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The Effect of Orem's Self Care Model on Control of Preeclampsia in Pregnant Women: A Randomized Clinical Trial.

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ABSTRACT

Preeclampsia is a dangerous condition in pregnancy is associated with high mortality. Although the unknown nature of the disease is difficult to predict and prevent disease. However, the incidence of some problems with self-care education and maternal and fetal complications can be prevented. This study aimed to determine the effect of educative Intervention on self care Preeclamptic women, Hamadan, Iran. In a randomized controlled trial, 60 patients with preeclampsia who were randomly allocated into two thirty-member groups of case and control. Written informed consent was obtained from all participants. Four sessions were conducted for the intervention group was followed up until the end of pregnancy. The control group received routine care. Self-care skills checklist were completed in both groups before and after intervention. Data were analyzed using t-test, chi-square test, Mann-Whitney tests with a 95% confidence level in the SPSS/16. There was no significant difference between the two groups in the study variables at baseline. No significant differences between the mean scores of the various structures of this model were observed among the two groups before the intervention (P> 0.05). Mean scores of the self-awareness (P =0.07), attitude (P =0.2), and skills (P =0.02), were increased significantly in the case group after intervention (P < 0.05). Self-care skills of preeclamptic women and fetal health could be improved by supportive- educative system. Use care programs to increase their ability to care for patients with preeclampsia as a nursing intervention is suggested. Orem based self care applications to increase nursing intervention to improve health care for preectamptic women is recommended.

Keywords: Preeclampcia, Pregnant women, Orem self-care frame

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INTRODUCTION

Hypertensive disorders during pregnancy occur in approximately 10% of pregnant women [1]. One of the most common is preeclampsia, a hypertensive syndrome specific to pregnancy, generally defined as new hypertension (blood pressure > 140/90 mm Hg) and substantial proteinuria (≥300 mg in 24 h) at or after 20 weeks' gestation [2]. Preeclampsia may be associated with placental insufficiency and maternal organ dysfunction. It can also cause seizures, in the more severe form called eclampsia. Preeclampsia and eclampsia affect 2% to 8% of pregnancies worldwide and are major causes of maternal diseases, disability and death [2-4].

Haemorrhage, hypertensive disorders, and sepsis were responsible for more than half of maternal deaths worldwide. Hypertensive disorders accounted for 14.0% of maternal deaths [5]. Asian women with preeclampsia have worse pregnancy outcomes than others [1]. Preeclampsia is related to adverse physical and emotional pregnancy outcomes such as, renal necrosis, pulmonary edema, hepatic rupture, Hemolysis, Elevated Liver Enzymes and Lowered Platelets syndrome, stroke, anxiety and depression [5, 6]. Changes in maternal characteristics, such as maternal age and pre-pregnancy obesity have increased the prevalence of preeclampsia [7, 8]. Ethnicity could be a risk factor for developing preeclampsia [9].

The prevalence of preeclampsia appeared to have a strong variation in different countries. The prevalence of preeclampsia was reported as 3.2 % in the India, and 12% in Bangladesh. The prevalence rate of preeclampsia and eclampsia was 0.05 and 0.23%, respectively in Iran [9].

A prospective cohort study conducted in Norway. That reported that the prevalence of pre-eclampsia in the study sample was 5.3% (n=1491). Women who reported to have eaten organic vegetables 'often' or 'mostly' (n=2493, 8.8%) had lower risk of pre-eclampsia than those who reported 'never/rarely' or 'sometimes' [10].

Dietary factors have been suggested to play a role in the prevention of hypertensive disorders of pregnancy (HDP), including gestational hypertension and pre-eclampsia. Higher total energy and lower magnesium and calcium intake measured during pregnancy were identified as related to hypertensive disorders of pregnancy [11].

METHODS

A randomized clinical trial was conducted to review the effect of nutritional counseling intervention on the knowledge, attitude and performance of women referring to Fatemieh hospital, Hamadan city in west of Iran, 2014.

Sixty women expressed interest in the study and they were stratified randomly in to two thirty – member groups of case and control, in order to access a uniform sample in terms of social, economic and cultural conditions. The recruitment took place between June 2014 and December 2014.

Also, in order to prevent the information exchange between the two groups, only a case group or a control group was selected from each women ward. Finally, gynecology ward 1 was considered as case groups and the gynecology ward 2 was considered as control groups.

