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DISEASES CAUSED BY VITAMIN D DEFICIENCY IN CHILDREN.

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Annotation: This article analyzes vitamin D deficiency in children and the diseases that arise as a result of it. Vitamin D plays an important role in important biological processes in the body, especially in the development of the bone and muscular system, and in the normalization of calcium and phosphorus metabolism. The work provides detailed information about the physiological significance of vitamin D, the causes of deficiency, clinical symptoms and the most common complication - rickets. Also, methods of prevention and treatment of diseases are considered and scientifically based conclusions are presented on the topic.

Key words: vitamin D, children, rickets, vitamin deficiency, bone system, immunity, sunlight, prevention, nutrition, healthy development.

Currently, preserving and strengthening children's health is one of the important medical and social issues. Especially in early childhood, the sufficient availability of important microelements and vitamins is necessary for their proper growth and development. One of them is vitamin D, which plays a major role in the formation of the bone system and immune function in the body.

According to statistics, vitamin D deficiency is widespread among children in many countries, including Uzbekistan, and this condition leads to various health problems. In particular, rickets is one of the most common and dangerous pathologies that develop as a result of vitamin D deficiency.

Vitamin D is a fat-soluble vitamin and is involved in several important biological processes in the body. It exists in two main forms: D2 (ergocalciferol) and D3 (cholecalciferol). While vitamin D2 is found in plant products, vitamin D3 is mainly synthesized in the skin under the influence of sunlight or obtained from animal sources.

Vitamin D plays a key role in the metabolism of calcium and phosphorus, in particular. It ensures the absorption of calcium and phosphorus from the intestine, helps in the formation and strengthening of bones and teeth. In addition, vitamin D is also necessary for the restoration and maintenance of bone tissue.

Main functions in the body:

Maintaining calcium and phosphorus balance;

Ensuring healthy development of bones and teeth;

Supporting muscle function;

Helping the immune system to be strong;

Participating in the regulation of certain hormones and cell growth.

Sources of vitamin D:

1. Sunlight - Vitamin D is synthesized under the influence of ultraviolet rays (UVB) falling on the skin. This is the main and natural source.

2. Food products - Vitamin D is found in fish oil, fatty fish (salmon, sardines), egg yolk, milk and dairy products, and liver.

3. Pharmaceuticals - Can be taken through vitamin supplements and multivitamin complexes.

Sufficient vitamin D is especially important during childhood. Because during this period, bones actively grow, teeth erupt, and the formation of the whole organism continues. If vitamin D is not enough during this period, negative conditions such as bone deformation, muscle weakness, and developmental delay are observed.

Causes of vitamin D deficiency in children

Vitamin D deficiency in children occurs for various reasons. This condition often depends on the external environment, nutrition, lifestyle, and physiological characteristics of the body. The following are the main factors leading to vitamin D deficiency:

1. Insufficient sunlight

Vitamin D is synthesized mainly in the skin under the influence of sunlight (ultraviolet rays). However, the following conditions can cause vitamin deficiency:

A child's lack of exposure to the sun;

Spending a lot of time indoors even in the summer;

Few sunny days in the region (northern regions);

The child's body is completely covered in clothing.

2. Improper nutrition

A diet low in or lacking in vitamin D:

Low consumption of animal products (e.g. fish, egg yolk, dairy products);

Insufficient vitamin D in breast milk in breastfed infants;

Insufficient vitamin D in formula.

3. Prolonged breastfeeding

Breast milk is not considered a sufficient source of vitamin D, and if the mother is deficient in vitamin D, the baby will not receive enough of this vitamin either. Therefore, infants who are exclusively breastfed should be given additional vitamin D.

4. Internal diseases and metabolic disorders

In some cases, children may not absorb vitamin D well or use it properly in the body:

Chronic diseases of the liver or kidneys;

Inflammatory bowel diseases (e.g. celiac disease, celiac disease syndrome);

Malabsorption of fats (pancreatitis, cholestasis).

5. Hereditary or genetic factors

Sometimes a child's body lacks or has a mutation in vitamin D receptors. This disrupts the metabolism of the vitamin. Such conditions develop against the background of hereditary rickets or other metabolic diseases. Children's health is one of the most important values for any society. Their healthy growth and development largely depends on the sufficient availability of important vitamins and microelements in the body. One of

them - vitamin D - is especially necessary for the formation of the bone and muscular system, strengthening immunity, especially in childhood.

Studies show that vitamin D deficiency leads to many negative consequences in early childhood, in particular bone diseases such as rickets, osteomalacia, osteoporosis. The main causes of this condition are insufficient sunlight, malnutrition, internal diseases or vitamin deficiency in the mother.

The following preventive measures are important to eliminate the problem: ensuring that children are in a sunny environment, enriching their diet, timely and correct use of vitamin D supplements (in prophylactic or therapeutic doses), and monitoring the vitamin D status of mothers.

In conclusion, by preventing vitamin D deficiency, it is possible to prevent the development of many diseases and ensure the healthy development of children. Parents, medical workers and all members of society should work together in this regard.

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