital sodium and 0.5mg of atropine 30 minutes before anesthesia. After the patient entered the operating room, the vein was opened and the blood pressure, electrocardiogram and pulse oxygen saturation were monitored routinely. Epidural anesthesia was performed by epidural puncture of lumbar L1-2 space and placing a tube 3cm to the head. The epidural anesthetic was 2% lidocaine hydrochloride injection. The experimental dose of 2% lidocaine was 3mL at first, and then 10mL of the first dose was added. The upper boundary of the anesthesia plane was controlled to not exceed T4. The analgesic drugs were 0.12% bupivacaine hydrochloride +fentanyl 1 μ g/mL, the loading amount was 5mL, and the maintenance amount was 4 mL/h. Patient controlled analgesia (PCA) was used, and the electronic analgesia pump (JS-6 type produced by Jiangxi Ogeland) was connected after operation for PCIA. The analgesic liquid formula is 0.001% fentanyl (produced by Yichang Humanwell Pharmaceutical Co., Ltd.) and 0.08% nefopam (produced by Qingdao Jinfeng Pharmaceutical Co., Ltd.), diluted to 150ml with 0.9% sodium chloride injection. The initial load was 2ml, and the interval of automatic administration was 60 minutes. When manually pressing, the amount of pressing is 2ml each time, and the parturient will automatically press when she feels pain. The time of pressing the electronic analgesia pump for the first time is 0 min of analgesia, and so on.

2.4. Comfort Care Group+false TENS Group

Comfort care as above. The treatment time and method in the sham TENS group were the same as those in the TENS analgesia group. The false TENS electrode is placed at the same position

of the TENS group. Only the indicator light flashes, but the host is not turned on. The use method and VAS scoring method were the same as above, but the output power was cut off by the researcher. The nurse on duty did not know whether to cut off the power, and the nurse on duty and TENS analgesia specialist did not know the content and purpose of this study. Analgesia for 0 min is the time after TENS therapeutic instrument is connected for 10 0min, and so on.

3. Observations

3.1. Pain Scoring Standard

Visual analogue scale (VAS) was used to evaluate the analgesic effect, with 0 as painless and 10 as severe pain. Each group started treatment 1 hour after operation. The VAS scores of postpartum pains were performed at seven different time points (0 min after analgesia, 5 min after analgesia, 15 min after analgesia, 30 min after analgesia, 60 min after analgesia, 24 h after analgesia, 48 h after analgesia) in three groups of parturients to show the intensity of pain.

In this study, 25 parturients of cesarean section were finally included in the study. According to the principle of randomization, the final comfortable care+TENS group was 9, comfortable care+PCA group was 10, and comfortable care+false TENS group was 6. The results of the project are analyzed and summarized.

3.2. General Data Analysis

The general data of TENS group, PCA group and false TENS group were analyzed by one-way ANOVA. There was no significant difference in age, height and weight between the two groups (p>0.05). It is comparable.

Table 1 shows the distribution and comparison of age, height, weight and other general data of different groups of parturients:

Table 1. Comparison of general data of three groups of parturients

Group	N	Age (years)	Height (cm)	Weight (kg)
Comfort care+PCA group	9	28.74±4.96	163.10±5.22	70.31±9.60
Comfortable care+PCA group	10	29.06±7.04	161.87±7.21	69.94±8.87
Comfort+care group+false TENS group	6	28.77±5.21	160.96±5.66	71.23±9.13
f		0.397	0.047	0.341
P		0.532*	0.799*	0.674*

