Original Article

Effects of Midwifery Care on Mode of Delivery, Duration of Labor and Postpartum Hemorrhage of Elderly Parturients

*Yuefang ZHOU, *Chunping YANG*

Tongde Hospital of Zhejiang Province, Hangzhou 310024, China

*Corresponding Author: Email: rkps38@163.com

Abstract

Background: We aimed to explore the influence of midwifery care on the mode of delivery (MOD), duration of labor and postpartum hemorrhage (PPH) of elderly parturients.

Methods: A total of 165 elderly parturients admitted to Tongde Hospital of Zhejiang Province, China from May 2018 to Aug 2019 were allocated into a study group (n=85, midwifery care) and a control group (n=80, conventional nursing care). Visual analogue scale (VAS) was employed to estimate the pain of parturients, and self-rating anxiety scale (SAS) and self-rating depression scale (SDS) were employed to evaluate the anxiety and depression status. The satisfaction of patients on nursing care was scored by a self-made satisfaction questionnaire.

Results: The parturients in the study group presented higher spontaneous vaginal delivery (SVD) rate ($P < 0.05$), and had shortened duration of first and second stages of labor and total duration of labor ($P < 0.05$). The incidence of both PPH and neonatal asphyxia in the study group was lower than that in the control group (both $P < 0.05$). The VAS, SAS and SDS scores in the study group were significantly lower than those in the control group ($P < 0.05$), and the patients' satisfaction in the study group was significantly higher ($P < 0.05$).

Conclusion: Midwifery care is effective for the delivery of elderly parturients, which significantly improves VSD rate, shortens duration of labor, reduces incidence of PPH and neonatal asphyxia, as well as relives labor pain, anxiety and depression, and increases satisfaction of parturients.

Keywords: Midwifery care; Elderly parturients; Mode of delivery; Duration of labor; Postpartum hemorrhage

Introduction

An elderly parturient is medically defined as a primipara who is over 35 yr old (1). With the development of modern society and the improvement of living standards, there are more and more well-educated women in the workplace, resulting in a sharp increase in physical and mental pressure (2).

The number of elderly parturients in the world is increasing every year due to the high pressure from work and other aspects (3). The best childbearing age for women is between 25 and 30 yr old (4). Generally, women over the age of 35 yr suffer from pelvic ossification and declined physiological function (5). They are more likely to have more risks and pregnancy complications after pregnancy, such as gestational hypertension, abortion and premature delivery, prolonged labor and dystocia (6), leading to great economic and psychological burdens to themselves and their families (7). At present, the preferred measure to prevent pregnancy risks of elderly parturients is to improve the quality of clinical care (8). There-

93

fore, it is essential to give safe and effective nursing to parturients in perinatal period (9).

The clinical nursing modes for elderly parturients have changed along with the progress of obstetrics and gynecology and nursing technology (10), and conventional nursing can no longer meet the needs of parturients. Midwifery care is a new nursing mode for elderly parturients (11) conductive to the completion of delivery process (12). It comprehensively takes psychological status and physical function, as well as health education, delivery environment, and other influential factors into account (13). Elderly parturients face greater physical and psychological stress, are more likely to be anxious, and depressed, which is harmful to both mothers and newborns (14), and the perinatal follow-up care in the period reduces this harm (15). Midwifery care improves the quality of delivery and reduces pregnancy complications of parturients (16).

We aimed to explore the influence and application value of midwifery care on MOD, duration of labor and PPH in elderly parturients, thereby providing a feasible nursing measure for them.

Martials and Methods

General data

A total of 165 elderly parturients admitted to Tongde Hospital of Zhejiang Province, Hangzhou, China from May 2018 to Aug 2019 were enrolled. Eighty-five parturients receiving midwifery care were allocated into a study group (age: 35 - 43 yr old, average age: (40.05±2.18) yr old, gestational age: 36-42 weeks, gestational age (40.25±1.25) weeks. Eighty parturients receiving conventional nursing care were allocated into a control group (age: 35 - 44 yr old, average age: (40.14±2.15) yr old, gestational age: 37-42 weeks, average gestational age: (40.08±1.19) weeks).

All parturients and their families were informed and signed a fully informed consent form. The the study was approved ethically by the hospital.

Inclusion and exclusion criteria

Inclusion criteria: Primiparous women over 35 yr of age; parturients with normal pregnancy.

Exclusion criteria: parturients suffering from serious diseases of other organs, severe pregnancy syndrome, or disability, as well as those with history of mental disorders or incomplete clinical data.

