

Original Article

Observation of personalized obstetric care clinical intervention on perinatal pregnancy-induced hypertension

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Abstract: Pregnancy-induced hypertension (PIH) is a common disease in obstetrics with high incidence in our country. Nursing theory and model study tended to personalization according to patients, thus personalized care became the hotspot in nursing discipline. This study aimed to carry out personalized obstetric care based on PIH women's psychological and physiological characteristics to decrease the incidence of PIH complication and improve the quality of maternal and neonatal survival. A total of 72 PIH women in our hospital were randomly divided into control group and experimental group. The control group received conventional care, while the experimental group received health education and psychological intervention according to individual feature on the basis of conventional nursing care. The incidence of eclampsia and preeclampsia, delivery mode, blood pressure, neonatal Apgar score, neonatal weight, and patient satisfaction survey were compared. The incidence of eclampsia and preeclampsia in experimental group was (2.8%, 30.6%) significantly reduced compared with that of control (13.9%, 47.2%) ($P < 0.05$). Blood pressure of experimental group was lower than that of the control ($P < 0.05$). Experimental group showed higher satisfaction degree at antenatal, postnatal and overall survey than the control ($P < 0.05$). Natural delivery rate, Apgar score, and neonatal weight were significantly higher in experimental group compared with that of control ($P < 0.05$). Application of personalized obstetric nursing care can assist clinical treatment. It showed good intervention effect in perinatal period by improving the quality of maternal and child survival.

Keywords: Pregnancy-induced hypertension, neonate, eclampsia, personalized care

Introduction

Pregnant women may appear hypertension during pregnancy which is called pregnancy-induced hypertension (PIH). It includes gestational hypertension, preeclampsia, eclampsia, chronic hypertension complicated preeclampsia, and chronic hypertension. It could be observed in primipara, multiple pregnancy, or primary hypertension [1, 2]. As a specific disease during pregnancy, PIH is common seen in obstetrics. It is mainly caused by small artery spasm that leads to dramatically placental perfusion reduction, thus resulting in hypertension, edema, proteinuria, and fetal intrauterine chronic hypoxia [3, 4]. Severe PIH may cause eclampsia, cerebrovascular accident, and cardiac renal failure. It is the main reason of maternal and perinatal morbidity and mortality [5, 6].

PIH has high incidence in our country (up to 8-10%) [7]. Uterine placenta ischemia or short of prostaglandins may trigger PIH. However, its pathogenesis is still unclear, and there is only support treatment for PIH in clinic right now [8]. Study showed that obstetric care on PIH patients will improve the quality of maternal and child's life [9, 10].

Upon the development of modern medicine, nursing theory and model study tend to be personalized, thus personalized care became the hotspot in nursing discipline [11, 12]. Personalized care based on current nursing theory and patient's condition triggers interests [13, 14]. This study aimed to investigate the clinical effect of personalized care on PIH pregnant women.

Materials and methods

Objects and grouping

A total of 72 PIH pregnant women diagnosed in the second affiliated hospital Zhengzhou University between Jan 2014 and Dec 2014 were enrolled. All pregnant women were single pregnancy. The mean age was 31 ± 3.3 (21-47) years old, and the gestational week number was 36 ± 3.2 (32-41). All patients appeared different degree of headache, edema, proteinuria, and hypertension. The 72 PIH pregnant women were randomly divided into control group (36) and experimental group (36). Routine care was given to women of control group. Personalized care was given to women of experimental group. In control group, there were 17 primiparas and 19 multiparas with mean age of 32 ± 2.9 (22-48) and mean gestational week of 36 ± 4.1 (33-41). In experiment group, there were 16 primiparas and 20 multiparas with mean age of 31 ± 2.1 (21-49) and mean gestational week of 36 ± 2.1 (31-42). No significant difference was found in age, disease, and pregnancy time between two groups ($P > 0.05$).

The experimental protocol has been approved by the ethical committee of the second affiliated hospital Zhengzhou University and written consents have been obtained from all patients and healthy volunteers.

Inclusion and exclusion criteria

Inclusion criteria: gestation >20 weeks, systolic blood pressure >140 mmHg and (or) diastolic blood pressure >90 mmHg, interval 6 h testing albuminuria >30 mg, 24 h proteinuria >0.3 g, each week weight gain >0.9 kg. Exclusion criteria: patients with severe liver and kidney dysfunction or nephritis, accompanied with malignant tumor, primary cardiac disease or hypertension.

Methods

Conventional care: The patients in control group received conventional nursing care, mainly including prescribed medication, diet guidance, blood pressure monitoring, and life care.

