

Review Article

Effect of systematic nursing on gestational week of placenta previa pregnant women and maternal-infant outcome

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Abstract: Objective: The study aimed at studying the effect of systematic nursing on gestational week of placenta previa pregnant women and maternal-infant outcome. Methods: Altogether 109 pregnant women with placenta previa admitted to Taian Hospital from November 2016 to July 2018 were selected as the research objects. Sixty pregnant women with placenta previa who received routine care were taken as the control group, while the remaining 49 patients who received systematic care based on the control group were taken as the study group. The maternal hemorrhage volume, shock of pregnant women, gestational weeks, neonatal weight, neonatal Apgar score, puerperal infection, anxiety and depression quantitative self-score and nursing satisfaction were compared between different groups. Results: The postpartum hemorrhage volume in the two groups was higher than that in the prenatal period, and the postpartum hemorrhage volume in the study group was lower than that in the control group ($P < 0.05$). During perinatal care, the shock rate of pregnant women in the study group was significantly lower than that in the control group ($P < 0.05$). The gestational weeks of pregnant women in the study group were significantly longer than those in the control group ($P < 0.05$). Apgar score of newborn in study group was higher than that in control group ($P < 0.05$). The incidence of infection in the study group was significantly lower than that in the control group during puerperium nursing ($P < 0.05$). The ability of controlling the anxiety and depression was better in study group than that of the control group ($P < 0.05$). The total nursing satisfaction score of the study group was higher than that of the control group ($P < 0.05$). Conclusion: Systematic nursing for placenta previa pregnant women can control complications such as hemorrhagic shock and infection and improve the poor condition of newborn, which is worthy of clinical nursing promotion.

Keywords: Systematic nursing, pregnant women with placenta previa, gestational week, maternal-infant outcome

Introduction

Placenta previa is that the placenta of pregnant women is located at the lower segment of the uterus or at the internal cervical opening lower than the exposed part of the fetus. It is a serious complication of late pregnancy, mainly manifested in painless vaginal bleeding before and after childbirth [1, 2]. Placenta previa is common among pregnant women with high-risk factors such as abortion, prolificacy or uterine curettage. Some pregnant women with placen-

ta previa are accompanied by a series of malignant conditions of placenta accreta. Incision of the uterine wall during surgical delivery may cause massive hemorrhage and shock of pregnant women due to placenta accreta, which increases the risk of surgical delivery and endangers the life safety of newborns and mothers [3-5]. The emergency remedy of massive hemorrhage often adopts hysterectomy, causing psychological and physiological trauma to the parturient [6]. The existing ultrasound technology has a high diagnostic rate for preg-

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nant women with abnormal placenta position and abnormal placenta implantation in the early pregnancy (11-14 weeks of gestation). Transabdominal and transvaginal ultrasound technologies are commonly used clinically, and their high specificity provides preventive guarantee for the pregnancy of patients in the middle and early pregnancy [7, 8]. Expectant therapy and termination of pregnancy are often applied to placenta previa pregnant women, and the treatment needs to ensure the safety of pregnant women and fetuses in vivo [9].

It is very important to cooperate with active nursing intervention on the basis of early diagnosis and treatment to reduce hemorrhage, neonatal mortality and adverse reactions of pregnant women [10]. Systematic nursing programs include psychological and nutritional guidance, monitoring of vital signs, and perinatal nursing interventions [11]. In this study, systematic nursing intervention was applied to the treatment of placenta previa patients. After nursing assistance intervention, the effects on pregnancy weeks and maternal and infant outcomes were explored to provide better nursing intervention for placenta previa pregnant women.

Data and methods

General data

Altogether 109 pregnant women with placenta previa admitted to Taian Hospital from November 2016 to July 2018 were selected as the research objects. Sixty pregnant women with placenta previa who received routine care were taken as the control group, while the remaining 49 patients who received systematic care based on the control group were taken as the study group. The patients were 28.32 ± 6.24 years old. There were 63 primiparas and 46 multiparas, and 33 marginal placenta previa, 50 local placenta previa and 26 central placenta previa.

