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The pregorexia - anorexia during the pregnancy

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Abstract

Introduction and purpose:
Eating disorders are a serious problem in the developing world. The media are flooding the public images of thinness promoting it as a healthy, fashionable and perfect. This contributes to the increasing prevalence of eating disorders like anorexia, bulimia, anorexia nervosa or atypical bulimia nervosa. The frequency of appearance of these diseases is unknown. It is suspected that it occurs in the range of a few percent.

Description of the state of knowledge:
Pregorexia has a very similar symptoms to other eating disorders. The patients are trying to alleviate the impact of pregnancy on the body. Women try to control their weight by reducing calories intake, exercising, taking laxatives or diuretics.
Low mother's body weight could cause hypotrophy malformations due to micronutrient deficiency - eg. neural tube defects, cognitive disorders, premature birth or even miscarriage. The placenta develops slowly, there is a risk of placenta abruption. Pregorexia can cause maternal anemia, impaired bone mineralization or postnatal depression. Women which are suffering from pregorexia often give birth girls, which can be associated to the lower resistance of boys maternal malnutrition and loss of the pregnancy.

Conclusions:
Pregorexia is not a phenomenon that is occurring very often, but it is a big risk to the fetus. Increasingly, young mothers have a problem with acceptance of changes in their bodies during pregnancy. The role of a doctor in an interview with a pregnant woman is to ask about nutrition and weight gain as factors directly affecting the child. Pregnant women with

eating disorders should be under a special psychological care, during pregnancy and after birth.

Key words: anorexia; pregnancy; psychology; gynaecology; obstetrics

Introduction and purpose:
Eating disorders are a serious problem in the developing world. The media are flooding the public images of thinness promoting it as a healthy, fashionable and perfect. This contributes to the increasing prevalence of eating disorders like anorexia, bulimia, anorexia nervosa or atypical bulimia nervosa[1]. The frequency of appearance of these diseases is unknown. It is suspected that it occurs in the range of a few percent. It is estimated that the women are about 10 times more likely to suffer from anorexia than men. [1]

Eating disorders are very frequent associated with impaired fertility. Most of women with bulimia nervosa (even those with a normal body mass index) have menstrual disorders and 5% of them are suffering from secondary amenorrhea. Therefore women with eating disorders may have the first contact with the physician because of the infertility.
The return of normal fertility and menstruation can be delayed in up to 30% of women with anorexia nervosa, which recover the normal weight. [3]
Pregnancy can be a stressful and anxious time for some women, especially those with eating disorders. The increase of body weight and body shape change can lead to recurrence or deterioration of eating disorders. Conversely, eating disorders can be improved due to concerns about the woman's adverse effects on the unborn child. [4]

Pregnant women are particularly affected by the eating disorders. Their bodies are dynamically changing to facilitate the development of the child. For some, weight gain can make them feel feminine, for others it could be a threat for their feminity. Expectant mothers are under a heavy physical and mental stress. They are often convinced that the pregnancy affects their attractiveness. They are afraid that after the birth they will still have problems with unnecessary pounds. Therefore, eating disorders like anorexia or overweight are more and more common.

Anorexia during the pregnancy is called pregorexia (pregnancy + anorexia). This is a notion of the popular psychology. The first time when this definition was used was in 2008 when the TV program "The Early Show" had to define women who have reduced the intake of calories and extensively exercised during the pregnancy. Pregorexia is anorexia nervosa, which occurred for the first time during pregnancy. Pregnancy could be a factor that initiates this disorder. The first cases were observed in the US and the UK. [2]

Description of the state of knowledge

The pregnant woman's body undergoes many dynamic changes related to the needs of the developing child, determining gradual weight gain. For optimal fetal development importance both normal weight mother before fertilization as well as the body weight gain during pregnancy. Women with an eating disorder are more likely to have an underlying affective disorder (up to 40%). All the stresses of pregnancy (changed body image, weight gain, loss of control) make these women more vulnerable to postnatal depression.

Women which are suffering from eating disorders seem to stop breast feeding earlier than the general population. A retrospective questionnaire study surveying 454 women at 3-7 months postpartum found that 11.5% reported an eating disorder and these patients were notably less likely to be breast-feeding during first three months postpartum. [7]

According to the recommendation of the American Institute of Medicine optimal weight gain during the pregnancy depends on the body mass index (BMI) before the pregnancy. During the first trimester weight should increase by about 2 kg of underweight women (BMI <18.5), about 1.6 kg in women with normal body weight (BMI 18.5-24.9) and about 1 kg of overweight women (BMI 25,0-29,9). In women underweight before pregnancy the total weight gain during the pregnancy should be within 12,5-18,0 kg. [4] (Table 1). Approximate weight gain in twin pregnancies should be 16 - 20.5 kg. If a pregnant woman suffers from frequent nausea, she could even lose weight, but she should not lose more than 2 kg in the first trimester of pregnancy.

