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VITAMIN D DEFICIENCY IN PREGNANT WOMEN AND AFTER DELIVERY IN THE AMUR REGION

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Abstract In the course of the study of the content of vitamin D in pregnant women(n=60), was mean age amounted to 25.55±0,63 years living in the Amur it was revealed that its level in the medium amounted to 27.75±1,18. Figures 25(OH)D (ng/ml) was normal in 26 women (43.3 per cent)- group I, figures were reduced in 34 pregnant women (56,6%)-group II. The average CA, P, alkaline phosphatase in pregnant women of the I and II groups was in the normal range, significant differences between the groups were observed. Among the identified risk factors of vitamin D deficiency in healthy pregnant women the most significant ones were: age expectant mothers- over 25 years of age (p‹0.001), prevention of hypovitaminosis in adequate dosage of 25(OH)D or lack of vitamin D intake (p‹0.001), diseases of the osteoarticular system (p‹0.001), gastrointestinal tract (p‹0,004), respiratory system (p‹0,0026), during the course of pregnancy a pronounced morning sickness and threatened abortion in the 1 and 3 trimester of pregnancy (p‹0,028), preeclampsia (p‹0,046), ORI with the fever and catarrhal symptoms (p‹0,024), smoking during or before pregnancy (p‹0.002), anxiety, and sleep disturbance (p‹0,029), dental caries, enamel defect and missing teeth (p‹0,046), red dermographism (p‹0,029). The ways of prevention and correction D - deficient status of pregnant women and newborns.

Key words: vitamin D, cholecalciferol, hypovitaminosis, deficiency, vitamin D insufficiency, pregnant women, risk factors.

Introduction. The urgency of the problem of deficiency of cholecalciferol in the blood of children and pregnant women due to the numerous studies of foreign authors, which proved the adverse effects on the body vitamin D, when in addition to its classic function as a regulator of calcium-phosphorus metabolism have been actively studied nekotrye manifestations of deficiency of vitamin D. it is Established that vitamin D is closely associated with the endocrine system via the existing receptors to the hormonal active form of vitamin D (VDR) [10].

The established facts are considered, due to the lack of vitamin D in the body: increased risk of many diseases related to the immune system – autoimmune disorders, cancer, diseases of the respiratory tract, tuberculosis. Low levels of vitamin D associated with diseases of the cardiovascular system, allergic diseases, endocrine pathology (diabetes type 1)[2,3,10]. We established the relationship of vitamin D intake with a reduction in mortality.

Vitamin D affects the development programming of the fetus and newborn and the subsequent risk of diseases in childhood and adulthood, that is, affects "the very origins of life." Mothers with insufficient levels of vitamin D in blood during pregnancy most children born are prone to various chronic diseases: asthma, multiple sclerosis, diabetes type 1 diabetes type, insulin resistance, schizophrenia, etc. [11,17]. This epigenetic programming development of the fetus and newborn, determining the subsequent risk of developing diseases in childhood and later adult life should be considered in determining public health strategies [6,7]. As has been shown earlier, the failure of cholecalciferol has a major impact on health and measures for combating it failure help to reduce pathologies musculoskeletal disorders, some cancers, autoimmune, infectious diseases, neurocognitive disorders. The content of vitamin D in the body within normal limits is of great importance to reduce the risk of type 1 diabetes type, cardiovascular disease, depression, complications of pregnancy, allergies, improves the performance of ECO [5,12,14,16,18,19].

The purpose and objectives of the study was to identify the frequency and course of D-deficient status in healthy pregnant women living in the Amur region, to determine the risk factors contributing to its development.

The materials and methods. Analysis of laboratory parameters, including the level of total and ionized calcium, phosphorus and alkaline phosphatase; the content of the metabolite of vitamin D [25(Oh)D] in blood serum was determined by high performance liquid chromatography in 60 apparently healthy pregnant women used the clinical and anamnestic data, including surveys of pregnant women. Recruitment of women was conducted in the antenatal clinic of the city of Blagoveshchensk. Inclusion criteria pregnant women: pregnant women aged 17 years to 40 years old, relatively healthy women, gestational age from 32 weeks to 42 weeks, with no organic pathology and genetic syndromes, permanent residents of the Amur region.

Exclusion criteria pregnant women with violations of liver function (jaundice, diarrhoea); disorders of renal functions; with mental development. The package of applied programs Statistica 6.0.

The results of the study.The group surveyed included 60 healthy pregnant women (n=60) whose average age amounted to 25.55±0,63 years.

Conducted laboratory diagnosis in pregnant women: a study on 25 (Oh) D, phosphorus, total calcium, alkaline phosphatase. Calculated at the average level of 25(OH)D - 27,751±,18, Sa - Of 2.34±0,03, R - 1,34±0,03, alkaline phosphatase -282,87±of 10.04.

