

Research Article

Research of the Influence of Pregnant Women's Food Nutrition on Maternal and Child Health

¹Chuan-Hua Yang, ¹Li Han and ²Kim Seung-Ho

¹Jinan Fourth People's Hospital, Jinan 250001, China

²Cheomdan Hospitals to Treat Heart, Gwangju Metropolitan City, Korea Republic

Abstract: This study discusses the influence of targeted dietary modification and nutrition for pregnant women on maternal and child health. Through taking 200 pregnant women who had health files and accepted dietary guidance at Mary Maternity Hospital from March 2013 to June 2014 as the experimental group, we take 200 pregnant women who don't accept the conventional filing of targeted dietary modification and nutrition as the control group. For the experimental group, we formulated targeted diet programs according to pregnant women's weight and fetal growth and development so as to keep calories in a reasonable range. Compare the incidence rate of complication and delivery outcome of the two groups' mothers and infants. The experiments show that both the incidence rate of complications and the cesarean section rate of the experimental group are lower than those of the control group and targeted dietary modification and nutrition for pregnant women has obvious positive significance on maternal and child health.

Keywords: Food nutrition, maternal and child health, pregnant women

INTRODUCTION

With the increasing improvement of people's living standard, people put more emphasis on the quality of life and their nutritional status, especially for pregnant women, they not only are concerned about their own health, but also care for fetal growth and development (Fowles, 2002). During pregnancy and after delivery, how to have a scientific diet and good nutrition so as to lay a good foundation for babies' lifetime body and intelligence has become a widely concerned topic in the academic circle. At the very start of pregnancy, because of the needs of child rearing, mothers have entered a brand-new and rapid period of physiological metabolism, the development of all body parts and hormone secretion will have significant changes, thyroid function will be exuberant, basic metabolism will increase, pregnant women's weight in pregnancy will gain 10 to 12 kg, fetuses are usually 3 to 4 kg, maternal blood will increase 1.8kg, besides, there are placenta, formation of amniotic fluid, growth of breasts, storage of fat and body fluid and so on, after delivery, mothers will secrete about 800 to 900 mL milk everyday for the need of babies' survival. In the 1990s when people advocated breast feeding, almost all the nutrients of babies in the first six months such as protein, sugar, vitamins and trace elements came from mothers (Andersen *et al.*, 2003). Therefore, it should be guaranteed that during pregnancy and lactation period, the growth of fetuses and infants should be healthy and

women's physique should not be damaged, it is of great importance to strengthen the nutrition of women in pregnant and puer-peral period. As we have had sufficient knowledge about the importance of increasing mothers' nutrition during pregnancy and lactation period, all countries have made daily recommended amount of protein, calories, vitamin A, B, C, D, E, nicotinic acid and trace element calcium, phosphorus, iron, zinc, magnesium, etc., for women in pregnant and puer-peral period (King, 2003). In 2007, according to the dietary characteristics of China, Chinese Society of Nutrition made the supply quantity of daily 13 kinds of dietary nutrition for pregnant women (Giddens *et al.*, 2000).

Food for pregnant women is produced to supplement parts of pregnant women's nutrition lacked in their normal diet or anorexia and dietary bias and it is the outcome of the combination of Chinese traditional medical theory and the modern nutriology (Yang *et al.*, 2014). Traditional Chinese medicine believes that after pregnancy, the growth of fetuses in mothers' bodies mainly relies on the nourishment of essence and blood whose source is mainly liver and kidney (Zi, 2014), so the benefit during pregnancy should choose the products of nourishing kidney, making fetus steady, tonifying spleen and nourishing blood; but after childbirth, due to bleeding in cesarean section, the women are easy to lack blood; at the same time, the secretion of milk after childbirth also comes from essence and blood and only blood is sufficient (Koletzko *et al.*, 2007), milk can be

Corresponding Author: Chuan-Hua Yang, Jinan Fourth People's Hospital, Jinan 250001, China

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supplied uninterruptedly, therefore, tonifying during delivery and feeding period should select the products of nourishing vitality and blood. In contrast, the modern nutriology emphasizes the effects of all kinds of sufficient and balanced nutrition on mothers, fetuses and infants, it agrees that protein, energy and a variety of vitamins are the key of making life sustain healthily. Nutrient snacks of pregnant women focus on the function of nourishing kidney, vitality, spleen and blood on the selection of raw materials; at the same time, it highlights the supplement of various nutrients so as to meet the requirements of nutrients in pregnant and puerperal period (Laraia *et al.*, 2006).