Methods of nursing care

The control group adopted conventional nursing care: antenatal examinations, perinatal health education and diet guidance, intranatal observation of labor stages, delivery and timely treatment of adverse events.

The study group adopted midwifery care: midwifery care was performed based on conventional nursing care, and the procedures were as follows.

Prenatal risk assessment and establishment of files: Maternity risk assessment was carried out in line with the standards formulated by the Joint Commission on Accreditation of Health Care Organizations, (JCAHO) (17), and midwives were arranged according to the results to develop personalized care plans. Meanwhile, all maternal data were recorded and written into files.

Prenatal psychological care: Parturients and their families received education on maternal health knowledge to make them adapt to the hospital environment and understand the matters related so as to relieve their psychological pressure and maintain an optimistic and positive attitude. The differences between spontaneous vaginal delivery (VSD) and cesarean section were introduced, and the benefits and advantages of VSD were explained. Midwives evaluated the psychological state and measured the anxiety and depression of the parturients to soothe their anxiety, tension, and panic. They kept continuous communication with the parturients to gain their trust. A detailed description of the safety of VSD or surgery was made to eliminate the fear and uneasiness.

Intranatal care: Make sure the comfort and warmth of the delivery room. During delivery, one-on-one guidance was given on how to properly exert herself and breathe reasonably. While distracting attention with music, stroking,

massage, continuous encouragement were given to the parturients to increase self-confidence, reduce psychological burden and relieve pain. Pregnancy complications in the delivery process were timely treated.

Postnatal care: After the delivery, midwives informed the parturients of the delivery outcomes, continued to distract them and took measures to prevent PPH. Parturients were instructed to adopt proper breastfeeding habits and keep clean to prevent postpartum infection. Midwives informed family members to pay more attention to and affirm the hard work of the parturients, and helped them with reasonable diet and postnatal exercise to fasten the recovery. For PPH, postpartum depression and other complications, timely symptomatic treatment and psychological care were carried out to rule out the effects of adverse emotions on recovery.

Outcome measures

1) MOD and VSD rate.
2) Duration of first and second stages of labor, total duration of labor.
3) Incidence of PPH.
4) Incidence of neonatal asphyxia.
5) Visual analogue scale (VAS) (18) was employed to estimate the pain of parturients, with a total score of 10 points. Higher score indicated the higher level of pain. 0: no pain; >3: slight and tolerable pain; 4-6 points: barely tolerable pain that affects sleep; 7-10 points: strong and unbearable pain that affects appetite and sleep.
6) Self-rating Anxiety Scale (SAS) was used to evaluate the anxiety of parturients.
7) Self-rating Depression Scale (SDS) was used to evaluate the depression of parturients.
8) The satisfaction of patients on nursing care was scored by a self-made satisfaction questionnaire including attitude, character, dressing and operative proficiency, with 20 questions, each with 5 points. < 70: dissatisfied, 70-89: satisfied, ≥90: highly satisfied. Satisfaction = (satisfied+moderately satisfied)/total cases ×100%.

Statistical methods

SPSS20.0 (IBM Corp, Armonk, NY, USA) was used for statistical analysis, and GraphPad Prism 7 to visualize the data. The counting data were expressed by [n (%)], and inter-group comparison was conducted by chi-square test. The measurement data were expressed by mean±standard deviation ($\bar{x}$±sd), inter-group comparison was conducted by independent samples t test, and intra-group comparison was conducted by paired t test. A value of $P<0.05$ was considered statistically significant.

Results

Comparison of General data

There was no significant difference between the two groups in age, gestational age, body mass index (BMI), residence, nationality, educational level, occupation, smoking history, drinking history (Table 1).

Comparison of MOD

The SVD rate in the study group was significantly higher than that in the control group (91.76% *vs* 62.50%) ($P < 0.05$) (Table 2).

Comparison of first and second stages of labor and total duration of labor

The parturients in the study group receiving midwifery care presented higher SVD rate than those in the control group ($P < 0.05$), and they had shortened duration of first and second stages of labor and total duration of labor ($P < 0.05$) (Table 3).

Comparison of incidence of PPH

The incidence of PPH in the study group receiving midwifery care was significantly lower than that in the control group (2.35% *vs* 18.75%) ($P < 0.05$) (Table 4).

