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Application Effect of Enhanced Recovery After Delivery in Natural Delivery

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Abstract: Objective To explore the application effect of enhanced recovery after delivery (ERAD) in natural delivery. Methods A total of 200 pregnant women received in our hospital from January to December 2023 were selected as the research objects and divided into control group and observation group by computer random number table method, with 100 cases in each group. The control group was given routine nursing, and the observation group was given ERAD intervention on the basis of routine nursing. The intervention effects of the two groups were compared. Results After intervention, the scores of Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) in the observation group were lower than those in the control group (P<0.05). The total incidence of complications in the observation group was lower than that in the control group (P <0.05). After intervention, the sustained systolic blood pressure of type Ⅰ muscle fibers, rapid systolic blood pressure of type Ⅱ muscle fibers, pelvic floor muscle resting pressure and pelvic floor systolic pressure in the observation group were higher than those in the control group (P<0.05). The satisfaction of medical care in the observation group was higher than that in the control group (P<0.05). Conclusion The ERAD applied in natural delivery can promote the improvement of maternal psychological state, reduce perinatal complications, accelerate the recovery of postpartum pelvic floor muscle function, and improve the satisfaction of medical care, which is worthy of promotion.

Keywords: enhanced recovery after delivery; natural delivery; psychological state; pelvic floor muscle function

Childbirth refers to the process of the fetus and its appendages being delivered from the mother's body after 28 weeks of pregnancy or more. Natural childbirth is a type of delivery method in which the fetus is delivered through the vagina without human intervention. At present, it is believed that natural childbirth can improve the quality of newborn birth, promote healthy growth and development of newborns, and be more conducive to postpartum recovery of mothers, avoiding the damage and various complications caused by cesarean section. Therefore, natural childbirth is advocated in clinical practice. However, during natural childbirth, mothers often experience negative emotions such as anxiety and depression, leading to strong stress responses and increased pain during labor, which has a very adverse impact on the delivery process and postpartum recovery. Therefore, effective medical interventions are needed. The routine nursing content of natural childbirth in obstetrics has limitations, and the effect on postpartum recovery of mothers is limited. In recent years, the concept of Enhanced Recovery After Delivery (ERAD) in obstetrics has played a huge role in the rehabilitation process of patients with various diseases. This concept refers to the use of a series of optimization measures with evidence-based medicine to help patients reduce physiological and psychological trauma stress. It has a positive significance in reducing the incidence of complications and accelerating rehabilitation speed. Its application in obstetrics can help improve the success rate of natural childbirth, reduce postpartum complications, and accelerate postpartum recovery. However, its application in obstetrics natural childbirth intervention is still limited. Based on this, this study explores the application value of ERAD in natural childbirth, as reported below.

1 Data and Methods

1.1 General Information

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Select 200 pregnant women admitted to our hospital from January to December 2023 as the research subjects, and divide them into a control group and an observation group using a computer random number table method, with 100 cases in each group. The age of the control group ranged from 20 to 33 years old, with an average of (26.54 ± 4.83) years old; Pregnancy weeks range from 37 to 39 weeks, with an average of (38.76 ± 0.72) weeks; 19 cases have a primary school education level, 58 cases have a middle school to high school education level, and 23 cases have a college degree or above; There were 71 primiparous women and 29 multiparous women. The age of the observation group ranged from 20 to 34 years old, with an average of (26.39±5.18) years old; Pregnancy weeks range from 37 to 40 weeks, with an average of (38.76±0.89) weeks; 17 cases have a primary school education level, 62 cases have a middle school to high school education level, and 21 cases have a college degree or above; 67 primiparous women and 33 multiparous women. There was no significant difference in general information between the two groups of pregnant women (P>0.05), indicating comparability. This study was approved by the hospital ethics committee; Pregnant women sign informed consent forms.

Inclusion criteria: ① Delivery during hospitalization at our hospital; ② Indications for natural childbirth; ③ Age ≥ 18 years old; ④ Having normal cognitive and communication skills;

⑤ Voluntarily choosing natural childbirth.

Exclusion criteria: ① Combined dysfunction of important organs such as liver and kidney; ② There are complications during pregnancy; ③ Merge severe psychological disorders; ④ Multiple pregnancies and ectopic pregnancies; ⑤ Merge severe cardiovascular and cerebrovascular diseases; ⑥ There is a mismatch between the head and pelvis or pelvic stenosis; ⑦ There is a history of previous uterine surgery; ⑧ There are indications for cesarean section; ⑨ Withdraw from the research midway.