During pregnancy, pregnant women should pay special attention to the increased food consumption and the individual nutritional intake and should not lack a scientific and reasonable dietary structure that is mainly manifested in dietary bias, less emphasis on supplement of nutrients and imbalance nutrition, which will result in malnutrition of pregnant women, effects on the normal development of fetuses and even pregnancy complications. By comparison with multiple sets of data, this study has discussed the influence of targeted diet modification and nutrition for pregnant women on maternal and child health.

MATERIALS AND METHODS

Materials: Take 200 pregnant women who had health files and accepted dietary guidance at Mary Maternity Hospital from March 2013 to June 2014 from clinical data as the experimental group, the age is between 22 to 39 years old and all the gestational weeks are within 12 weeks of early pregnancy. The investigation takes the principle of voluntariness and is free from the interference of adverse factors such as induction and assumption. Take 200 pregnant women who don't accept the conventional filing and are between 22 to 39 years old as the control group. The comparative differences of two groups of age, gestational weeks, height, weight and blood pressure, blood sugar, hemoglobin, etc., when joining in the groups have no statistical significance.

Methods: Evaluate pregnant women's physical conditions and required calories:

- According to pregnant women's height and weight, calculate their ideal weight, pre-pregnancy Body Mass Index (BMI) and daily required calories. Calculation formula: ideal weight (DBM) = height (cm) - 105 (if height > 165 cm, subtract 100), the normal variation range is 10%, $\geq 10\%$ is overweight and $\geq 20\%$ is obesity; pre-pregnancy BMI = pre-pregnancy weight (Kg) / the square of height (m), 18 to 24 is normal, >24 is overweight and >25 is obesity; according to the control standards of different weights (based on the suggestions of Institute of Medicine), propose the advice of increasing or losing weight: if BMI > 18.5, it is

suggested to increase 12.5 to 18.0 kg weight. Normal weight: when BMI is from 18.5 to 25.0, it is suggested to increase 11.5 to 16.0 kg weight. Little overweight: when BMI > 12.5 to 29.5, it is suggested to increase 7.0 to 11.5 kg weight. Obesity: when BMI ≥ 30 , it is suggested to increase 6 kg weight or less.

- Calculate calorie needs according to weight and labor intensity. A small amount of housework activities is extremely light physical labor and 778 kJ calories are needed; light physical labor needs 9614 kJ calories; moderate physical labor needs 11286 and 836 kJ calories should be added during 4 to 6 months of pregnancy. In mid and late pregnancy, it is advisable that weight increases 0.3 to 0.5 kg weekly. When calorie is increased, attention should be paid to vitamin intake, especially the intake of vitamin B so as to promote metabolism.

Nutrient and dietary formulations of the experimental group:

According to the above indicators, we optimize the nutrition of the experimental group. The general principle of pregnant women's reasonable diet is that under the premise of guaranteeing sufficient calories and nutrients, the selection of food should be diversified without dietary bias and picking. Eat more coarse food grains, animal food, fruits and vegetables, fresh milk or dairy products; make a reasonable dietary system, have meals regularly, quantitatively at fixed points and avoid overeating. Adjust the dietary structure according to fetuses' growth and development at all stages of pregnancy to ensure the healthy growth of fetuses. In early pregnancy, diet should be light and not greasy, pregnant women should eat 200 to 300 g staple food, 300 to 400 g fresh vegetables, 50 to 100 g beans, 50 to 100 g fruits, 50 eggs, 20 g vegetable oil, 200 to 250 mL fresh milk and 100 to 150 g animal foods every day. In the mid pregnancy, food should be diversified, the staple food should choose some coarse cereals and pregnant women had better eat animal internal organs especially liver each week for 1 to 2 times. In late pregnancy, food supply should be increased appropriately and the way of eat small meals often should be selected. Increase the supply of protein, eat more animal foods with rich calcium and iron as well as fruits and vegetables, etc. Iron-rich foods include beef, pork, chicken, internal organs, egg yolk, soybeans, spinach, seaweeds, jellyfish and so on. For the pregnant women who suffer anemia, calcium and iodine deficiency in second trimester, the staple food should give priority to coarse grains and they should eat more fresh vegetables and fruits and increase proper aquatic products and seafood.