Inclusion criteria: (1) Pregnant women diagnosed as placenta previa by clinical symptoms, medical history and B-ultrasound [12]; (2) Patients with placenta previa hemorrhage underwent fetal protection treatment; (3) Families were informed and voluntarily signed the application form for research consent. Exclusion criteria: (1) Pregnant women who

gave up the study halfway; (2) Pregnant women with pregnancy-induced hypertension; (3) Pregnant women whose overall research results were affected by poor coordination.

Nursing methods

The control group was given ordinary obstetric care. The nursing details that hinder the patients' daily actions were searched, the protection of the risk factors of fall and falling out of the bed and the bedside rounds were strengthened. Patients were instructed to take medicine according to the doctor's advice and vulva hygiene precautions in advance, and confirmed with the correct route of administration. Pregnant women were instructed to sleep on their left side and ensure adequate sleep quality. According to the nutritional needs of patients' personal system, a reasonable diet was selected to ensure the stable development and growth of the fetus in utero and improve the viability of the fetus after birth. The fetal movement was regularly monitored and pregnant women were taught to correctly observe fetal movement changes, timely understand the fetal hypoxia and other abnormalities. Psychological nursing intervention was carried out according to the specific clinical psychological state of pregnant women.

On the basis of the control group, the research group was given systematic nursing intervention with five parts.

(1) Disease monitoring: Relevant nursing staff should make preparations for monitoring and inspection of various instruments and equipment in advance to facilitate the monitoring of vital signs at any time, and the actual data were summarized and recorded after monitoring. At the same time, pregnant woman bleeding and uterine contraction were checked, the amount of bleeding and blood color were recorded, and serious abnormalities were informed to chief physician. (2) Diet nursing: during the nursing period, the patient was instructed to increase the food intake rich in nutrient elements such as iron and protein, and pregnant women with poor defecation were advised to drink more water. (3) Psychological nursing: the symptoms of vaginal bleeding were often accompanied by placenta previa which significantly increased the abnormal psychological mood of anxiety and depression of pregnant women. Based on

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the mother's natural worry and protection of the fetus, the normal sleep and rest were affected. The corresponding psychological comfort and self-emotional description of pregnant women were conducted according to the actual psychological state of pregnant women, the importance of accompanying family members was instructed, and the guilt and fear psychology of pregnant women were improved. (4) Infection control: placenta abruption of pregnancy during late pregnancy required more diligent replacement of sanitary pads and strengthening of sanitary care to prevent infection. In special cases, 0.02% iodophor was used for perineum cleaning. If vaginal bleeding was long or infection was serious, antibiotic treatment and control were required. (5) Perinatal care: all examinations and drug preparation were completed before the operation. During the production process, artificial rupture of fetal membranes was required. Abdominal massage was conducted to guide the delivery of pregnant women who met the conditions for normal delivery, so as to compress the placenta to deliver smoothly and speed up the progress of the third delivery process.

Analysis index

(1) The blood loss and shock of pregnant women selected in this experiment were recorded and analyzed, and the gestational weeks of pregnancy were monitored and recorded. (2) Neonatal condition: neonatal weight and Apgar score were recorded respectively. Apgar score mainly used for neonatal respiration, nasal insertion reaction, muscle tension, plantar elasticity reaction or heart rate, and skin color, with the total score of 10 points, from low to high respectively representing severe asphyxia to normal [13]. (3) The occurrence of puerperal infection in two groups of pregnant women was recorded and analyzed. (4) Anxiety and depression: the self-rating anxiety scale (SAS) and the self-rating depression scale (SDS) were used to assess the anxiety and depression of the two groups of patients. The high score was closely related to the seriousness of the adverse psychological degree [14, 15]. (5) The nursing satisfaction was assessed by the self-made questionnaire with a total score of 100 points (total score more than 90 points as very satisfied, total score with 70-90 points as basically satisfied and total score less than 70 points as dissatisfied). Nursing satisfaction = very satisfied rate + basically satisfied rate.

Statistical methods

All the data were classified and collected and analyzed by SPSS 19.0. T test was used for comparison of measurement data, and χ^2 test was used for comparison of counting data. The difference was statistically significant with $P < 0.05$.

Results

General information

There was no significant difference in age, BMI and anterior position between the two groups ($P > 0.05$). See **Table 1** for details.

Comparison of maternal hemorrhage between the two groups

The postpartum hemorrhage volume in the two groups was higher than that in the prenatal period, and the postpartum hemorrhage volume in the study group was lower than that in the control group ($P < 0.05$). See **Table 2** for details.