Personalized care: The patients in experimental group received personalized care including individualized health education, psychological intervention, and perinatal nursing care [15, 16].

Nursing staff training: Concrete measures included updating the concept, professional ethics training, patients' demand guidance, communication skills improvement, nurse etiquette, and subjective sense of service.

Understand the patient needs: Understanding patient needs is the premise of personalized obstetric care. The nurse needs to establish trust with patients in the process of first time communication and promptly improve care deficiencies.

Patient health education: Personalized obstetric care should be based on the physiological characteristics of PIH to carry out health education. Professional nursing staff should explain PIH pathogenesis, controlling measures, appropriate diet and exercise to reduce PIH symptoms and complications. Professional nursing staff is required to explain matters needing attention during perinatal period and encourage PIH pregnant women choose natural childbirth.

Personalized psychological intervention: Personalized psychological intervention was performed according to the object condition and psychological features. Compared with pluri-para, primipara often lacks of health care knowledge of perinatal period, leading nervous, and even fear or anxiety. Personalized nursing staff should perform psychological intervention to eliminate patient's nervous and build their confidence.

Personalized nursing in the perinatal period: Personalized nursing care includes prenatal care, intrapartum care, and postpartum care. Prenatal care is mainly focused on prenatal guidance and diet guidance based on patient's individual PIH history and psychological characteristics. Intrapartum care is mainly applying of different personalized nursing interventions in different stages. In the first stage of delivery, it provided encouragement and support according to maternal psychological features and demand, including rest, diet, improving maternal confidence, and labor progress inform. In the second stage, it accompanied delivery together with experienced midwife according to the characteristics of pluripara and primipara. In the third stage, it promoted maternal and infant earlier contact. Postpartum care paid attention to regularly

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Table 1. Effect of nursing care on systolic blood pressure of women with PIH

Group	n	Admission (mmHg)	Prenatal (mmHg)	P (Pre-natal vs Admission)	Postnatal (mmHg)	P (Post-natal vs Admission)
C	36	198 ± 24	156 ± 18	0.021	151 ± 22	0.020
E	36	203 ± 19	149 ± 21	0.014	131 ± 16	0.01

Table 2. Effect of nursing care on diastolic blood pressure of women with PIH

Group	n	Admission (mmHg)	Prenatal (mmHg)	P (Pre-natal vs Admission)	Postnatal (mmHg)	P (Post-natal vs Admission)
C	36	108 ± 13	86 ± 16	0.032	81 ± 12	0.027
E	36	112 ± 11	83 ± 18	0.029	79 ± 13	0.021

Table 3. Incidence of PIH complications

Group	n	Eclampsia (%)	p	Preeclampsia (%)	P
C	36	5 (13.9%)	0.023	17 (47.2%)	0.045
E	36	1 (2.8%)*		11 (30.6%)*	

*P<0.05, compared with control.

and timely postpartum visit. It provided the postpartum rest, diet and health knowledge, understood maternal psychological state, and observed postpartum uterine contraction to prevent postpartum depression or postpartum hemorrhage.

Other personalized care: Other personalized care included close monitoring pregnant patient's vital signs, blood pressure, breathing, and urine output, asking about patient's condition, observing fetal situation, monitoring fetal movement to master placenta function, fetal development, and amniotic fluid changes. Furthermore, it also included establishing personalized nursing system and rewards and punishments system, opening nursing and consulting service, and mobilizing nursing staff's enthusiasm and initiative to improve the quality of nursing.

Index observation: Blood pressure and heart rate in two groups were recorded. After delivery, dystocia rate, the incidence of eclampsia and preeclampsia, and neonatal Apgar score including heart rate, skin color, reflection, and muscle tension were observed. Apgar scores of 4-7 represent mild asphyxia, Apgar scores

<4 represent severe asphyxia. Neonatal weight and patient satisfaction were also recorded. A score of 3 means very satisfied, a score of 2 means satisfied, a score of 1 means relative satisfied, a score of 0 means unsatisfied.

Statistical analysis

SPSS 19.0 was applied for data analysis. Measurement data was presented as mean ± standard deviation. T test was used for comparison between groups. Enumeration data was presented as percentage and compared by

Chi-square test. P<0.05 was considered as statistical significance.