A self made questionnaire was used to collect data based Orem self care. The first part of the questionnaire was associated with demographic questions such as age, Age at first pregnancy, Education level, Job, Gestational age, Number of parity, Weight before pregnancy, Type of delivery, History of abortion, History of intrauterine fetal death, oral supplement usage and history of disease. The second part of questionnaire was associated with assessment questionnaire-care ability.

To measure the knowledge in the field of self care about preeclampcia, a questionnaire containing 10 questions with (α =0.70) was used. To measure the attitude, the scale contained 6 questions with (α =0.75), to measure the skill of self care, 11 questions were used with (α =0.75), to measure the body image 8 questions were used with (α = 0.70), to measure the confidence 6 questions with (α = 0.70) were used.

The questions were designed as 3 option Likert scale ranging from Yes (= 2), Somewhat (= 1), and No (= 0). Scores of questions were calculated as cumulative frequency. According to the score obtained for different parts of the questionnaire (knowledge, perceived susceptibility, perceived severity, and perceived benefits of adequate calcium intake) the educational content was designed in accordance with the structures of the Oream self care in preeclamptic women. Educational content was prepared tailored to the research objectives and participant's educational needs about preeclampcia (based on the pre – test).

At the beginning of the study, the pre-test questionnaire was administered to the two groups. Illiterate subjects answered the questionnaire through self-report. However, an expert research assistant interviewed the illiterate subjects and recorded their answers in the questionnaire.

In the intervention group, the intervention included four 20-30 minutes educational sessions. The training sessions were held twice a week in the form of 5 player groups. Each session included a combination of lectures, group discussion, questions and answers and power point displays. Moreover, educational pamphlets were given to the participants at the end of the last session. The training sessions were held in the Fatemieh hospital, Hamadan city, Iran. Both groups were assessed immediately after education sessions.

The control group did not receive any training and was only invited to the special sessions to fill out the questionnaires. However, due to ethical considerations, a training session on preeclampcia was held for this group after the completion of the study. At the end we compared the results obtained in these two steps (pre and post test) and analyzed the collected data using.

The study was performed according to the Helsinki declaration protocol. The objectives of the study were explained to the women, and informed consent was obtained from all participants. Women could leave the study at any time. The study was approved by the Ethical Committee of Hamadan University of Medical Sciences. Analyzing the data was performed by SPSS/16, using T test, x^2, Exact Fisher, Wilcoxon and Mann-Whitney U test. P-value < 0.05 was regarded as significant. The limitations of this study are as follows: the reluctance of some women to participate in the study due to multiplicity of training sessions designed, and self reported questionnaires.

RESULTS

Sixty participants were enrolled in this research. Table 1 demonstrates demographic and medical characteristics of participants. The two groups were similar at baseline. Kolmogorov-Smirnov test demonstrated that no significant differences were found between the groups on age, Age at first pregnancy, education level , Job, gestational age, number of parity, weight before pregnancy, type of delivery, history of abortion and intrauterine fetal death, oral supplement usage and history of disease (P> 0.05). Mean age was 27.3±6.6 and 28.9±7.3 and mean age at first pregnancy was 22.9±5.3 and 30.9±3.6 years old in control and case groups, respectively. Mean weight before pregnancy was 62.1±11.2 and 66.4±11.4 Kg in control and case groups, respectively. Mean parity was 1.6±1.1 and 1.5±0.7 and mean gestational age was 246.9±21.9 and 201.4±28.9 days in control and case groups, respectively. In the present study most participants were undergraduate and most women in both groups were housewives. Most of them had not history of abortion, intrauterine fetal death and diseases. The most of women consumed oral supplementation in the case and control groups. (Table 1).

There was no significant differences between the mean scores of the various structures of this model were observed among the two groups before the intervention (P > 0.05). Mean scores of the Knowledge 4.9± 3.7 and 9.5± 1.8 (P <0.001), attitude 10.8± 4.2 and 6.1± 0.4 (P <0.001), and skills7.1± 4.0 and 10.8± 0.4 (P <0.001), body image 11.4± 3.8 and 8.6± 1.7(P <0.001) and self-confidence 14.4± 7.93 and 10.4± 1.8 (P <0.001) were increased significantly in the case group after intervention (P < 0.05) (Table 2). But there was no significant differences between the mean scores of the various structures in Knowledge (3.3±2.2 and 3.5±2.3), attitude (12.0±3.5 and 11.4±4.6), skills (5.5±2.2 and 5.7±2.2), body image (11.7±2.9 and 11.3±3.1), and self-confidence (14.8±4.1 and 14.7±4.1) of this model in the control group (P> 0.05) (Table 2).