The energy demand is different in different trimesters of pregnancy. In the first trimester the energy demand does not change in relation to the period before pregnancy, while the demand for various nutrients is much higher. The fetus takes the necessary nutrients from the mother's body, which is why it is so important proper nutrition before pregnancy and during pregnancy. Only in the second trimester the energy demand increases by 360 calories a day, and in the third trimester of 475 kcal compared to the demand before pregnancy. [5]

Dietary recommendations in pregnancy

Nutritional status of pregnant women is one of the most important factors determining the growth and development of the fetus. Proper nutrition during pregnancy is also the accumulation of reserves (protein, fat, fat-soluble vitamins and some minerals) in the body for a period of lactation.

Meals, which should provide the most energy and nutrients are breakfast and lunch. Here is an energy distribution of 5 meals a day. (Table 3).

Eating regularly spaced meals throughout the day: woman and child will provide an adequate supply of nutrients, promotes proper insulin secretion, promotes proper weight gain during pregnancy, prevents accumulation of excess body fat, prevents the development of overweight and obesity after pregnancy. Meals should be eaten at fixed times during the day, at intervals of 3-4 h.

Carbohydrates are the main source of energy in the diet. The diet of pregnant woman should include 55-60% of the daily energy requirements. The largest value are complex sugars, which are the source cereal. They provide both energy, as well as B vitamins, magnesium, iron, zinc and fiber, which is particularly important during pregnancy because it prevents the accompanying constipation.

The main source of protein in the diet of pregnant women are: meat, fish, eggs, dairy products, seeds and legumes. Protein requirements during pregnancy increases by about 0.3 g / kg / d. It is important to not only the quantity but also the kind of delivered protein. 60% of

the protein to be provided from animal products and 40% of the plant. Pregnant women should limit consumption of marine fish to two times per week (approximately 100 g) due to the content of heavy metals (mercury, cadmium, lead) and dioxins. Consumption of 150 - 200 g of sea fish provides omega 2g.
Dairy products in addition to protein supply B vitamins and large amounts of calcium and should be eaten every day. Calcium is an important building block of the bones of the child and together with the appropriate amount of vitamin D protects mother against bone decalcification, reducing the risk of osteoporosis in later life. The good supply of calcium prevents of hypertension in pregnancy and the risk of preterm delivery.
During pregnancy the body's need for fatty acids increases up to 50% of. Their sources are: vegetable oils (canola, soy, corn, sunflower, safflower, grapeseed, olive oil), oily sea fish, nuts, seeds (eg. pumpkin, sunflower).
The everyday diet should include about 300g of vegetables in the first trimester of pregnancy and 400g II and III. They are the main source of valuable vitamins, minerals and dietary fiber.
Folate rich mainly legumes and leafy vegetables (lettuce, spinach, kale, parsley, broccoli, Brussels sprouts), are characterized by relatively high iron content. A source of magnesium are peas, beans white beans, brussels sprouts, kale, spinach and celery.

BMI before pregnancy [kg/m2]	Total body mass gain during pregnancy [kg]	Body mass gain in the 2nd and 3rd trimester [kg/week]
<18,5	12,5-18	0,5
18,5–24,9	11,5-16	0,4
25,0–29,9	7-11,5	0,3
>30	5-9	0,2

The symptopms:
Pregorexia has a very similar symptoms to other eating disorders. The patients are trying to alleviate the impact of pregnancy on the body. Women try to control their weight by reducing calories intake, exercising, taking laxatives or diuretics. [1] The most serious consequences are related to the fetus. Low mother’s body weight could cause hypotrophy malformations due to micronutrient deficiency - eg. neural tube defects, cognitive disorders, premature birth, respiratory distress, feeding difficulties or even miscarriage. The placenta develops slowly, there is a risk of placenta abruption. Pregorexia can cause maternal anemia, dehydration, poor nutrition, gestational diabetes, impaired bone mineralization or postpartum depression. [2] Women which are suffering from pregorexia often give birth girls, which can be associated to the lower resistance of boys maternal malnutrition and loss of the pregnancy.

Table 1 Recommendations of the National Institute for Health and Clinical Excellence on eating disorders [8]

The symptoms observed in women at high-risk should be screened for eating disorders
Low body mass index
Worried about the weight, but not overweight
Menstrual disorders or amenorrhea
Gastrointestinal symptoms
The physical signs of starvation or repeated vomiting

Suggested screening questions
Do you think you have a problem with your diet?
Are you worried about your weight?