In General, analyzing the security of pregnant women, cholecalciferol, formed from the total number of pregnant women (n=60) the following groups: I - with reduced increased 25(OH)D3‹29 ng/ml (N = 30-100 ng/ml) [13] identified 34 pregnant women (56,6%), with an average age 27,29±0,84 years. The average in these women 25(OH)D 20,81±0,84, CA 2,25±0,04, R 1,29±0,03, alkaline phosphatase 287,59±13,88, weight - 74,27±1.06 kg, growth 164,47±4,47 cm; In II gr. - value 25(OH)D (ng/ml) corresponded to the norm (N=30-100 ng/ml), included 26 pregnant women (43,3%), whose average age was 23,27±0,77 years. The average in this group was 25(OH)D 36,8±0,74, Sa - 2,47±0,04, R - 1,4±0,05, alkaline phosphatase - 276,69±14,61, the average weight of 72.65±1.21 kg, height 166,85±0,88 cm

Indicators of CA, P, alkaline phosphatase all surveyed pregnant women were within normal values, no significant differences between the groups were observed.

In the structure of the identified risk factors (RF) D deficiency introduction in healthy pregnant women of groups 1 and 2 determined that the age of the expectant mother over the age of 25 is the most common criterion for developing deficiency of cholecalciferol and it was celebrated in group 1 in 26 women (76.4 per cent), in the second group of 10 pregnant women (38.4 per cent). The 2 largest among the identified frequency FR should include the diseases of the osteoarticular system: violation of posture, flat feet, deformity of the chest, cranial deformation.

During inspection, it was revealed that the part of the bone and joint system pathologies were not detected in group I in 13 pregnant women (38.2%), in group II, 20 women(76,9%). In the structure of the identified diseases in pregnant women the most frequent pathology of the digestive tract. Chronic gastritis was detected in pregnant women in group I in 14 (41,1%), in group II in 4(15,38%), which is 3 times more likely to identify CGD in the group deficient in vitamin D. a Similar situation was noted in relation to biliary dyskinesia (GWP). This pathology was identified in 1.5 times more often in group I in 2 (5,8%), in group II in 1(3,8%). Detection of chronic pancreatitis most often in group I was observed in 3(8,8%), in group II diseases of chronic pancreatitis were noted. Without pathology of the gastrointestinal tract (GIT) in group I was noted in 15 cases(44.1%), in group II in 19 (73%), which is 1.5 times more often.

Disease of ENT-organs and respiratory system: rhinitis, sinusitis, pharyngitis, bronchitis in group I was observed in 17 women (50%), in group II in 6 (23%). In the structure identified FR D deficiency introduction in healthy pregnant women had a pronounced toxicosis in 1 and 3 trimester, threatened abortion during pregnancy the most often met (1.5%) in group I, 18 (52,9%), in group II in 8 women (30.7 percent). Preeclampsia was noted for group I, observed in 11 (32,3%), in group II in 2 (7,6%). FR is related to the following diseases ORI with the fever and catarrhal symptoms during pregnancy. This risk factor was observed 4 times more often in group I in 14 (41,1%) than in group II in 3 (11.5%). Among the surveyed, it was identified that before pregnancy or during pregnancy, Smoking women more often in group I, 12 (35,2%), in group II these women were noted.

Among the surveyed healthy pregnant women was identified FR - multivitamin intake during pregnancy. So, multivitamins which include prophylactic dose of vitamin D called Elevit (500 IU), Vitrum Prenatal (400ME), Complivit Mama (250 IU) in group I took 23 (38,3%) women in group II 20 (83,3%), that in 2 times more often.

During the examination of pregnant women were allocated the following FR: anxiety and sleep disturbance, red dermographism, a defect of enamel, caries, absence of teeth. So, in the group I mentioned anxiety and sleep disturbance 15 (44,1%) women in group II 4 (15,3%), which is 2.5 times less. The defect of enamel, caries, absence of teeth in group I were detected in 11 (32,2%), in group II in 2 (7,6%) women, which is 4 times less. Red dermographism was observed in group I in 15 (44,1%), in group II in 4 (15.3 percent) of women, which is almost 3 times less.

The next stage of the study was to investigate the level of 25(Oh)D in these women during childbirth. Of the 60 pregnant women, 32 mothers surveyed in the 2nd-3rd trimesters - surveyed during childbirth. The result of correlation analysis there was an inverse correlation between vitamin D levels during pregnancy and during birth (r=-0,46;Po,001), proving that the level of cholecalciferol reduced to genera, and thereby ensures the normal content of his newborns.

In the study of vitamin D from Vienna mothers, the average level amounted to-17,09±0,86 ng/ml. all pregnant women identified vitamin D insufficiency in different degrees. Vitamin D insufficiency with secondary level is 23,67±1.21 ng/ml in 3 patients (14,2%), vitamin D deficiency in 25 (78.2 percent) women, the average level it was 15,25±0,68 ng/ml, of them significant deficiency in 4(12,5%) with a mean level of 25(Oh)D-9,45±0.1 ng/ml.