*p>0.05

3.3. Analgesic Effect Analysis of Different Analgesia Methods

Table 2. Postoperative VAS score of three groups of parturients

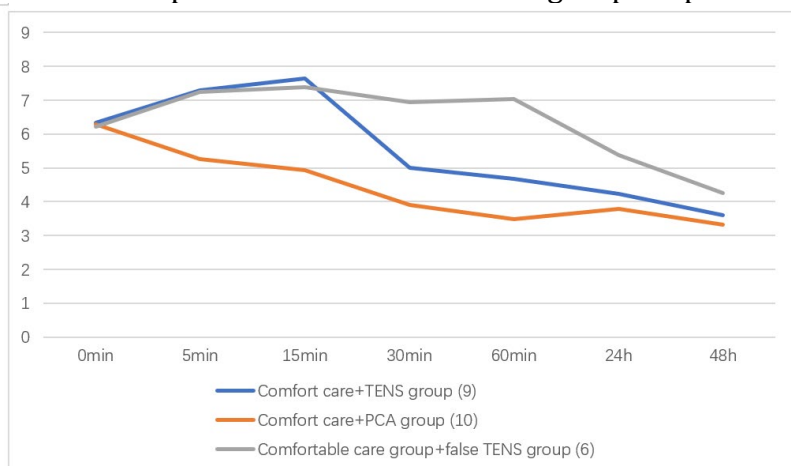


Table 3. DHEA of three groups of parturients

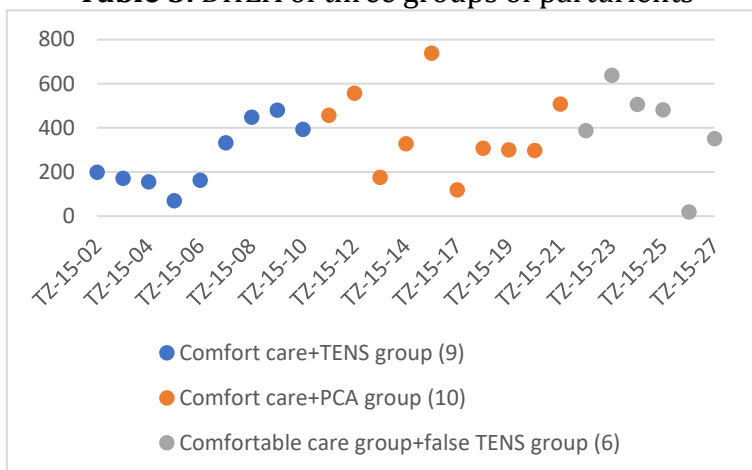


Table 4. OCDD of three groups of parturients

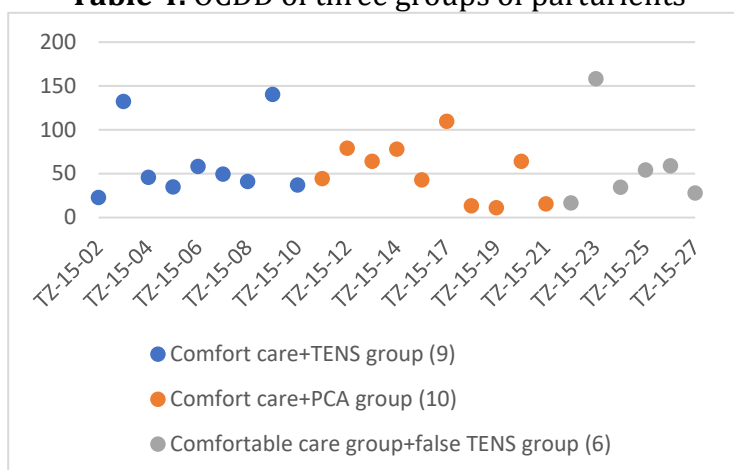
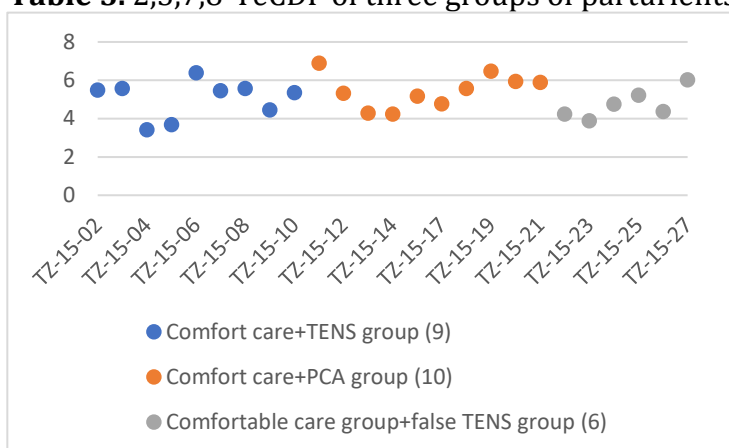


Table 5. 2,3,7,8-TeCDF of three groups of parturients



There was no difference in VAS scores before postoperative analgesia among the three groups ($P>0.05$). At the same time, it was not found that different analgesia methods had significant effects on serum TeCDF, OCDD, DHEA. The VAS score in the comfort care+PCA group was significantly lower than that in the comfort care+false TENS group 5 minutes after operation (① $P<0.05$). There was no difference in VAS score of comfortable care+TENS group compared with comfortable care+false TENS group 5 min and 15 min after operation. VAS score in comfort nursing+TENS group was significantly higher than that in comfort nursing+PCA group (③

P<0.05). From 30 minutes after operation, VAS score in comfort care+TENS group decreased significantly compared with that in comfort care+TENS group (② P<0.05). There was no significant difference between comfort care+TENS group and comfort care+PCA group. (④ P<0.05)

4. Conclusion

This study found that the analgesic effect of TENS group presented a stage after effect. At 5 minutes and 15 minutes after the induction of analgesia, the analgesic effect of TENS group had no significant difference compared with the blank group (comfort care group), with p values of 0.839 and 0.870 respectively. However, when TENS was continued to be used for analgesia and VAS score was evaluated, it was found that the analgesic effect of 30 minutes and 60 minutes after analgesia and 24 hours and 48 hours after analgesia was better than that of the blank group, with p values less than 0.05, indicating significant analgesic effect. Compared with PCA group, TENS group showed that the analgesic effect of PCA group was significantly better than TENS group at 5 minutes and 15 minutes after analgesia, with a p value less than 0.01, while there was no statistical difference between the two groups at 30 minutes after analgesia, with a p value of 0.058. The analgesic effect of TENS 60 minutes after analgesia was better than that of PCA group, with a statistically significant difference (p=0.03). After 24 and 48 hours, there was no significant difference in analgesic effect between the two groups.

Acknowledgments

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