Table 1: Comparison of general data [n(%)] (x±sd)

Classification	Study group (n=85)	Control group (n=80)	t/χ^2	P
Age (yr)			0.267	0.790
	40.05±2.18	40.14±2.15		
Gestational age (weeks)			0.894	0.373
	40.25±1.25	40.08±1.19		
BMI (kg/m²)			0.291	0.771
	25.08±2.06	24.98±2.35		
Residence			0.010	0.919
Urban	56 (65.88)	55 (68.75)		
Rural	29 (34.12)	25 (31.25)		
Nationality			0.049	0.826
Han nationality	69 (81.18)	66 (82.50)		
Minority nation-alities	16 (18.82)	14 (17.50)		
Educational level			0.010	0.919
≥ High school	58 (68.24)	54 (67.50)		
< High school	27 (31.76)	26 (32.50)		
Occupation			0.361	0.996
Civil servants	29 (34.12)	27 (33.75)		
Company em-ployees	23 (27.06)	23 (28.75)		
Self-employed	14 (16.47)	12 (15.00)		
Workers	10 (11.76)	9 (11.25)		
Farmers	6 (7.06)	5 (6.25)		
Unemployed	3 (3.53)	4 (5.00)		
Smoking history			0.057	0.811
Yes	15 (17.65)	13 (16.25)		
No	70 (82.35)	67 (83.75)		
Drinking history			0.067	0.796
Yes	26 (30.59)	23 (28.75)		
No	59 (69.41)	57 (71.25)		

Table 2: Comparison of MOD [n(%)]

Group	n	SVD	CS	AVD	SVD rate
Study group	85	78 (91.76)	5 (5.88)	2 (2.35)	78 (91.76)
Control group	80	50 (62.50)	21 (26.25)	9 (11.25)	50 (62.50)
χ^2	-				20.290
P	-				<0.001

SVD: Spontaneous vaginal delivery; CS: Cesarean section; AVD: Assisted vaginal delivery

Table 3: Comparison of duration of labor stages ($\bar{x}$±sd, min)

Group	n	Duration of first stage of labor	Duration of second stage of labor	Total duration of labor
Study group	85	381.50±101.52	30.21±10.31	424.21±102.47
Control group	80	458.36±127.69	39.85±14.67	508.85±137.64
t	-	4.292	4.907	4.498
P	-	<0.001	<0.001	<0.001

Table 4: Comparison of incidence of PPH [n(%)]

Group	n	Incidence of PPH
Study group	85	2 (2.35)
Control group	80	15 (18.75)
χ²	-	11.990
P	-	<0.001

Comparison of incidence of neonatal asphyxia

The incidence of neonatal asphyxia in the study group receiving midwifery care was significantly lower than that in the control group (1.18% *vs* 12.50%) ($P < 0.05$) (Table 5).

Table 5: Comparison of incidence of neonatal asphyxia [n(%)]

Group	n	Incidence of neonatal asphyxia
Study group	85	1 (1.18)
Control group	80	10 (12.50)
χ²	-	8.493
P	-	0.003

Comparison of pain score

The pain score in the study group receiving midwifery care was significantly lower than that in the control group ($P<0.05$) (Table 6).

Table 6: Comparison of pain score ($\bar{x}$±sd)

Group	n	Pain score
Study group	85	3.11±1.24
Control group	80	6.84±1.58
t	-	16.920
P	-	<0.001

Comparison of SAS scores

SAS scores showed no significant difference between the two groups before midwifery care intervention, and decreased significantly after intervention ($P < 0.05$), and the study group was significantly lower than the control group ($P < 0.05$) (Fig. 1).
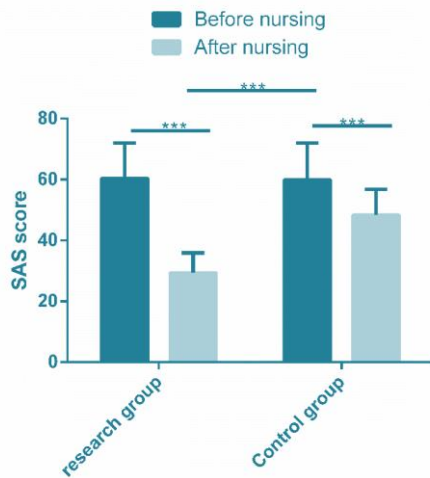
97