Results

Personalized care adjuvant therapy promoted the recovery of blood pressure in PIH

After conventional care and personalized care, blood pressures in different periods were recorded. The results showed that systolic pressure improved in both of two groups after nursing care compared with at admission (P<0.05). It improved more significantly in personalized care group compared with conventional care group (P<0.05). Furthermore, postpartum systolic pressure recovery in experimental group was obviously better than that in control (P<0.05) (**Table 1**). Diastolic blood pressure comparison revealed that similar with systolic pressure, improved in both groups after nursing care compared with at admission (P<0.05). It improved more significantly in personalized care group compared with conventional care group (P<0.05). Postpartum diastolic pressure recovery in experimental group was slightly better than that in control, but lack of statistical difference (**Table 2**).

Personalized care reduced the incidence of PIH complications

PIH complications including eclampsia and preeclampsia were recorded. The incidence of eclampsia and preeclampsia in experimental group significantly reduced compared with control (P<0.05) (**Table 3**). It suggested that per-

Table 4. Delivery mode and neonatal condition analysis

Group	Natural delivery n (%)	P	Neonatal Apgar score	P	Neonatal weight (kg)	P
C	3 (8.3%)	0.017	8.2 ± 0.3	0.041	2.7 ± 0.3	0.039
E	11 (30.6%)*		9.2 ± 0.4*		3.2 ± 0.4*	

*P<0.05, compared with control.

Table 5. Satisfaction statistics

Group	Prenatal satisfaction	P	Postpartum satisfaction	P	Overall satisfaction	P
C	72 ± 12	0.025	81 ± 13	0.034	76 ± 11	0.029
E	91 ± 5		94 ± 4*		93 ± 6*	

*P<0.05, compared with control.

sonalized care can reduce the incidence of PIH complications and elevate the quality of perinatal survival to ensure patients health.

Personalized care increased natural delivery rate and improved neonatal condition

Delivery mode and neonatal condition observation presented that natural childbirth rate in experimental group markedly increased compared with control (P<0.05). Experimental group also showed obviously improved Apgar score and neonatal weight compared with control (P<0.05) (Table 4). It indicated that personalized nursing care can enhance PIH patient's confidence, which was facilitate for natural labor and neonatal weight improvement.

Personalized care increased patient satisfaction

Satisfaction survey including knowledge of maternity nursing, knowledge of drug using, attitude, level of technical operations, inspection, basic care provided, health education and diet, and routine care provided was conducted. A score of 3 means very satisfied, a score of 2 means satisfied, a score of 2 means relatively satisfied, a score of 0 means unsatisfied. Satisfaction survey results showed that experimental group had higher satisfaction degree at antenatal, postnatal and overall satisfaction than that of the control (Table 5). It suggested that personalized care was beneficial to elevate patient's recognition to hospital service, reduce the doctor-patient contradic-

tion, and promote the establishment of the obstetric care system.

Discussion

PIH has numerous risking factors, thus its exact pathogenesis is not fully elucidated. In clinic, PIH is a common and severe obstetric complication that brings serious impairment on maternal and infant. It is a main cause of maternal and infant death that can occur in all age groups. Therefore, as one of the obstetric medical problems, it causes extreme focus by obstetrics and gynecology [17, 18].

Scientific and effective nursing care can help to improve treatment effect on PIH patients at different degrees. Following rapid development of medical sciences, hospital service enhancement, and the improvement of patient's hospitalizing consciousness, the demand on nursing care is also increasing. Personalized nursing care is to provide targeted physiological and psychological care in hospital according to multiple factors, such as patient's own condition, sex, living habits, psychological condition, education level, family relationship, and work stress [19]. Based on physiological and psychological characteristics of women during pregnancy, personalized obstetric care can improve maternal adaptability, which is benefit to maternal mental health and delivery [20]. Thus, personalized obstetric care is especially important for PIH patients.

This study selected PIH patients in our hospital and applied personalized care and conventional care. Personalized care changed traditional nursing care based on personal feature of PIH patients. It changed the nursing concept, improved nursing quality, and enhanced staff responsibility. The results confirmed that personalized care presented significant effect in controlling blood pressure, declining PIH complications incidence, improving survival quality in perinatal period, and ensuring patient health. On the other hand, it enhanced PIH patient's confidence, facilitated natural labor, and improved neonatal quality. Satisfaction survey verified that personalized care was beneficial to elevate patient's recognition to hospital service, reduce the doctor-

patient contradiction, and promote the establishment of the obstetric care system.

To sum up, application of personalized obstetric nursing care has beneficial effect on clinical treatment. It showed positive intervention effect on patients with PIH in the perinatal period by improving the quality of maternal and child survival. Thus, it is worth to be applied.

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Disclosure of conflict of interest

None.

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