Comparison of shock rate of pregnant women in nursing process

During perinatal care, the shock rate of pregnant women in the study group (16.33%) was significantly lower than that in the control group (38.33%) ($P < 0.05$). See **Figure 1** for details.

Comparison of gestational weeks and neonatal weight under different nursing methods

The gestational weeks of pregnant women in the study group were significantly longer than those in the control group ($P < 0.05$), and there was no significant difference in neonatal weight between the two groups ($P > 0.05$). See **Table 3** for details.

Comparison of Apgar score between two groups of newborns

Apgar score of newborn in research group (9.26 ± 0.73) was higher than that in control group (7.45 ± 0.53) ($P < 0.05$). See **Figure 2** for details.

Comparison of the incidence of puerperal infection between the two groups

During the puerperium nursing process, the incidence of infection in the study group (8.16%)

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Table 1. Comparison of general data between two groups

Group	Control group n=60	Study group n=49	X ² /t	P
Age (years)	28.11±6.29	28.38±6.21	0.224	0.823
BMI (kg/m ²)	26.43±4.12	26.37±4.23	0.075	0.941
Times of birth (cases)			0.070	0.791
Primipara	34 (56.67)	29 (59.18)		
Multipara	26 (43.33)	20 (40.82)		
History of uterine dilatation and curettage (case)			0.173	0.678
Yes	9 (15.00)	6 (12.24)		
No	51 (85.00)	43 (87.76)		
History of spontaneous abortion (case)			0.160	0.690
Yes	18 (30.00)	13 (26.53)		
No	42 (70.00)	36 (73.47)		
Placenta implantation (case)			0.097	0.756
Yes	15 (25.00)	11 (22.45)		
No	45 (75.00)	38 (77.55)		
Smoking history (case)			0.034	0.854
Yes	28 (46.67)	22 (44.90)		
No	32 (53.33)	27 (55.10)		
Drinking history (case)			0.121	0.728
Yes	36 (60.00)	31 (63.27)		
No	24 (40.00)	18 (36.73)		
Front position (case)			0.099	0.952
Marginal placenta previa	18 (30.00)	15 (30.61)		
Local placenta previa	27 (45.00)	23 (46.94)		
Central placenta previa	15 (25.00)	11 (22.45)		

Table 2. Comparison of maternal hemorrhage between the two groups

Group		Control group n=60	Study group n=49	t	P
Bleeding volume (ml)	Atenatal	360.93±46.25	344.73±41.25	1.909	0.059
	Postpartum	385.36±48.56*	356.32±49.45*	3.080	0.003

Note: *indicates that intra-group comparison of different birth time, P<0.05.

was significantly lower than that of the control group (23.33%), and the difference was statistically significant (P<0.05). See **Figure 3**.

Comparison of quantitative self-scores of anxiety and depression between the two groups

The study group had better control ability in anxiety and depression than the control group (P<0.05). See **Table 4** for details.

Comparison of the incidence of puerperal infection between two groups of pregnant women

During puerperium nursing, the infection rate of pregnant women in the study group (8.16%)

was significantly lower than that in the control group (23.33%) (P<0.05). See **Table 5** for details.

Comparison of quantitative self-scores of anxiety and depression between the two groups

The control ability of the study group in anxiety and depression was better than that of the control group (P<0.05). See **Table 6** for details.

Comparison of nursing satisfaction

The total nursing satisfaction rating score of the study group was higher than that of the control group (P<0.05). See **Table 7** for details.

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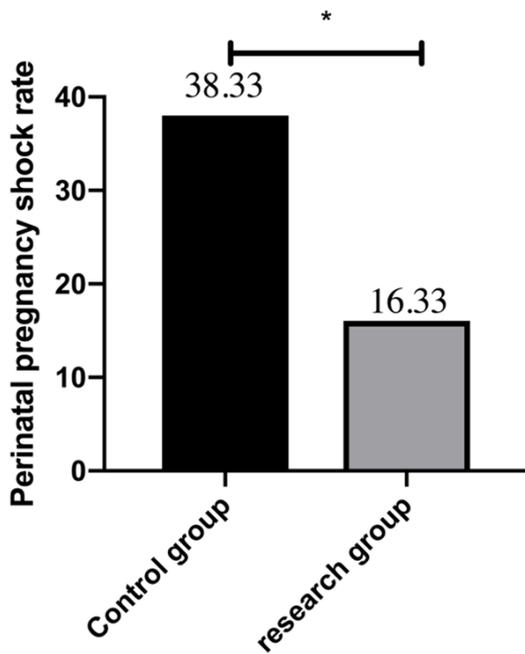