In the context of measures blood pressure, 13.53± 1.3 and 14.2± 1.4 Cm/Hg (P = 0.06), Weight, 76.2± 11.8 and 76.2± 19.4 Kg (P =0.9), proteinuria, 1.5± 0.8 and 1.2± 0.4 grs (P>0.001) patient was before the delivery in case and control group, respectively (Table 3).

In both experimental and control groups on measures of blood pressure and body weight there was no significant difference, but the difference was significant proteinuria (P <0.05). After the intervention measure systolic blood pressure and proteinuria in both group had a significant difference, but the difference was not observed (P =0.3).

DISCUSSION

Preeclampsia is a pregnancy-specific syndrome characterized by the onset of hypertension and proteinuria after 20th week of gestation in women who previously were normotensive. Preeclampsia complicates about 3% of all pregnancies.

Although estimated incidence of preeclampsia in 6–10% of all pregnancies in the United States; the incidence is believed to be even higher in underdeveloped countries. Preeclampsia remains a major cause of maternal and prenatal mortality and morbidity. Previous studies indicated that preeclampsia increases risk of subsequent cardiovascular disease and the overall risk of cancer. Despite progress towards understanding the cause of preeclampsia and contributing circulating factors, the etiology of preeclampsia remains unclear. Studies have suggested several risk factors for preeclampsia including nulli parity, family or own history of preeclampsia, diabetes, BMI higher than normal, multiple pregnancy, maternal age (less than 20 and greater than 35 years), renal disease, hydatidiform mole, hydrops fetalis, oocyte donation or donor insemination, chronic hypertension and chronic autoimmune diseases [3, 6].

Patients' knowledge was assessed by using 10 questions, it can be concluded that there is a significant difference between patients' awareness in control and intervention group in response to questions 1 to 5 in each stage before training. In a study that was conducted by Williams et al. (2013), while assessing knowledge and self-care behavior in patients with asthma, they concluded that insufficient knowledge is as an obstacle to self-care behaviors in these patients [12]. The study carried out by Press et al (2011), in assessing the effect of self-care education on knowledge and function of patients with asthma or COPD, showed that during the week after education, average scale of awareness in cardiovascular patients was significantly higher than before education and this remained stable until 12 months after education. So that the high knowledge in subjects has lead to improve self-care behaviors [13]. Another study conducted by Edelman et al. (2007), showed that the average awareness of patients with ICD has significantly increased compare to before intervention [14].

Between knowledge and awareness of patients in the control and intervention group in response to questions 6 to 10 before education, there was no significant difference. This lack of difference in patients' response in both groups can mean that patients are aware of impact and importance of this disease and other ailments on their health and fetus' health. Six questions were considered to evaluate the attitude of patients in both groups. The results showed that there was no significant difference in self-care attitude between two groups before intervention. But a significant difference was seen in terms of self-care attitude in the experimental group after the intervention. The statistical results showed that the use of Orem self care model had been associated with a positive attitude change in the experimental group.

Training Orem self care model had a significant impact on patients self-care skills in interventional group. Skills of patients in the control group during this period has not changed much. In other words Orem self care model training had a significant impact on patients' self-care skills.

A similar study that was conducted by Gehi (2006) showed that After a month of self-care education, self-care behaviors by patients with ICD, have significantly increased in the experimental and control groups, but the performance and the durability of self-care behaviors in the intervention group were higher than the control group, so that nine months after the training, self-care behaviors in the intervention group continued to do well, while the performance had dropped in the control group [15]. The researchers concluded that hospitalization and motivation after participating in the study have been a factor in increasing patients' awareness and behavior in the experimental group [16-19] .

Vahedian-Azimi et al., (2014) by assessing the impact of self-care education on knowledge and performance of intensive unit care patients referred to teaching hospitals of Tehran University of Medical Sciences showed that improving self-care behavior without the knowledge of the behavior and the

understanding of their importance is not possible [20]. The effect of applying Orem self-care model for improving respiratory condition in traumatic patients showed that by using this model based on training needs and patient training principles can improve knowledge, attitude, practice and skills in patients and following that improving breathing in traumatic patients with chest drainage system [21-23].

In this study, a similar effect was obtained. Another study that was about the application of Orem self-care model on self-care ability of patients, achieved the same and results in changing knowledge, attitude and practice in the experimental group compared to the control group.

