

## **The effect of disease knowledge training on pregnancy outcome in gestational diabetes.**

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### **Abstract**

**Objective:** To explore the effect of health education on pregnancy outcome in gestational Diabetes Mellitus (DM) patients.

**Methods:** A total of 78 patients with gestational diabetes diagnosed in our hospital from June 2015 to June 2017 were selected as study samples and were divided into control group and study group with grouping criteria of double blind method in which the former were given routine nursing while the latter received training of health education besides conventional care. The pregnancy outcome and nursing satisfaction in two groups were analysed and compared.

**Results:** Compared with the control group, the study group had obviously better indexes of pregnancy outcome. In addition, the total satisfaction rate of the study group was 97.4%, which was significantly higher than 76.9% in the control group.

**Conclusion:** In the nursing of patients with gestational diabetes mellitus, health education can improve pregnancy outcome, the satisfaction to treatment and nurse-patient relationship, thus worth recommending.

**Keywords:** Pregnancy outcome, Health education, Satisfaction rate, Gestational diabetes.

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### **Introduction**

Gestational diabetes is a common complication in gestation period in obstetrics, the pregnant women are subjected to insulin resistance because of hormone level changes [1] followed by increase of blood glucose. It belongs to high-risk pregnancy [2] and will not only affect the health of pregnant women, but also cause great harm to the fetus. To realize more good pregnancy outcomes in the patients with gestational diabetes and avoid birth defects [3], we conducted this study by choosing 78 gestational diabetes patients treated in our hospital from June 2015 to June 2017 as the objects to explore the effect of routine nursing with health education as follows.

### **Materials and Methods**

#### **General data**

A total of 78 patients with gestational diabetes diagnosed in our hospital from June 2015 to June 2017 were selected as study samples and were divided into control group and study group with equal number of case in each group. In the control group, the patients were aged 20-41 with a mean age of 25.35

± 4.18 y; the gestational age ranged from 12 to 39 w with a mean gestational age of 30.15 ± 6.82 w and the patients weighted in at 45-69 kg with an average weight of 50.865 ± 7.49 kg. In the research group the patients were aged 19-42 with a mean age of 25.60 ± 4.23 y; the gestational age ranged from 13 to 40 w with a mean gestational age of 30.22 ± 6.61 w and the patients weighted in at 43-68 kg with an average weight of 50.46 ± 7.62 kg. There was no significant difference between those two groups in clinical basic data (age, gestational age and weight).

#### **Nursing methods**

The control group were given routine nursing: the patients were informed of matters needing attention during gestation period, guided to have a reasonable diet and told to take regular pregnancy check-up.

The study group were given health education besides the treatment in the control group as follow: Psychological nursing: the nursing staff took the initiative to contact with patients with enthusiasm and answer the patient's doubts in patience to ensure that patients have a certain understanding of

their disease with correct cognition; it was explained by the staff that the disease can be recovered after childbirth through effective and active intervention, and the patients were instructed to adjust the mentality and eliminate negative emotions. Health education: according to individual difference in age, economic status and education level, lectures related to the knowledge on gestational diabetes were carried out in the patients and their families or relevant knowledge was popularized by means of one-on-one conversations. In addition, it was advisable to issue handbook of disease knowledge and through a variety of education manners make the patients realize serious influence of disease in maternal as well as child health and the significance of reasonable blood glucose control in outcome improvement, thus enhancing the compliance in the patients. Dietary guidance: a scientific calculation was conducted on daily energy required in the patients according to their body weight and the diet not only needs to ensure nutrition as well as calories, but also should avoid the incidence of ketosis in hunger and postprandial hyperglycemia. It was required to reach the appropriate proportioning rates of carbohydrate, fat and protein possibly with coarse grains like sorghum and corn as the staple food and vegetables, fish and beans as non-staple food. The patients were prevented from carbonated drinks, desserts and fruits which contained high sugar. They were asked to drink more water in the principle of having many meals, but little food and individualized control was given on their postprandial blood sugar. Exercise instruction: a scientific and reasonable exercise program was set up in basis of the patients' actual situation and blood glucose level with clear daily intensity and amount of daily exercise and aerobic activities like upper limb movement as well as walking were performed as far as possible within one to two hours after meal. Medication guide: for pregnant women with unfavorable glucose control after diet guidance and exercise instruction, intervention could be performed through blood glucose-lowering effect of insulin on doctor's advice and the patients were fully informed of drug use as well as countermeasures to side reaction. Enhancement of patients' own detection ability: the nursing staff taught the patients correct way of measuring blood glucose and helped to reasonably adjust diet quality and quantity as well as drug dosage based on the change of blood glucose to maintain the stability of glucose in gestational diabetes. Regular pregnancy check-up and fetal monitoring: regular pregnancy check-up was ensured to grasp the probability of pregnancy

complications; besides regular examination, inspection items like urine ketone and urine tests were added; the patients were rechecked by B-ultrasonic to master the development status of amniotic fluid and fetus, trying best to make sure that problems were timely discovered followed by targeted solution measures. The patients after 28 w of gestation were advised to take left-lateral position with close monitoring of the number of daily fetal movement. If the movement was less than 30 times in 12 h or less than 4 times per hour, the patients were required to come to hospital for treatment as soon as possible in case that any accident would occur.