1.2 Method

The control group received routine nursing care. Nurses provide detailed explanations of pregnancy and postpartum related knowledge to pregnant women, strengthen pregnancy education, and do a good job in prenatal examination and monitoring; Basic medical interventions such as environment, diet, activity, and sleep should be carried out throughout the entire process of hospital delivery for pregnant women. Environmental care: During the hospitalization of pregnant women, nurses lead them to visit the waiting room, delivery room, medical office and other environments, adjust the temperature and humidity of the ward appropriately, maintain good ventilation, and regularly clean and disinfect. Dietary care: Guide pregnant women to avoid spicy and stimulating foods, avoid excessive consumption of high sugar, high-fat, and high salt foods, supplement calcium appropriately, increase high-quality protein diets such as beef, lamb, fish, eggs, etc. The diet should be diverse, balanced, and comprehensive, increase intake of fresh vegetables and fruits, and increase intake of nuts appropriately. Activity care: Guide pregnant women to engage in appropriate activities, such as walking, to avoid excessive activity. Daily routine care: Guide pregnant women to maintain sufficient sleep and avoid staying up late. Delivery care: Inform pregnant women of delivery techniques, such as providing guidance on breathing techniques, postpartum feeding, prevention of complications, pelvic floor function exercises, etc. Pelvic floor function exercises include anal sphincter exercises, pelvic floor muscle training methods, etc. The anal sphincter exercises involve regularly lifting and retracting the anus, then relaxing and repeating them; The main training methods for pelvic floor muscles include hip outward rotation training, standing and retracting pelvic floor muscle training, standing and squatting training, and anal jumping training. After the discharge of the mother, a weekly telephone follow-up and a monthly outpatient follow-up will be conducted for a continuous observation period of 6 months.

The observation group implemented ERAD intervention on the basis of routine nursing, with the following specific contents.

(1) Pre delivery management. ① Pre delivery education on anesthesia, nutrition, pregnancy, and postpartum rehabilitation for pregnant women, including introducing factors that affect postpartum rehabilitation and measures to accelerate postpartum rehabilitation based on ERAD. The education is completed through one-on-one lectures, online courses, videos, manuals, and other forms by pregnancy education teams, obstetricians, nutritionists, anesthesiologists, postpartum rehabilitation teams, nurses, etc Nurses introduce delivery methods to pregnant women, enhance their understanding of natural childbirth, and conduct practical simulation training on natural childbirth and breastfeeding for pregnant women. Nurses can first demonstrate the operation, explain the purpose and skills of each operation in detail to pregnant women, and then guide them to complete simulation operations related to natural childbirth and breastfeeding Nutritional intervention shall be carried out for pregnant women to explain nutrition related knowledge and introduce complications such as diabetes, anemia, constipation and abnormal weight during pregnancy that may be caused by improper diet, so as to help them better manage nutrition and avoid complications.

(2) Management during childbirth. ① Midwifery nurses

provide humanistic care for postpartum women, offering them care, encouragement, comfort, and other forms of humanistic care. They also provide psychological counseling for women with severe negative emotions such as anxiety and depression, introducing them to knowledge related to childbirth pain relief and postpartum pain, improving their awareness, and reducing psychological pressure Reasonably use delivery equipment such as delivery balls and stools to assist postpartum women during delivery, follow medical advice to use antibiotics, uterine contraction drugs, etc. for postpartum women, and replenish energy in a timely manner Close monitoring of postpartum women and timely detection of indications for transfer to cesarean section For postpartum women who need to undergo cesarean section, seize the best opportunity; For pregnant women who require episiotomy, it is necessary to grasp the timing of episiotomy and take good care of the perineal wound.

(3) Post delivery management. ① Nurses monitor the amount of postpartum bleeding in mothers, promptly address any abnormalities, and prevent postpartum hemorrhage Administer antibiotics, uterine contraction drugs, etc. according to medical advice after childbirth Pay attention to changes in the psychological state of postpartum women during communication, identify negative emotions such as anxiety and depression early, and provide psychological counseling Implement interventions such as physical activity and massage for postpartum women, strengthen monitoring and prevention management of blood clots, encourage postpartum women to start contact with newborns as early as possible, and emphasize the role of early feeding and touch.