Fig. 1: Comparison of SAS scores
SAS scores showed no significant difference between the two groups before midwifery care intervention ($P > 0.05$), and decreased significantly after intervention ($P < 0.05$), and the study group was significantly lower than the control group ($P < 0.05$). Note: ***$P < 0.001$
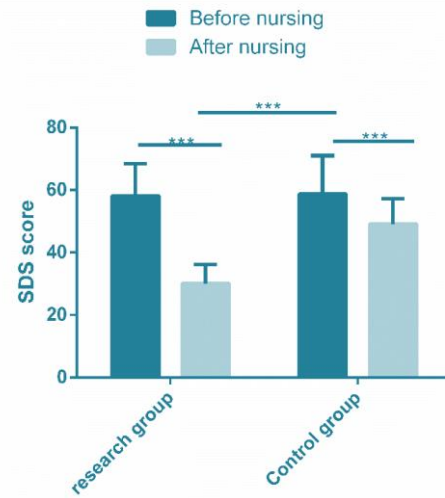

Fig. 2: Comparison of SDS scores
SDS scores showed no significant difference between the two groups before midwifery care intervention ($P > 0.05$), and decreased significantly after intervention ($P < 0.05$), and the study group was significantly lower than the control group ($P < 0.05$). Note: ***$P < 0.001$

Comparison of SDS scores

SDS scores showed no significant difference between the two groups before midwifery care intervention, and decreased significantly after intervention ($P < 0.05$), and the study group was significantly lower than the control group ($P < 0.05$) (Fig. 2).

Comparison of satisfaction of patients on nursing care

The satisfaction of patients on nursing care in the study group was significantly higher than that in the control group (97.65% *vs* 77.50%) ($P < 0.05$) (Table 7).

Table 7: Comparison of satisfaction of patients on nursing care [n(%)]

Classification	Study group (n=85)	Control group (n=80)	χ^2	P
Highly satisfied	63 (74.12)	33 (41.25)	-	-
Satisfied	20 (23.53)	29 (36.25)	-	-
Dissatisfied	2 (2.35)	18 (22.50)	-	-
Nursing satisfaction	83 (97.65)	62 (77.50)	23.702	<0.001

Discussion

Elderly parturients are a group of parturients with high risk of delivery in Obstetrics and Gynecology, due to the reduction of uterine contraction and vaginal elasticity, unstable emotions, and severe anxiety and depression (19). Lack of knowledge of delivery health and fear of preg-

nancy complications also increase the risk (20). Decline of body function weakens the recovery of elderly parturients, and a series of postpartum complications seriously affect the quality of life of themselves and the health of newborns (21). Effective nursing for elderly parturients in perinatal period is reported to improve delivery outcomes and reduce the injury to both elderly parturients and newborns (22).

We adopted a new nursing mode--midwifery care for elderly parturients, and it turned out that the SVD rate was significantly increased after the intervention. This indicates that midwifery care enables the elderly parturients to have a better understanding of the advantages of SVD and to enhance their self-confidence and psychological endurance. The midwives' education on prenatal health knowledge evidently increased the number of SVD parturients, as well as their cooperation (23). Besides, nursing interventions by experienced midwives during delivery significantly shorten the duration of each stage of labor and reduce the incidence of PPH and neonatal asphyxia (24). In this study, study group presented significantly shortened duration of each stage of labor and decreased incidence of PPH and neonatal asphyxia than the control group, which is similar to another sty (25). It was suggested that massage, music, and guidance on exerting and breathing can divert the attention of parturients and relieve the pain of delivery (25).

Our findings demonstrated that the pain score in the study group was significantly lower than that in the control group after midwifery care, which indicates that midwifery care is effective in relieving the pain of elderly parturients. Mental health problems of postpartum anxiety and depression improved significantly through psychological nursing (26). We noticed in that SAS and SDS scores in the study group were significantly lower than those in the control group after midwifery care, indicating that midwifery care contributes to alleviating anxiety and depression of parturients. We also noticed that the satisfaction of patients in the study group receiving midwifery care was higher than that in the control group, which reveals that elderly parturients have greater acceptance to receive midwifery care.

Although this study has confirmed the advantages of midwifery care to elderly parturients, there is still several limitations. For example, exploration on nursing compliance and factors affecting postpartum recovery is helpful for midwives to identify the risk factors. Supplementary research will be carried out to improve our conclusions.

Conclusion

Midwifery care for elderly parturients is effective in improving VSD rate, shortening the duration of labor, and reducing PPH and neonatal asphyxia. Moreover, it also plays a role in relieving labor pain, alleviating anxiety and depression, as well as increasing the satisfaction of parturients.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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