Figure 1. Comparison of shock between two groups of pregnant women during perinatal care. The shock rate of pregnant women in the study group (16.33%) was significantly lower than that in the control group (38.33%). Note: *indicates that $P < 0.05$.

Discussion

Due to the fact that the normal blood supply function of pregnant endometrium may be blocked by invasive injury of endometrium caused by different factors, the seriously defective endometrium is easy to induce inflammatory reaction and insufficient blood supply. The body is in a compensatory disorder state, and the placenta has a large area of ectopic expansion in order to obtain sufficient nutrients, and the main extension parts are the lower uterine segments [16, 17]. When the fertilized egg reaches the uterine cavity, the trophoblast has not reached the conditions for development to the implantation stage. At this time, there is a high probability to move downward toward the lower segment of the uterus and implant. This process is called placenta previa [18]. Pregnant women with placenta previa often have strong contractions while suffering from painless hemorrhage, and some pregnant women may have discomfort of persistent or intermittent abdominal pain. However, it is relatively difficult to predict the control of bleeding time and amount, and the causes of bleeding are often given the priority [19]. If the treatment of dis-

ease control is unreasonable and untimely, the life safety of mother and infant will be affected accordingly. Effective nursing intervention measures while treating complications will have a significant effect on improving the overall treatment effect during pregnancy. Therefore, we made a detailed analysis and discussion on the improvement and change of the condition of placenta previa pregnant women through systematic nursing, so as to make more nursing preparations to ensure the smooth delivery of placenta previa pregnant women.

First of all, we observed the clinical results of hemorrhage symptoms that are more dangerous and focus on placenta previa pregnant women and found that although the amount of hemorrhage in the prenatal study group was less than that in the control group, there was no obvious difference. The amount of postpartum hemorrhage in the two groups was more than that in the prenatal group and the difference was significant. The amount of postpartum hemorrhage in the study group was less than that in the control group. The reports [20, 21] indicated that factors such as placenta accreta or placenta retention can lead to postpartum hemorrhage symptoms caused by delayed closure of uterine wall blood sinus. Excessive blood loss can lead to aggravation of placental insufficiency, and the fetus dies of asphyxia due to lack of placental supply. It was also reported [22] that during pregnancy, placenta is mainly responsible for transporting itching and nutrition, and blood for the placenta to complete oxygen supply and other functions. In order to adapt to the growth of fetus, the maternal body will spontaneously form changes of softening and congestion of the birth canal. It showed that the implementation of systematic nursing has a good effect on controlling hemorrhage caused by placenta previa, which is beneficial to prevent the occurrence of fetal anoxia and asphyxia and to restore nutritional function. The study of perinatal shock found that the shock rate of pregnant women in the study group was significantly lower than that in the control group during perinatal care. Systemic nursing can prevent shock occurrence through effective hemostasis control, and can also carry out rapid surgical preparation according to nursing standard paths and steps through rapid identification and monitoring of shock patients so as to shorten the preparation time

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Table 3. Comparison of gestational weeks and neonatal weight under different nursing methods

Group	Control group n=60	Study group n=49	t	P
Gestational week (week)	34.47±2.03	36.21±1.83	4.651	<0.001
Neonatal weight (kg)	3.15±0.73	3.22±0.68	0.514	0.609