⑤ For postpartum women undergoing episiotomy, it is necessary to strengthen the medical care of perineal wounds and prevent wound infections.

(4) Discharge management. ① Nurses strengthen the evaluation and management of discharge standards for postpartum women, providing them with continuous guidance on breastfeeding and prevention of complications; After discharge, postpartum women can learn about breastfeeding, prevention of postpartum complications, and other related knowledge through WeChat platforms, consultation phone numbers, and other means Provide two-way referral of medical staff to community health services within the Maternal Medical Alliance, and offer them higher quality outpatient medical services After discharge, it is necessary to develop an individualized pelvic floor rehabilitation plan for the mother. Postpartum pelvic floor function assessment should be conducted through outpatient follow-up (once a month) to understand the recovery of pelvic floor function, and adjust the pelvic floor rehabilitation plan appropriately to promote the recovery of pelvic floor function in the mother. Conduct weekly telephone follow-up and monthly outpatient follow-up for a continuous observation period of 6 months.

1.3 Observation indicators and evaluation criteria

(1) The psychological status of the two groups of parturients was evaluated using the Self Rating Anxiety Scale (SAS) and Self Rating Depression Scale (SDS) before and 6 months after the intervention. Both SAS and SDS included 20 items and were scored using a 4-point scoring method. A SAS score of ≥ 50 indicates the presence of anxiety, while an SDS score of ≥ 53 indicates the presence of depression. The higher the score, the more severe the symptoms of anxiety and depression [7].

(2) Observe and statistically analyze the incidence of perinatal complications in two groups of postpartum women, including anemia, constipation, abnormal weight, postpartum hemorrhage, perineal laceration, postpartum infection, and urinary incontinence.

(3) The pelvic floor function of two groups of parturients was tested using the French PHE-NIXUSB2 diagnostic instrument before intervention and 6 months after intervention. The parturient empties the bladder, takes the lithotomy position, and performs Kegel exercises according to the graph on the diagnostic instrument. The strength testing of Class I and Class II muscle fibers uses the perineal muscle strength testing method, and the testing indicators include continuous systolic pressure of Class I muscle fibers, rapid systolic pressure of Class II muscle fibers, resting pressure of pelvic floor muscles, and pelvic floor systolic pressure.

(4) A self-made survey questionnaire was used to investigate the satisfaction of two groups of postpartum women with medical care. The questionnaire covers communication attitude, operational skills, health guidance, and other content. The maximum score is 100 points, with a score of ≥ 80 points indicating very satisfied, 60-79 points indicating general satisfied, and ＜ 60 points indicating dissatisfaction. Satisfaction=very satisfied rate+general satisfied rate. The questionnaire has a validity index of 0.883 and a Cronbach's alpha coefficient of 0.762, indicating high reliability.

1.4 Statistical Methods

SPSS23.0 statistical software was used to analyze the data. Count data were expressed as n/% using the chi square test, while metric data were expressed as ± s using the t-test. $P<0.05$ was considered statistically significant.

2 Results

2.1 Comparison of psychological states of two groups of parturients before and after intervention

Before intervention, there was no statistically significant

difference in SAS and SDS scores between the two groups (P>0.05); After intervention, the SAS and SDS scores of the observation group were lower than those of the control group (P<0.05)

2.2 Comparison of Perinatal Complications between Two Groups of Pregnant Women

The total incidence of complications in the observation group was lower than that in the control group, and the difference was statistically significant (P<0.05).

2.3 Comparison of pelvic floor function indicators between two groups of parturients before and after intervention

Before intervention, there was no statistically significant difference (P>0.05) in the sustained systolic pressure of type I muscle fibers, rapid systolic pressure of type II muscle fibers, resting pressure of pelvic floor muscles, and pelvic floor systolic pressure between the two groups; After intervention, the observation group had significantly higher sustained systolic blood pressure of type I muscle fibers, rapid systolic blood pressure of type II muscle fibers, resting pelvic floor muscle pressure, and pelvic floor systolic blood pressure than the control group (P<0.05)

2.4 Comparison of Medical Satisfaction between Two Groups of Postpartum Women

The satisfaction of medical staff in the observation group was higher than that in the control group (P<0.05).

