

PREVENTION OF IODINE DEFICIENCY STATES DURING GESTATION AND BREASTFEEDING

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✓ **Resume**

The aim of the study was to assess the significance of iodine prophylaxis in pregnant and lactating women. We studied 200 women, including 100 pregnant women and 100 postpartum patients living in an endemic area. The widespread implementation of the antenatal and postnatal iodine prophylaxis program, which implies the intake of iodine by pregnant and lactating women, will significantly reduce the pathology of pregnancy and improve the mental and physical health of the younger generation. Prevention of iodine deficiency during pregnancy is an effective measure to protect the body of the mother and child.

Keywords: pregnancy, iodine preparation, iodine prophylaxis, pregnant and lactating women

HOMILADORLIK VA EMIZIKLIK DAVRDA YOD TANQISLIGI HOLATLARINING OLDINI OLISH

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Abu Ali ibn Sino nomidagi Buxoro tibbiyot instituti

✓ **Rezume**

Tadqiqotning maqsadi homilador va emizikli ayollarda yod profilaktikasining ahamiyatini baholash. Biz 200 ayolni, shu jumladan, 100 homilador ayolni va tug'ruqdan keyingi 100 bemorni endemic hududda yashashini o'rganib chiqdik. Homilador va emizikli ayollar tomonidan yod iste'mol qilishni nazarda tutadigan antenatal va tug'ruqdan keying yod profilaktikasi dasturining keng tatbiq etilishi homiladorlik patologiyasini sezilarli darajada kamaytiradi va yosh avlodning aqliy va jismoniy sog'lig'ini yaxshilaydi. Homiladorlik davrida yod etishmasligining oldini olish ona va bola tanasini himoya qilishning samarali chorasini hisoblanadi.

Kalit so'zlar: homiladorlik, yod preparatlar, yod profilaktikasi, homilador va emizikli ayollar

ПРОФИЛАКТИКА ЙОДДЕФИЦИТНЫХ СОСТОЯНИЙ В ПЕРИОД ГЕСТАЦИИ И ГРУДНОГО ВСКАРМЛИВАНИЯ

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✓ **Резюме**

Цель исследования оценить значимость йодной профилактики у беременных и кормящих женщин. Нами были исследованы 200 женщин, в том числе 100 беременных и 100 послеродовых пациенток, проживающих в эндемической зоне. Широкое внедрение программы антенатальной и постнатальной йодной профилактики, подразумевающей прием беременными и кормящими женщинами препарата йода, позволит значительно снизить патологию беременности и улучшить психическое и физическое здоровье подрастающего поколения. Профилактика йод дефицита во время беременности – это эффективная мера защиты организма матери и ребенка.

Ключевые слова: беременность, йодный препарат, йодопрофилактика, беременные и кормящие женщины.

Relevance

The prevalence of iodine deficiency states is quite large all over the world. According to the WHO, about 30% of the world's population is at risk of developing iodine deficiency diseases. Iodine deficiency diseases (IDD) are the most common non-infectious pathology in the world: 1,570 million people are at risk of developing IDD, including more than 500 million people live in regions with severe iodine deficiency and a high prevalence of endemic goiter. In our Republic of Uzbekistan, the problem of iodine deficiency is extremely relevant, since in many territories of the country there is a lack of iodine in water, soil and food of local origin [1,2,6].

Iodine is an essential element for the synthesis of thyroid hormones and adequate iodine supply is a guarantee of its normal structure and function. Dysfunction of the thyroid gland in pregnant women, including with iodine deficiency, can lead to preeclampsia, chronic intrauterine fetal hypoxia, threatened abortion, and fetal malformations. The physiological need during pregnancy, breastfeeding in childhood increases, and the body needs additional intake of iodine [7,11].

The spectrum of iodine deficiency diseases is very wide and, in addition to the pathology of the thyroid gland, it includes a number of gynecological, obstetric and neurological diseases. Moreover, the most serious conditions associated with iodine deficiency are associated with intrauterine fetal developmental disorders [3,9,10]. Iodine deficiency is a global problem in countries where this element is lacking in the composition of the earth. Although today we do not give this the necessary attention, such a condition in many cases leads to irreparable consequences such as miscarriage.

Iodine is an integral part of the thyroid hormones, thyroxine (T_4) and tri-iodothyronine (T_3), necessary for normal growth and development. An adequate supply of cerebral T_3 , generated in the fetal brain from maternal free T_4 (fT_4), is needed by the fetus for thyroid hormone dependent neurodevelopment, which begins in the second half of the first trimester of pregnancy. Around the beginning of the second trimester, the fetal thyroid also begins to produce hormones but the reserves of the fetal gland are low, thus maternal thyroid hormones contribute to total fetal thyroid hormone concentrations until birth. In order for pregnant women to produce enough thyroid hormones to meet both her own and her baby's requirements, a 50% increase in iodine intake is recommended [21,22]. A lack of iodine in the diet may result in the mother

becoming iodine deficient, and subsequently the fetus. In iodine deficiency, hypothyroxinemia results in damage to the developing brain, which is further aggravated by hypothyroidism in the fetus. The most serious consequence of iodine deficiency is cretinism, characterised by profound mental retardation.