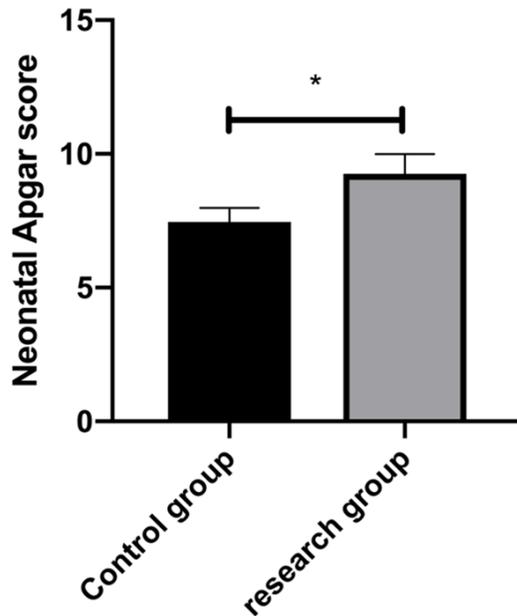


Figure 2. Comparison of Apgar scores of two groups of pregnant women's newborns after delivery. Apgar score of newborns in postpartum study group was higher than that in control group. Note: *indicates that $P < 0.05$.

before surgery [23]. The conclusion of the literature was consistent with the above results. However, the time for placenta previa pregnant women to choose to terminate their pregnancy mainly depends on the control of the amount of bleeding, which often results in premature termination of pregnancy and underweight newborn due to excessive amount of bleeding, as well as low Apgar score of infants [24, 25]. We studied the pregnancy time, Apgar score and neonatal weight of the two groups. The results showed that the gestational weeks of pregnant women and Apgar score of the newborn in the study group were significantly longer than those in the control group. The above conclusions confirmed our conjecture about the systematic nursing to prolong the gestational weeks and improve the Apgar score of the newborn. However, the small difference in neonatal weight shown in the results may be related to the difference of individual and the selection of

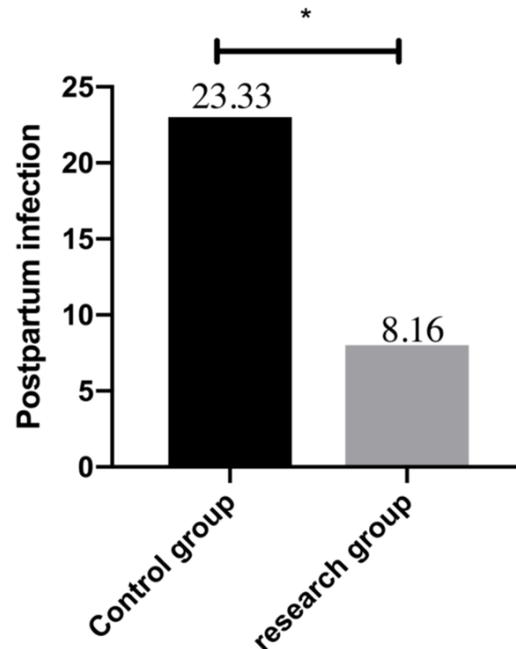


Figure 3. Comparison of puerperal infection between two groups of pregnant women. During puerperium nursing, the infection rate of pregnant women in the study group (8.16%) was significantly lower than that of pregnant women in the control group (23.33%). Note: *indicates that $P < 0.05$.

research samples after analysis. At the same time, we also observed the infection of pregnant women in the puerperium by systematic nursing, and found that the infection rate of pregnant women in the study group was significantly lower than that in the control group. Systematic nursing management is an important link in the prevention of hospital infection. It makes a systematic nursing plan based on the patient's condition, and comprehensively implements nursing for the patient by coordinating with nursing staff, thus achieving better nursing effect [26]. In the aspect of psychological and emotional nursing, it was found that the control ability of the study group in anxiety and depression was stronger than that of the control group. Placenta previa pregnant women are different from other normal pregnant women due to physiological changes. In contrast, they

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Table 4. Comparison of Apgar scores of two groups of pregnant women's newborns after delivery

Group	Control group n=60	Study group n=49	t	P
Apgar score	7.45±0.53	9.26±0.73	14.980	<0.001

Table 5. Comparison of the incidence of puerperal infection between two groups of pregnant women

Group	Control group n=60	Study group n=49	χ ²	P
puerperal infection	14 (23.33%)	4 (8.16%)	8.589	0.003

Table 6. Comparison of adverse mood of pregnant women in two groups

Group	Control group n=60	Study group n=49	t	P
SAS score	39.78±5.94	29.63±5.78	8.982	<0.001
SDS score	56.34±6.42	31.48±6.22	20.390	<0.001

Table 7. Comparison of nursing satisfaction between two groups [n (%)]