### **Effect evaluation**

**Observation index:** Pregnancy outcomes of two groups were recorded, including premature delivery, placenta previa, postpartum hemorrhage, hydramnios, fetal distress and urinary tract infection.

**Survey index:** The questionnaire of nursing satisfaction degree was designed by obstetric with the evaluation contents including five aspects, namely medical environment (the maximum score was 10), control of blood glucose (the maximum score was 10), nurse-patient relationship (the maximum score was 30), pregnancy outcome (the maximum score was 30) and nursing comfort (the maximum score was 20) with a total score of 100 in which the score beyond 80 indicated extreme satisfaction, the score ranging from 60 to 79 satisfaction and the score less than 59 dissatisfaction.

### **Statistical analysis**

The experimental data of this study were analysed by using statistical software of SPSS 22.0. The counting data were described as percentage (n, %) and assessed by  $\chi^2$ .  $P < 0.05$  suggested that there was statistical significance.

## **Results**

### **Analysis on pregnancy outcome in the two groups**

Compared with the control group, the research group had significantly lower incidence of premature delivery, polyhydramnios, postpartum hemorrhage, fetal distress and urinary tract infection. But there was no obvious difference in comparison of placenta praevia between two groups (Table 1).

**Table 1.** Comparison of pregnancy outcome between two groups.

Group	Case	Premature delivery	Fetal distress	Polyhydramnios	Placenta praevia	Postpartum hemorrhage	Urinary tract infection
Control group	39	10	11	8	2	7	13
Research group	39	3	1	2	1	1	2
$\chi^2$	/	4.52	9.85	4.12	0.34	5.01	9.98
P	/	0.033	0.017	0.042	0.556	0.025	0.001

**Comparison of nursing satisfaction between the two groups**

The total nursing satisfaction rate of the control group was 76.9%, which was obviously lower than 97.4% in the study group (Table 2).

**Table 2.** Comparison of total satisfaction rate between the two groups.

Group	Case	Extreme satisfaction	Moderate satisfaction	Dissatisfaction	Total satisfaction rate
Study group	39	20 (51.2%)	18 (46.2%)	1 (2.6%)	97.4%
Control group	39	16 (41.0%)	14 (35.9%)	9 (23.1%)	76.9%
$\chi^2$	/	0.82	0.84	7.34	7.01
P	/	0.3636	0.3572	0.0061	0.0072

**Discussion**

Gestational diabetes refers to the fact that the pregnant women without diabetes before pregnancy suffer from diabetes during pregnancy, if there is no timely and effective intervention in the patients, it would exert adverse effects on maternal and child health [4]. For example, pregnant women are likely to subject to gastrointestinal infection, hypertension of pregnancy [5,6], puerperal infection and miscarriage [7] accompanied by symptoms such as fetal distress, new-born asphyxia and congenital malformation.

In this study, we selected 78 patients with gestational diabetes and divided them into control group and study group respectively treated by routine nursing and health education. After the intervention, the result showed the research group had significantly lower incidence of premature delivery, polyhydramnios, postpartum hemorrhage, fetal distress and urinary tract infection than the control group. The nursing satisfaction rate was 97.4% in the study group and 76.9% in the control group with the former significantly higher than the latter. All these suggest that health education can effectively improve status of patients from the aspect of medication, exercise, diet and mental health in the case of gestational diabetes. In addition, it also enables to cause interactions among the above aspects to play a synergistic effect and greatly improve the outcome of pregnancy while enhancing the compliance of and satisfaction to nursing in the patients.

Dietary guidance is the premise of disease control of gestational diabetes [8] and the patients should care more about caloric intake to avoid excessive calories and elevated blood glucose, which then cause adverse effects on the fetus [9]. Besides the access to adequate nutrition of fetal growth, it is not necessary to control calories too strictly in case that there should be starvation ketosis [10], which restricts fetal growth with bad impacts on brain development in the fetus. The patients are advised to eat more dietary fiber and reasonably adjust diet program in accordance with specific conditions [11], weight and personal preference. On the premise of safety,

measures of exercise guidance can not only alleviate insulin resistance [12], reduce glucose-stimulated insulin secretion and basic serum insulin level [13], but also help to eliminate insulin resistance as soon as possible and increase the utilization and uptake of glucose by muscle cells. The patient’s weight can be controlled at a reasonable level through effective combination of diet guidance and exercise instruction [14]; in which appropriate exercise can better the patients’ mood as soon as possible to avoid depression and accept the treatment with a positive attitude [15]. In addition, the implement of health education can make patients more understand their own disease and improve their enthusiasm of self-management.

In conclusion, the application of health education has a definite effect on patients with gestational diabetes mellitus, which can significantly improve pregnancy outcomes and is worthy of serving as an effective and scientific nursing program.

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