Iodine is essential for the production of the thyroid hormones, thyroxine (T_4) and the 3,5,3'-triiodothyronine (T_3), which are vital for normal growth and development particularly of the brain and central nervous system. Maternal thyroid hormones are found in the embryonic cavities ~4 weeks after conception despite the placenta acting as a barrier designed to prevent excessively high levels of free T_4 (fT_4) and T_3 from reaching the fetus before they are needed [1,2,13,14,20]. Thyroid hormones are not believed to play a role in very early fetal development as studies have shown that nuclear receptors for thyroid hormones are only present in the fetal brain from ~8–9 weeks gestation reaching adult levels by 18 weeks gestation [2,15,17]. Before midgestation, the mother is the only source of cerebral T_3 , which is generated in the fetal brain by type II 5'-iodothyronine deiodinase from maternal T_4 .

There is unequivocal evidence that severe iodine deficiency in pregnancy impairs brain development in the child. However, only two intervention trials have assessed neurodevelopment in children of moderately iodine deficient mothers finding improved neurodevelopment in children of mothers supplemented earlier rather than later in pregnancy; both studies were not randomised and were uncontrolled. Thus, there is a need for well-designed trials to determine the effect of iodine supplementation in moderate to mildly iodine deficient pregnant women on neurodevelopment in the child.

Dysfunction of the thyroid gland leads to serious complications of pregnancy: miscarriages, stillbirth, and fetal anomalies. Thyroid hormones play an important role in the development of the fetus: fetal growth, ossification processes, the formation of the central nervous system, the maturation of the lung and renal tissue, the formation of the immune system [4,5,8,16,18,19].

Pregnant and lactating women have the greatest risk of developing iodine deficiency disorders, since the need for iodine during this period increases several times. Adequate intake of iodine by a woman during pregnancy is a reliable measure for the prevention of thyroid disorders and a prerequisite for the normal development of the fetus and newborn. Iodine is an essential element

for the synthesis of thyroid hormones and adequate iodine supply is a guarantee of its normal structure and function.

Dysfunction of the thyroid gland in pregnant women, including with iodine deficiency, can lead to preeclampsia, chronic intrauterine fetal hypoxia, threatened abortion, and fetal malformations. The physiological need during pregnancy, breastfeeding in childhood increases, and the body needs additional intake of iodine.

Iodine is required for thyroid hormone synthesis. Because of increased thyroid hormone production, increased renal iodine excretion, and fetal iodine requirements, dietary iodine requirements are higher in pregnancy than they are for non-pregnant women (1). As such, severe iodine deficiency in pregnancy can lead to maternal and fetal hypothyroidism. As adequate thyroid hormone is required for normal fetal development, iodine deficiency in pregnancy is associated with congenital anomalies, decreased intelligence, and cretinism as well as maternal and fetal goitre. Salt iodization is a simple, cheap, and effective means to ensure iodine intake, however large-scale iodization programmes have yet to be implemented in many settings, and despite major progress over the last four decades, it has been estimated that nearly 2 billion individuals worldwide remain at risk for iodine deficiency disorders. In many countries, pregnant women in particular are not receiving adequate iodine [23]. In settings where iodized salt is not readily available, supplementation may provide needed iodine during pregnancy and lactation.

In early childhood, breast milk is the only food. In most lactating women who did not receive iodine prophylaxis during pregnancy, the iodine content in colostrum decreases sharply by the third day after childbirth. Therefore, it is advisable to continue iodine prophylaxis throughout the entire period of pregnancy and breastfeeding [12].

The aim of the study was to assess the significance of iodine prophylaxis in pregnant and lactating women.

Materials and methods

We studied 200 women, including 100 pregnant women and 100 postpartum patients living in an endemic area. 50 children born in conditions of iodine deficiency without prenatal iodine prophylaxis and whose mothers received iodine preparations from the early stages and throughout the entire period of pregnancy and breastfeeding. The research methods were: general clinical, biochemical questionnaires, determination of daily iodine excretion in urine and milk, statistical, questionnaires.

Result and discussion

Iodine deficiency leads to impaired reproductive function in women: the number of miscarriages, stillbirth's increases, perinatal and infant mortality increases. The course of pregnancy and childbirth in women with endemic goiter is accompanied by an increased frequency of complications such as spontaneous miscarriage (4%), preeclampsia (7.2%), chronic intrauterine fetal hypoxia (34%), discoordination of labor (31%), placental insufficiency (18%), the threat of termination of pregnancy (24%).

Fetal prematurity in this contingent of patients is noted in 25% of cases, intrauterine growth retardation - 23.5%, purulent-septic complications in newborns - 40%.

Thus, the widespread introduction of the program of antenatal and postnatal iodine prophylaxis, which implies the intake of iodine by pregnant and lactating women, will significantly reduce the pathology of pregnancy and improve the mental and physical health of the younger generation. Prevention of iodine deficiency during pregnancy is an effective measure to protect the body of the mother and child.

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