Group	Control group n=60	Study group n=49	χ ²	P
Very satisfied	17 (28.33)	25 (51.02)	-	-
Basically satisfied	31 (51.67)	21 (42.86)	-	-
Dissatisfied	12 (20.00)	3 (6.12)	-	-
Overall satisfaction	48 (80.00)	46 (93.88)	4.377	0.036

have anxiety, fear and pessimism, accompanied by strong guilt. With the arbitrary development of psychological unhealthy emotions, patients may refuse medication and have other stress behaviors [27]. The main service object of systematic nursing is patients. The nursing staffs actively understand and attach importance to the psychological status and feelings of patients, and implement targeted psychological counseling according to specific facts. Through correcting patients' wrong thoughts and mobilizing positive initiative, patients can be helped out of the shadow of illness and relieve the pressure of disease, thus improving the overall curative effect of disease treatment [28]. This showed that systematic nursing is superior to conventional placenta previa nursing in preventing infection and monitoring and improving the psychological state of patients. The investigation on the satisfaction degree of

patients' nursing service showed that the total nursing satisfaction rating score of the research group was higher than that of the control group. Systematic nursing has also achieved better results in clinical medical communication.

To sum up, systematic nursing for placenta previa pregnant women can control complications such as hemorrhagic shock infection, reduce the premature probability of maternal pregnancy termination, and improve the poor birth condition of newborn, which is worthy of clinical nursing promotion. However, unresolved problems were also found during the research progress. For example, we did not explain how the systematic nursing can achieve the purpose of reducing the hemorrhage volume of placenta previa pregnant women. We only analyzed the effect of systematic nursing on the control of hemorrhage volume and pregnant women. If we explored the causes of controlling hemorrhage nursing operation, we can provide better nursing basis for strengthening and updating the later nursing work, which will be the nursing direction of our follow-up exploration, in order to provide better nursing services for the

smooth production of placenta previa pregnant women.

Disclosure of conflict of interest

None.

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References

- [1] Mittal N, Pineda M, Lim B and Carey E. Placenta previa increta in an unscarred uterus with marked thinning of myometrium in the entire uterus in a patient with systemic lupus erythematosus. *Int J Gynecol Pathol* 2018; 37: 198-203.

