

Influence of Painless Delivery Techniques on the Psychology of Primipara in Obstetrics Clinic

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Abstract: *Objective:* To explore the influence of painless childbirth technique on the psychology of primipara. *Methods:* From July 2020 to June 2022, 108 parturients who received analgesic during delivery in Shaanxi Provincial People's Hospital were selected as the research subjects (painless delivery group), and 92 parturients who gave birth naturally during the same period were selected as controls (natural delivery group). Psychological tests were performed on the patients. *Results:* The depression and anxiety scores of parturients in the natural delivery group were significantly higher than those in the painless delivery group ($P < 0.05$); 9.0% of the patients had coexisting anxiety and depression. *Conclusion:* The application of painless delivery techniques in obstetrics can improve the negative emotions experienced by primipara, improve their self-efficacy, and relieve their psychological pressure.

Keywords: Obstetrics clinic; Painless childbirth; Maternal psychology

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1. Introduction

In 1885, an American surgeon named Giam Capa stated in an interview with the British medical journal *New England Journal of Medicine* that the pain experienced during childbirth makes the mother unwilling to give birth again. Since then, the treatment of pain during childbirth began to receive attention and concern from the medical circle and the society. In the mid-1990s, with the development of anesthesia technology and the continuous advancements in painless delivery techniques, painless delivery has become a new trend, in which an increasing number of women are opting for painless delivery. At present, most hospitals in our country are supportive of painless delivery techniques, but there are still some hospitals that are unwilling or unable to accept painless delivery due to limited conditions, the pregnant women's own conditions, and a misunderstanding of anesthesia.

Painless delivery techniques are analgesic methods that help relieve labor pain through local anesthesia. Clinical methods of painless childbirth can be divided into pharmacological and non-pharmacological methods. Pharmacological methods include combined spinal-epidural anesthesia and epidural anesthesia [1-6]. The general principle is as follows: local anesthetics are injected into the subarachnoid space and/or epidural space to block the spinal nerve root and temporarily paralyze the innervated area so as to relieve labor pain [7,8]. The time of intrathecal puncture for labor analgesia is short and well tolerated by patients. The commonly used drugs include ropivacaine and sufentanil or the combination of fentanyl. Its side effects include anesthetic accidents with a small incidence rate, puncture failure, and insignificant analgesic effect. Once the anesthetic drug has taken effect, some pregnant women may experience lower limb weakness and urinary retention, while fetal hypoxia may occur as a result of transient hypotension caused by drugs in a

very small proportion of women. In clinical work, some patients have concerns because of these side effects, but the vast majority of pregnant women are very satisfied with the pain-relieving effect of anesthetic drugs, leading to the maturity and extensive use of painless delivery techniques. In clinical practice, higher requirements have been put forward for anesthesiologists. It is necessary to master anesthesia methods and safe operation specifications, along with the selection of appropriate anesthetic dosage to complete the anesthesia process. A reasonable control of anesthesia dosage not only allows for optimum labor pain effect, but also prevents adverse effects on the fetus.

2. Materials and methods

2.1. General information

From July 2020 to June 2022, 108 parturients who received painless delivery in Shaanxi Provincial People's Hospital were selected as the research subjects (painless delivery group), and 92 parturients who gave birth normally during the same period were selected as controls (natural delivery group). Psychological tests were performed on the patients.

2.2. Method

The parturients in the painless delivery group adopted painless delivery techniques. The spinal anesthesia used for painless delivery included epidural anesthesia and combined spinal-epidural anesthesia, among which the latter was the most commonly used. The commonly used drugs were ketamine, ropivacaine, fentanyl, and so on. The decision to perform the operation was made by the attending doctor following a comprehensive assessment based on various factors, including the pregnant woman's physical condition, complications, labor duration, and uterine contraction pain.

2.3. Observation indicators

The psychological state of the primipara.

2.4. Statistical analysis

SPSS 22.0 was used for data analysis. The measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$), and t test was used to compare the data between groups and within groups; χ^2 test was used to compare the count data, expressed as n (%); $P < 0.05$ indicated that the difference was statistically significant.

3. Results

3.1. Comparison of anxiety and depression scores between the two groups

The anxiety and depression scores of the painless delivery group were significantly lower than those of the natural delivery group ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of anxiety and depression scores between the two groups

Group	Number of cases	Depression	Anxiety
Painless delivery group	108	6.23 \pm 3.05	6.17 \pm 2.96
Natural delivery group	92	7.71 \pm 3.53	7.85 \pm 3.41
t		3.1810	3.7298
P		0.0017	0.0002

3.2. Occurrence of anxiety and depression symptoms

Coexisting anxiety and depression was observed in 9.0% of the patients. See **Table 2** for details.

Table 2. Occurrence of anxiety and depression symptoms (n/%)

Group	None	May be present	Present
Depression symptoms	122 (61.0)	46 (23.0)	32 (16.0)
Anxiety symptoms	92 (46.0)	87 (43.5)	21 (10.5)
Coexisting anxiety and depression symptoms	133 (66.5)	49 (24.5)	18 (9.0)

4. Discussion

Painless delivery techniques are special analgesic methods for labor. Analgesic effects can be achieved through the action of local anesthetic drugs on the subarachnoid space or epidural space, without adverse effects on both the mother and baby. First of all, painless delivery techniques can effectively reduce the pain of the parturient, shorten the duration of pain, reduce the increased catecholamine secretion caused by pain stimulation during labor, and increase the safety of both mother and baby to the threat of uterine vasoconstriction. Secondly, painless delivery can reduce maternal fear of vaginal delivery, reduce the rate of cesarean section, and is conducive to maternal and child safety.