In umbilical cord blood (newborns) average содержание25(OH)D of 16.68±1.1 ng/ml In the normal range for vitamin D was observed only in 1 child (up 3.1%) equal 31,67 ng/ml (lower limit of normal); insufficiency were detected in 5 (15.6 per cent) average is 26,31±1,36 ng/ml; deficiency identified in 26 (81,2%) of them pronounced deficit was observed in 4 (12,5%) with an average grade of cholecalciferol of 7.93±0,71 ng/ml.

Discussion of the data obtained. On the formation of the fetus and the birth of a healthy child affected by conditions in the external environment, lifestyle, nutrition pregnant and need to take into account the information about the natural factors of the Amur region. At the same time, analyzing these factors in the Amur region revealed the short duration of the warm days of the year and a high level of air pollution, as indicated by the lack of solar insolation for the prevention of hypovitaminosis D in pregnant women.

Important is the study of the bottom 25(OH)D in period pregravid preparation of women with subsequent correction by a preparation of vitamin D. the Average vitamin D level to 27.75±,18 ng/ml in pregnant women in the Amur region was slightly below the corresponding norms (N = 30-100 ng/ml) [13] . The performance standards were 43.3% беременных25(OH)D3 36,8±0,74, while at 56,6%, they were reduced 25(OH)D3 20,81±0.84 ng/ml(p‹0.05) significant difference between groups I and II. It should be noted that the risk factors of vitamin D deficiency in a child should include age of mother over 25 years of age (p‹0.001), prevention of hypovitaminosis inadequate dosage of 25(OH)D3 or lack of vitamin D intake (p‹0.001), the presence of diseases of the osteoarticular system (p‹0.001), gastrointestinal tract (p‹0,004), respiratory system (p‹0,0026), during the course of pregnancy a pronounced morning sickness and threatened abortion in 1 and 3 trimester of pregnancy (p‹0,028), preeclampsia (p‹0,046), ORI with the fever and catarrhal symptoms (p‹0,024), Smoking during or before pregnancy (p‹0.002), anxiety, and sleep disturbance (p‹0,029), dental caries, enamel defect and missing teeth (p‹0,046), red dermographism (p‹0,029).

Conclusions

1. Normal level of vitamin D was observed in 43.3% of pregnant women, reduced levels of vitamin D of 56.6%.

2.To prevent low vitamin D in pregnant women and in newborn infants is necessary to study 25(OH)D3 during pregravid preparation of women for its correction and control during pregnancy with the risk of developing deficiency of vitamin D.

3.Among the risk factors of vitamin D deficiency, the highest value for its prevention is prophylactic administration of the pharmaceutical preparations of vitamin D.

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VITAMIN D INSUFFICIENCY IN CHILD POPULATION OF THE AMUR REGION

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Abstract Currently, the scientific literature has increased its interest in vitamin D. Over the last 50 years has published more than 60 thousand articles on the topic have been published.

The role of vitamin D in regulation of calcium - phosphorus metabolism in the body is widely known in understanding of the doctor associated with impact primarily on the osteo-articular system and using it for prevention/treatment of rickets in children of the first year of life [2,7,9]. In recent years, were convincing data on the role of vitamin D in many biological processes were discovered and collected. Hormonally active forms of vitamin D, namely calcitriol receptors, found in 40 different tissues of the body, where they carry out the regulation of processes of growth and differentiation of cells, prevent their excessive proliferation and control the synthesis of hormones[1,2,8,9]. Deficiency of this vitamin is associated with the risk of development of autoimmune, inflammatory, oncological diseases, arterial hypertension, myocardial infarction, diabetes mellitus, obesity. It is proved that the normal security uncostly effects of this vitamin in the body need the content of 25(OH)D above 30 ng/ml. [1,6,7,8,9].

It is now known that 30-50% of the population living in Russia, and the United States, is in a state of vitamin D deficiency [1,2,4,6,8,9].

Purpose– to study the availability of vitamin D in children of different ages in the Amur region.

Key words: vitamin D, cholecalciferol, hypovitaminosis, deficiency, vitamin D insufficiency, risk factors.

The materials and methods. The Department of Pediatrics sbei HPE Amur state medical Academy MZ of the Russian Federation in 2014 was organized by the research assessment provision for children from birth to 3 years, 3-6 years, boys 15-17 years of vitamin D in the Amur Region. Study on the identification of D-deficiency States in children began in November 2013 and March 2015. Criteria for inclusion of patients in the study: healthy children, age (from birth to 3 years, 3-6 years, 15-17 years) residing in the Amur region. Exclusion criteria: rickets, mental disorders, disorders of hepatic function and renal function. The content of the metabolite of vitamin D [25(Oh)D] in blood serum was determined by high-performance liquid chromatography analyzer Liason Dia Sorin Pleutschland GmbH Germany, sn - 22290044. The vitamin D took the level of 25(Oh)D=30-100