The treatment:

Treatment of eating disorders is a long and difficult process. Currently, the clear risk factors that cause the disease are unknown, so the causal treatment is impossibe. In the treatment of this type of eating disorder the therapeutic team should be consisted of obstetrician, psychologist, psychiatrist, dietitian and midwife. [4]

In the care of pregnant women the standard should be education by a gynecologist about the proper diet and weight gain as well as measurement of body weight gain of pregnant woman on every medical visit.

The gynecologist should control drugs which the pregnant woman takes, especially diuretics and laxatives, insulin, medicines for thyroid disease or diet pills. [6]

The key in the diagnosis of eating disorders in pregnant women is the control of their body weight. This allows to assess whether the woman is gaining weight properly. [6] When a woman is suspected of incidence of eating disorders, she should be under a lot of care and attention. It is important that doctors talk with pregnant women about their acceptation of the changes in their bodies during pregnancy.

Patients may need more frequent and longer visits than usual, to provide psychological support and monitoring of the physical health.

The communication between a pregnant woman and a midwife and gynecologist is very important, was well as the documentation on the prevalence of eating disorders in the notes.

After the birth women should be encouraged to the breastfeed, as it helps to normalize weight after pregnancy.

Table 2 [8]

Suggested questions during each antenatal visit
What is your current eating pattern?
Are you on a diet?
Do you get drunk?
Do you vomit or take laxatives after eating?
What do you thing about your weight?
What is your weight?
Is your weight gain proper?
What is your mood?
Do you feel anxious?
What kind of exercise do you do?
Do you exercise too much?

Summary:

In summary pregorexia is not a phenomenon that is occurring very often, but it is a big risk to the fetus. Increasingly, young mothers have a problem with acceptance of changes in their bodies during pregnancy. The role of a doctor in an interview with a pregnant woman is to ask about nutrition and weight gain as factors directly affecting the child. Pregnant women with eating disorders should be under a special psychological care, during pregnancy and after birth.

Table 3 [8]

Summary of the care of pregnant women with eating disorders
Treat the eating disorders before pregnancy
Before the pregnancy provide general dietary advice
Educate women about nutrition and fetal growth
Refer the woman to a specialist if there is an active eating disorder
Notify midwife about the presence of eating disorders
Common obstetric care is needed if a woman has an active anorexia nervosa or there are concerns that it is vulnerable to return
Watch out for postpartum depression in the postpartum period and recurrence or eating disorders
Pay attention to the importance of breastfeeding

List of references:

[1] Bannatyne AJ, Hughes R, Stapleton P, Watt B, MacKenzie-Shalders K, Signs and symptoms of disordered eating in pregnancy: a Delphi consensus study Published online 2018 Jun 26. doi: 10.1186 / s12884-018-1849-3 PMCID: PMC6019208 PMID: 29940882

[2] Hunn J. Watson Leila Torgersen, Zerwas S, Reichborn-Kjennerud T, Knoph C, Stoltenberg C, Siega-Riz AM, Von Holle A, Hamer RM, Meltzer H, Ferguson EH, Haugen M, Magnus P, Kuhns R, Bulik CM, Eating Disorders, Pregnancy, and the Postpartum Period: Findings from the Norwegian Mother and Child Cohort Study (mob) Nor Epidemiol. 2014 Jan 1;24(1-2):51-62.

[3] Bulik CM, Von Holle A, Gendall K, Lie KK, Hoffman E, Mo X, Torgersen L, Reichborn-Kjennerud T, Maternal eating disorders influence sex ratio at birth. Acta Obstet Gynecol Scand 2008; 87: 979-981

[4] Piszczatowska EH, Krajewska-Kulak E, Pregorexia - Anorexia of pregnant women Med Pediatr Gen. 2017, 13 (3), p. 363-367 DOI: 10.15557 / PiMR.2017.0038

[5] Guide nutrition of pregnant women Department of Obstetrics and Gynecology Mother and Child Institute

[6] Kubaszewska S, Sioma-Markowska U, Machura M Eating disorders in pregnancy - pregorexia Gin Pol Project Med 2012; 2: 25-35.

[7] Larrson G, Andersson-Ellstron A. Experiences of pregnancy-related body shape changes and of breast-feeding in women with a history of eating disorders. Eur Eat Disord Rev 2003;11:116-24

[8] Ward VB Eating disorders in pregnancy. BMJ. 2008 Jan 12; 336(7635): 93–96.