WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 4, Issue 11, November, 2023

FEATURES OF DEVELOPMENT OF NON-DEVELOPING PREGNANCY IN AN ADVERSE EPIDEMIOLOGICAL SITUATION WITH VITAMIN D DEFICIENCY

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Abstract

WHO experts assess vitamin D deficiency and low supply as a new pandemic of the 21st century. Further research is needed to clarify the mechanism of the influence of low vitamin D supply on the development of pregnancy complications. Due to the increasing proportion of undeveloped pregnancies in the structure of early reproductive losses and subsequent adverse consequences, identifying risk factors is an urgent problem in practical healthcare. Deficiency of vitamins, microelements and nutrients in the modern world is a problem that is recognized as a pandemic of the 21st century, despite the development of medical knowledge and the availability of information. Recently, the role of vitamin D in reproductive medicine, obstetrics and gynecology has been actively studied. Vitamin deficiency among pregnant women in the world reaches 50-80%, which creates unfavorable conditions for the process of implantation, development of the embryo and fetus. In this regard, studying the importance of vitamin D and micronutrients in the development of non-developing pregnancy in an unfavorable epidemiological situation is justified.

Keywords: Non-developing pregnancy, micronutrients, vitamin D, preconception preparation.

Introduction

Miscarriage is currently the most important problem in practical obstetrics and gynecology. Pregnancy losses before 12 weeks of gestation (non-developing pregnancy, spontaneous abortion) account for 80% of all early reproductive losses. The largest international association of obstetricians and gynecologists, FIGO, forms

global guidelines for reproductive medicine during its congresses. In 2006, at a congress in Kuala Lumpur, the problem of undeveloped pregnancies was identified as a global epidemic, and since then the situation has not changed. The proportion of pregnancies that fail to progress worldwide has increased significantly from 20 to 46% of total pregnancies. Deficiency of vitamins, microelements and nutrients in the modern world is a problem that is recognized as a 21st pandemic, despite the development of medical knowledge and the availability of information. Recently, the role of vitamin D in reproductive medicine, obstetrics and gynecology has been actively studied. Vitamin deficiency among pregnant women in the world reaches 50–80%, which creates unfavorable conditions for the process of implantation, development of the embryo and fetus. At the present stage, special attention is paid to the metabolism of vitamin D during pregnancy, since there is a physiological increase in the active form of the vitamin and calcidiol, 25(OH)D in the mother's body for optimal content in the fetus. Vitamin D receptors (VDR) are found in almost all organs of the female reproductive system (breasts, ovaries, endometrium, fallopian tubes, decidual tissue, placenta, egg membrane). The importance of vitamin D during pregnancy increases significantly; it ensures fertilization and attachment of the egg to the inner surface of the uterus. If there is a deficiency of the substance, fertilization and, accordingly, pregnancy are difficult or may even be impossible due to the immaturity of the inner layer of uterine tissue. If this occurs, there is a high risk of complicated pregnancy, embryo death and premature termination. Vitamin D plays an equally important role for the fetus, especially in the first days of its development. According to the results of recent studies, the influence of calciferols on the genetic apparatus of the embryo was noted. With a lack of substances in the body, the risk of failure in the process of reading information embedded in DNA and the formation of new cells increases. WHO experts assess vitamin D deficiency and low supply as a new pandemic of the 21st century. Further research is needed to identify the mechanism of the influence of low vitamin D supply on the development of pregnancy complications. Due to the increasing proportion of undeveloped pregnancies in the structure of early reproductive losses and subsequent adverse consequences, identifying risk factors is an urgent problem in practical healthcare.

Purpose of the Study:

To study the level of vitamin D in patients with undeveloped pregnancy.

Materials and Methods:

20 women who applied to the gynecological department of maternity complex No. 8 in the city of Tashkent with complaints of bleeding were examined. Their age ranges from 22 to 35 years at a gestational age of 7–12 weeks. Upon admission, the patients underwent an ultrasound examination, a non-developing pregnancy was diagnosed, and emergency medical care was provided. The diagnosis was made in accordance with the International Statistical Classification of Diseases and Related Health Problems, Revision X (ICD-10). The control group consisted of 20 patients at 7–10 weeks of pregnancy and aged from 25 to 35 years. In the patients of the study groups, a history of somatic and gynecological diseases was studied, as well as the level of vitamin D. In women of both groups, the level of vitamin D was determined by the content of 25(OH)D in the blood serum (enzyme immunoassay was performed using a kit from BIOMEDICAGRUPPE (Germany)). The level of vitamin 25(OH)D was assessed according to the clinical recommendations of the Russian Association of Endocrinologists (2015): physiological level – 30–35 ng/ml and above, insufficient supply – 10–20 ng/ml, deficiency state – 10 ng/ml and below. Statistical processing of the results was carried out using the Statistica for Windows software package (version 6.1). The arithmetic mean and standard error (M±m) were calculated. When studying differences between groups, quantitative parameters were assessed using the Student (p) and Mann-Whitney (pm-u) criteria, relative values were assessed using the □2 criterion (p□2) and in the case of small values, Fisher's exact method (pF) was used. The results were assessed as statistically significant with a probability of error ($p < 0.05$).