From the 12th week of pregnancy, record pregnant women's blood pressure, weight, blood tests, B ultrasound, abdominal girth, fundal height etc., as well

Table 1: Comparison of two groups of newborns' birth weight and pregnant women's increase of weight than pre-pregnancy weight

Group	Newborns' birth weight			Pregnant women's increase of weight than pre-pregnancy weight		
	≤3 kg	3-3.6 kg	>3.6	Normal	Reduction	Increase
Experimental group	12	157	31	165	11	24
Control group	33	146	21	121	39	40

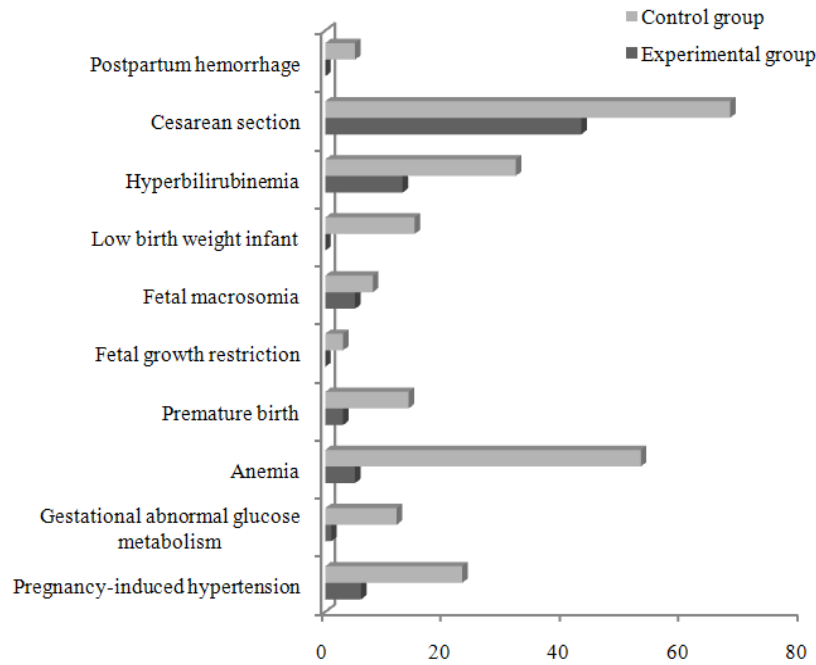


Fig. 1: Comparison of two groups of pregnant women's occurrence of complications

as such conditions as pregnancy complications (pregnancy-induced hypertension, gestational diabetes mellitus and anemia), premature birth, growth retardation of fetuses, cesarean section with medical indicators, postpartum hemorrhage and neonatal weight and all data has been withdrawn without omission.

RESULTS AND DISCUSSION

The comparison of two groups of pregnant women's occurrence of complications is shown in Fig. 1. The comparison of two groups of newborns' birth weight and pregnant women's increase of weight than pre-pregnancy weight is shown in Table 1.

The experimental results show that systematic and targeted dietary guidance is of great significance on pregnant women's reasonable nutrition and prevention of complications. In early pregnancy, pregnant women always have different levels of pregnancy reaction, dietary guidance is particularly important; through pregnancy schools and other ways, we interfere pregnant women's diet throughout pregnancy and guide pregnant women to do some beneficial sports training to distract their attention to pregnancy reaction and maintain their normal routine. We make the diet program with strong pertinence and highlights for the experimental group, correct dietary problems of every pregnant woman

timely, formulate individual reasonable diet program together with family members and pregnant women according to pregnant women's taste and dietary habits to make pregnant women accept the diet program easily and only in this way, the diet program can be carried out smoothly. In real life, due to large differences on pregnant women's cultural level, awareness of pregnancy knowledge and so on, there are also great differences on the condition of diet supplement in pregnancy and improper diet causes complications, therefore, we should analyze the specific diet of each pregnant woman according to her body mass index, fetal development, complications etc., implement individual and targeted dietary guidance and achieve a reasonable nutrition, which are the basic guarantee for pregnant women's health and fetuses' normal growth and development.

CONCLUSION

In pregnancy, fetuses have rapid growth and development and they should have the supply of adequate nutrition to meet the characteristics of fetal development in different stages. Reasonable and moderate nutrition has important significance to ensure the health of pregnant women and fetuses as well as reduce the incidence of pregnancy complications. This

study has proposed the nutrition required in pregnant and puer-peral period and analyzed reasonable diet to provide certain theoretical guidance for the majority of pregnant women.

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