CONCLUSION

The results of this study except in cases where under the influence of an unknown nature of the disease represents the achievement of specific objectives and applied research. Therefore, Orem self care model was enhanced the knowledge, skills and attitudes were pre eclamptic patients. This results showed that Pregnant women need extra care and seek emotional supports. The prevalence rate of pre-eclampsia and its high risk is high, therefore hospitalization and home care is very important. Lack of adequate training in hospitals was evident in solving the major problems of these patients. Use of teaching aids such as pamphlets, posters and CDs can be helpful. Interest and follow-up of patients and caring for your health and the baby had a great important. Therefore, individual training in the patient's care is required.

AUTHORSHIP

All authors carried out the study design, participated in data collection, analysis, interpretation of data and drafted the manuscript. All authors read and approved the final manuscript.

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Table 1: Baseline characteristics and clinical data of the study population

Characteristics	Control (n=30)	Exercise(n=30)	*p*
Age (years)	27.3 (6.6)	28.9(7.3)	0.3
Age at first pregnancy (years)	22.9(5.3)	30.9(3.6)	0.2
Gestational age (days)	246.9(21.9)	201.4(28.9)	0.1
Number of parity	1.6(1.1)	1.5(0.7)	0.5
Weight before pregnancy	62.1(11.2)	66.4(11.4)	0.1
Type of delivery (%) NVD[a]. CS.	 10.0(66.7) 5.0 (33.3)	 8.0(61.5) 5.0(38.5)	 0.7
History of abortion (%) Yes No	 5. 0(17.2) 24.0(82.8)	 3.0(10.3) 26.0(89.7)	 0.1
History of intrauterine fetal death (%) Yes No	 2. 0(6.7) 28.0(93.3)	 - 30.0(100.0)	 0.2
Education (%) Undergraduate Postgraduate	 21 (70.0) 9 (30.0)	 21 (70.0) 9 (30.0)	 0.8
Job (%) Housewife Employed	 32 (80.0) 8.0(20.00)	 30 (75.0) 10.00(25.0)	 0.2
Supplement usage (%) Yes No	 31(77.50) 9.0(22.50)	 34(85.0) 6.0(15.0)	 0.5
History of disease (%) Yes No	 1.0(3.3) 29.0(96.7)	 2.0(6.7) 28.0(93.3)	 0.1

Data for continuous variables is presented as mean (SD); Data for categorical variables is presented as frequency (percentage). P value for the difference between groups; [a] NVD: Normal vaginal delivery ; CS: Cesarean section

Table 2: Mean scores of knowledge, attitude and skills of self care in participants

Variable	Case group (n=30)			Control group (n=30)			P- Value [b]
	Pre-Test	Post-Test	P- Value[a]	Pre-Test	Post-Test	P- Value[a]	
Knowledge	4.9±3.7	9.5±1.8	<0.001	3.3±2.2	3.5±2.3	0.1	z=6.4 P<0.001
Atitute	10.8±4.2	6.1±0.4	0.001	12.0±3.5	11.4±4.6	0.1	z=6.0 P=0.001
Skills	7.1±4.0	10.8±0.4	0.001	5.5±2.2	5.7±2.2	0.1	z=6.8 P<0.001
Body image	11.4±3.8	8.6±1.7	0.001	11.7±2.9	11.3±3.1	0.1	z=4.3 P<0.001
Self confidence	14.4±7.93	10.4±1.8	0.001	14.8±4.1	14.7±4.1	0.3	F=5.1 P<0.001

The values are presented as mean ± SD; [a] Wilcoxon test within groups, [b] Mann-Whitney U between groups and *P* values relate to the differences between groups at the end of the intervention; Statistical significance of *P* <0.05.

Table 3: Mean scores of symptoms of preeclamocia in participants

Symptoms	Case group (n=30)	Control group (n=30)	P- Value [a]
Blood pressure (Cm/Hg)			
Before delivery	13.53±1.3	14.2±1.4	0.06
After delivery	11.7±8.3	12.4±0.8	0.07
Weight (Kg)			
Before delivery	76.2±11.8	76.2±19.4	0.9
After delivery	66.6±12.9	62.4±11.6	0.1
Protenuria (grs)			
Before delivery	1.5±0.8	1.2±0.4	0.001
After delivery	1.2±0.5	1.5±0.8	0.3

The values are presented as mean ± SD; [a] t-test between groups; Statistical significance of *P* <0.05.

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