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- [2] Uysal D, Cokmez H, Aydin C and Ciftipinar T. Emergency peripartum hysterectomy: a retrospective study in a tertiary care hospital in Turkey from 2007 to 2015. *J Pak Med Assoc* 2018; 68: 487-489.
- [3] Chen X, Shan R, Zhao L, Song Q, Zuo C, Zhang X, Wang S, Shi H, Gao F, Qian T, Wang G and Limperopoulos C. Invasive placenta previa: placental bulge with distorted uterine outline and uterine serosal hypervascularity at 1.5T MRI - useful features for differentiating placenta percreta from placenta accreta. *Eur Radiol* 2018; 28: 708-717.
- [4] Kayem G, Grange G and Goffinet F. Management of placenta accreta. *Gynecol Obstet Fertil* 2007; 35: 186-192.
- [5] Farasatinasab M, Moghaddas A, Dashti-Khadvaki S, Raofi Z and Nasiripour S. Management of abnormal placenta implantation with methotrexate: a review of published data. *Gynecol Obstet Invest* 2016; 81: 481-496.
- [6] Arvin J, Ashrafi M, Lotfi S, Dadvand Meshgin Shahr A, Schomann E, Scheerer K and Schulmeyer E. Experimental uterus transplant in various models: review of surgical techniques. *Exp Clin Transplant* 2018; 16: 119-126.
- [7] Xiong W and Luo H. Convention ultrasound and contrast-enhanced ultrasound imaging in the diagnosis of placenta implantation. *Sichuan Da Xue Xue Bao Yi Xue Ban* 2017; 48: 253-256.
- [8] Abramowicz JS and Sheiner E. Ultrasound of the placenta: a systematic approach. Part II: functional assessment (Doppler). *Placenta* 2008; 29: 921-929.
- [9] Zeng WJ, An SL, Huang H, Huang QT, Li FF, Wang HZ, Cai DC and Gao YF. Expectant therapy versus curettage for retained products of conception after second trimester termination of pregnancy: analysis of outcomes and complications. *Nan Fang Yi Ke Da Xue Xue Bao* 2017; 37: 569-574.
- [10] Keag OE, Norman JE and Stock SJ. Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: systematic review and meta-analysis. *PLoS Med* 2018; 15: e1002494.
- [11] Lukens CT and Silverman AH. Systematic review of psychological interventions for pediatric feeding problems. *J Pediatr Psychol* 2014; 39: 903-917.
- [12] Durst JK, Tuuli MG, Temming LA, Hamilton O and Dicke JM. Resolution of a low-lying placenta and placenta previa diagnosed at the midtrimester anatomy scan. *J Ultrasound Med* 2018; 37: 2011-2019.
- [13] Cnattingius S, Norman M, Granath F, Petersson G, Stephansson O and Frisell T. Apgar score components at 5 minutes: risks and prediction of neonatal mortality. *Paediatr Perinat Epidemiol* 2017; 31: 328-337.
- [14] Xing H, Luo Y and Wang S. Effects of negative emotions and life events on women's missed miscarriage. *Iran J Public Health* 2018; 47: 219-224.
- [15] Nasiri S, Akbari H, Tagharrobi L and Tabatabaee AS. The effect of progressive muscle relaxation and guided imagery on stress, anxiety, and depression of pregnant women referred to health centers. *J Educ Health Promot* 2018; 7: 41.
- [16] Zheng SX, Wang J, Wang XL, Ali A, Wu LM and Liu YS. Feasibility analysis of treating severe intrauterine adhesions by transplanting menstrual blood-derived stem cells. *Int J Mol Med* 2018; 41: 2201-2212.
- [17] Azizi R, Aghebati-Maleki L, Nouri M, Marofi F, Negargar S and Yousefi M. Stem cell therapy in Asherman syndrome and thin endometrium: stem cell-based therapy. *Biomed Pharmacother* 2018; 102: 333-343.
- [18] Gibbins KJ, Einerson BD, Varner MW and Silver RM. Placenta previa and maternal hemorrhagic morbidity. *J Matern Fetal Neonatal Med* 2018; 31: 494-499.
- [19] Onoyama I, Fukushima K, Aman M, Satoh S and Nakano H. Can we predict the premature labor in patients with placenta previa?: a retrospective study on maternal symptoms during pregnancy. *Fukuoka Igaku Zasshi* 2003; 94: 209-216.
- [20] Milovanov AP and Dimova EA. Disputable problems of the pathogenesis of implantation of the placenta into the uterine wall. *Arkh Patol* 2011; 73: 54-57.
- [21] Lemyre B, Sample M and Lacaze-Masmonteil T; Canadian Paediatric Society, Fetus and Newborn Committee. Minimizing blood loss and the need for transfusions in very premature infants. *Paediatr Child Health* 2015; 20: 451-462.
- [22] Polish Gynaecological S. Recommendations of Polish Gynaecological Society regarding prevention of injury to birth canal and structures of uterine fundus. *Ginekol Pol* 2011; 82: 390-394.
- [23] Perel A. Non-invasive monitoring of oxygen delivery in acutely ill patients: new frontiers. *Ann Intensive Care* 2015; 5: 24.
- [24] Tian JS, Pan FX, He SN and Hu WS. Risk factors of pregnancy termination at second and third trimester in women with scarred uterus and placenta previa. *Zhejiang Da Xue Xue Bao Yi Xue Ban* 2015; 44: 247-252.
- [25] Gingold JA and Bradley LD. Use of hysteroscopy in diagnosis and follow-up of acquired uterine enhanced myometrial vascularity. *Fertil Steril* 2020; 113: 460-462.

The effect of systematic nursing on pregnant women with placenta previa

- [26] Li Q and Deng D. New medical risks affecting obstetrics after implementation of the two-child policy in China. *Front Med* 2017; 11: 570-575.
- [27] Razumov AN. Conceptual substantiation of the place and the role of a new research and practical area of rehabilitative medicine in the systemic organizational structure of the health care service in the Russian Federation. *Vopr Kurortol Fizioter Lech Fiz Kult* 2013; 10-19.
- [28] Park JH and Bae SH. A systematic review of psychological distress as a risk factor for recurrent cardiac events in patients with coronary artery disease. *J Korean Acad Nurs* 2011; 41: 704-714.