Research Results and Discussion:

According to the results of the study, it was found that non-developing pregnancy was more often observed at 7-8 weeks of gestation in 22 women (71.8%), and in 28.2% up to 12 weeks. Non-developing pregnancy is more often observed in women after 30 years of age. Most of the patients were multipregnant - 18 women (56.25%), 14 women (43.7%) had their first pregnancy. In 15.6% of cases, a frozen pregnancy was detected again (spontaneous miscarriages inclusive). When studying somatic morbidity in patients with non-developing pregnancy, chronic diseases of the ENT organs, cardiovascular pathology (iron deficiency anemia and arterial hypertension), kidney disease, herpes and ARVI in early pregnancy were identified. In some cases, a combination of several extragenital diseases was observed. In the obstetric and gynecological history, 18 women (56.25%) were found to have chronic inflammatory diseases of the female genital organs, 2 (6.25%) had uterine fibroids, 7 (21.9%) had

endometriosis, 5 (15 .6%) – menstrual dysfunction. It should also be noted that in the anamnesis of women with a non-developing pregnancy, surgical curettage for polypous growths and hyperplastic processes of the endometrium, spontaneous miscarriages and induced abortions - in 12 (37.5%), postoperative scars on the uterus due to cesarean section - in 6 women (18 .2%). In women in the control group, extragenital pathology was also observed (chronic pyelonephritis, iron deficiency anemia, diseases of the nasopharynx, respiratory and digestive systems) in 36.6% of patients. Pathological abnormalities in the functioning of the thyroid gland were found in 14 pregnant women (46.6%). Analysis of the obstetric and gynecological history of pregnant women in the control group revealed a low level of gynecological pathology: chronic inflammatory diseases of the pelvic organs in 8 (26.7%), uterine fibroids in 4 (13.3%), endometriosis in 3 (9.9%).), non-developing pregnancy in 2 (6.6%), spontaneous abortion in 2 (6.6%), surgical abortion in 3 (9.9%), miscarriage in 2 (6.6%). The role of pathological processes of the endometrium in the pathogenesis of non-developing pregnancy is undoubted; endometriosis, uterine fibroids, degenerative changes due to curettage of the walls of the uterine cavity and a chronic inflammatory process in the endometrium cause morphofunctional disorders of endometrial tissue, which can lead to pregnancy loss. The physiological state of the endometrium is the main factor ensuring the successful process of implantation and the further successful development of the fertilized egg and embryo.

Menstrual dysfunction and endometrial hyperplasia in patients indicate the presence of an endocrine risk factor for non-developing pregnancy. The level of 25(OH)D in the blood serum was determined for women in the study and control groups. In women with non-developing pregnancy, a low level of vitamin D was found (13.8±1.2 ng/ml), and in pregnant women in the control group, the vitamin D content was 31.4±1.6 ng/ml, which is in accordance with clinical recommendations The Russian Association of Endocrinologists (2015) is regarded as the physiological norm for vitamin D.

Deficiency and insufficiency of vitamin D can lead to significant disorders of metabolic processes in the body of the expectant mother, the development of severe pathological changes leading to termination of pregnancy. According to the results of the study, it was revealed that somatic morbidity in patients with non-developing pregnancy is increased compared to that in patients in the control group and the obstetric and gynecological history is more burdened in women with non-developing pregnancy, which emphasizes the negative impact of somatic morbidity, gynecological pathology and curettage of the walls of the uterine cavity on the development of the embryo and fetus. It should be noted that in patients with a non-developing pregnancy, vitamin D

deficiency was detected, while in women in the control group the level of vitamin D corresponded to physiological levels (Recommendations of endocrinologists 2015). It is likely that adequate levels of vitamin D have a beneficial effect on the processes of fertilization, implantation, development and growth of the embryo and fetus and may reduce the level of reproductive losses. In this regard, taking vitamin D supplements can be recommended for women when planning pregnancy and during pregnancy, especially in the early stages. In addition, according to statistics, if a woman had a non-developing pregnancy, she can subsequently, after rehabilitation measures and adequate pre-pregnancy preparation, carry and give birth to a healthy child in 80–90% of cases.

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