4.1. Analgesic effects of painless delivery techniques

Painless delivery techniques allow analgesic effects to be achieved through pharmacological and non-pharmacological methods. In this paper, we mainly discuss the pharmacological method. Analgesic effects are achieved through epidural anesthesia or combined spinal-epidural anesthesia. With the advancements in anesthesia techniques and drugs, the application of painless delivery techniques in obstetrics has matured with more ideal management measures. Painless delivery is now widely recognized and used for parturients [9,10].

4.2. Technical considerations for painless delivery

Painless delivery has certain benefits for pregnant women, but the following points should be paid attention to in the specific implementation process: (1) there are high requirements for anesthesia technology; (2) anesthesia indications must be strictly controlled; (3) whether surgical methods and doses are selected according to maternal requirements; (4) whether bleeding points need to be monitored during the operation; (5) a series of measures should be taken, such as preventing infection, prenatal assessment of pregnant women to select a suitable delivery method, and choosing the correct type, dosage, and administration method of analgesic drug (such as amphetamine) to prevent the inhibition of spontaneous breathing and circulation in the mother caused by drugs, which may result in adverse effects, leading to fetal death or serious injury to the mother. If the parturient has underlying cardiovascular disease, the scope and dosage of anesthetic drugs should be strictly limited. For platelets less than $70 \times 10^9/L$, the use of labor analgesia is prohibited. If certain analgesic drugs cannot be used due to special reasons, the clinician should be notified, or consent should be taken before administration, so as to prevent complications that may threaten the life of these women [11-15].

4.3. Prenatal adaptation

Prenatal adaptation refers to a period of preparation for pregnant women who are about to enter vaginal delivery, mitigating their resistance to painless delivery techniques and providing psychological counseling to reduce their fear. As labor progresses, pregnant women will develop a fear response to childbirth, which

will lead to psychological problems, such as anxiety and depression. This may also lead to postpartum depression in severe cases. It is important to pay attention to the psychological changes of the parturient during pregnancy, alleviate her fear of childbirth, be patient, give encouragement, and provide professional consultation when necessary. Appropriate exercise during pregnancy can regulate nervous tension, promote the secretion of endorphins, relieve anxiety and depression, and benefit fetal development. Exercise can also be used to distract attention and in slow progress of labor. For pain and discomfort symptoms, such as shortness of breath, emergency measures should be taken in time when the symptoms become apparent, and an anesthesiologist should be contacted for assistance in diagnosis and treatment. Through this, women would be able to better understand the pain during uterine contractions. Pregnant women in the prenatal adaptation period should actively communicate with their doctors to understand the possible situations that could occur during childbirth and take certain countermeasures for them. It is also important to provide psychological counseling to pregnant women as they should maintain a good mood, eat reasonable diets, reduce exercise to ensure adequate sleep, maintain a good attitude during labor, as well as avoid anxiety and tension. Psychological counseling can effectively alleviate various discomfort symptoms in pregnant women, especially during childbirth, and reduce the fear of labor. However, there remain a small number of pregnant women who have had an impact on their psychology due to changes in blood pressure and changes in the labor process brought about by intrapartum anesthesia, which increases the risk of postpartum depression. Therefore, good communication between pregnant women and their family members is of importance in the prenatal adaptation stage to reduce their fear, build their confidence in childbirth, and prepare them psychologically to adapt to various situations that could occur during the delivery process. In addition to psychological counseling, it also provides a good environment for postpartum recovery. In that way, there will be better cooperation with delivery work; delivery rates and obstetric clinical quality will improve; cesarean section rate, risk of maternal and child adverse events, and the incidence of puerperal psychological disorders will reduce; and the quality of life of both mother and child will improve, along with the mother's postpartum physical and psychological quality. There will be a profound impact on the entire family if this period is navigated well as an expectant mother.

4.4. Psychological counseling after childbirth

Painless delivery techniques in obstetrics clinics are mainly used in the delivery process. From the preparation period before delivery to the delivery process, and to the period after delivery, primiparous women should fully understand the delivery process and methods. In addition, it is important to pay attention to the postpartum recovery methods and precautions for guidance. In order to ensure that mothers are able to recognize the advantages of painless delivery as a delivery method, prenatal and various stages of the labor process can be publicized. By understanding the entire process, it reduces the mental stimulation of pain to the parturient and prevents the deterioration of postpartum depression symptoms caused by pain during childbirth. Other than that, it is necessary to pay attention to the physical condition of the parturient after childbirth. Postpartum women should avoid overworking and be well-rested. In addition, they should maintain a positive attitude and cheerful mood, while avoiding excessive mood swings. It is also important to observe the psychological aspects of these women, as some may experience adverse psychological conditions, such as anxiety. In such an event, a doctor should be contacted for assistance as soon as possible. If we can create a good family environment, through timely psychological counseling and medication, postpartum women would be able to go through puerperium smoothly.

In conclusion, the application of painless delivery techniques in obstetrics can improve the negative emotions of primipara, improve their self-efficacy, and relieve their psychological pressure.

Disclosure statement

The authors declare no conflict of interest.

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