3 Discussions

Childbirth is a natural physiological process in women, which refers to the process of the fetus leaving the mother's body and becoming an independent individual. It can be divided into natural childbirth and cesarean section. Cesarean section is a traumatic delivery method that can easily lead to various complications after cesarean section, which is not conducive to the recovery of the mother. However, natural delivery has a good promoting effect on the postpartum recovery of the mother and the healthy development of the fetus. Therefore, natural delivery has always been advocated in clinical practice. However, due to the lack of childbirth experience, many mothers have incorrect or insufficient knowledge about childbirth, often accompanied by obvious anxiety and depression, which can cause stress reactions, reduce the sense of delivery self-control, and lead to unplanned cesarean section or childbirth related complications, affecting pregnancy outcomes and postpartum recovery. The prolonged postpartum rehabilitation process of pregnant women can also lead to problems such as a shortage of medical resources and a shortage of hospital beds. With the increasing demand for childbirth and rapid recovery among pregnant women, how to help them recover quickly in obstetrics natural childbirth has become a key research topic at present.

The routine nursing content for natural childbirth of postpartum women is not perfect and cannot meet the current medical and nursing needs for rapid recovery. It is necessary to actively explore more effective medical and nursing measures. In recent years, ERAD has played a significant role in promoting patient recovery, reducing surgical stress and incidence of complications. It is a multidisciplinary approach aimed at accelerating postoperative recovery and is currently mainly used for perioperative management. In childbirth intervention, vaginal delivery involves pregnant women's understanding of childbirth, pain, anesthesia, and pre - and post delivery management. Therefore, ERAD needs to be integrated, which not only emphasizes rapid postpartum recovery, but also advocates helping mothers alleviate the pain during childbirth and enjoy the process. This study applied ERAD to postpartum women with natural childbirth in obstetrics and compared its effectiveness with conventional nursing. The results showed that after intervention, the SAS and SDS scores of the observation group were lower than those of the control group (P<0.05); The total incidence of perinatal complications in the observation group was lower than that in the control group (P<0.05); The sustained systolic pressure of type I muscle fibers, rapid systolic pressure of type II muscle fibers, resting pressure of pelvic floor muscles, and pelvic floor systolic pressure in the observation group were higher than those in the control group (P<0.05); The satisfaction of medical staff in the observation group was higher than that in the control group (P<0.05), indicating that the integration of ERAD into obstetric natural delivery medical care can promote the improvement of maternal psychological state, reduce the incidence of perinatal complications, increase the success rate of natural delivery, accelerate postpartum pelvic floor function recovery, and improve maternal satisfaction with medical staff. The reason for the analysis is that ERAD intervention emphasizes a comprehensive analysis of various factors that may affect maternal recovery, including psychology, nutrition, complications, pelvic floor function, etc., and then intervenes based on various influencing factors to help mothers recover better after childbirth. During ERAD intervention, introduce ERAD and childbirth related knowledge to pregnant women before delivery, improve their awareness and cooperation, reduce psychological pressure caused by incorrect or insufficient cognition, and create favorable conditions for subsequent childbirth; Integrating humanistic care during childbirth can further alleviate negative emotions such as anxiety and depression in pregnant women; Reasonably use delivery equipment such as delivery balls and stools to assist in childbirth; Strengthening the

management of antibiotics, uterine contraction drugs, energy supply, etc. can promote the progress of labor, reduce complications such as cesarean section, perineal laceration, postpartum hemorrhage, and infection, and improve the success rate of natural childbirth; Through postpartum hemorrhage monitoring, antibiotic management, early identification of negative emotions, early feeding and other interventions, negative emotions and complications of postpartum women can be detected in a timely manner, and preventive interventions can be actively given; Providing continuous breastfeeding guidance and postpartum pelvic floor function rehabilitation guidance to mothers through discharge management can help them better complete their role transition, play their mother's role well, promote pelvic floor function recovery, and improve their quality of life. Under the comprehensive effect, the psychological state of postpartum women is improved, perinatal complications are reduced, pelvic floor function is effectively restored, and satisfaction with medical care can also be increased accordingly.

In summary, the application of ERAD in natural childbirth can promote the improvement of maternal psychological state, reduce perinatal complications, accelerate postpartum pelvic floor muscle function recovery, and improve medical satisfaction, which is worthy of clinical promotion and application.

Author Introduction

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