



DIETARY SUPPLEMENTS AND MEDICINES (COMPARATIVE CHARACTERISTICS)

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Abstract

The article analyzes that vitamins are essentially nutrients and do not belong to medicines, but they can specifically cure those diseases that were caused by their deficiency in nutrition. Monovitamins and vitamin-mineral complexes (VMCs) can be officially registered as dietary supplements or medicines. In both cases, they are intended for the prevention and treatment of hypovitaminosis, lack of minerals and microelements, the doses of micronutrients in them are strictly guaranteed, and they undergo strict control before entering the market.

Key words: vitamin and mineral complexes, micronutrient fortified foods, dietary supplement, medicines, children, efficiency, safety indicators.

Introduction

VMCs registered as dietary supplements, especially for children, are subject to strict requirements regarding doses of micronutrients, their forms, and auxiliary components. Many monovitamins and VMCs, due to the high doses of micronutrients they contain and the presence of auxiliary components that are not approved for use in baby food products, simply cannot be registered as dietary supplements and, as a result, are registered as medicines. However, this does not mean that they are more effective. VMC softer, closer in composition to food products, which confirms the validity of their classification as specialized products. The effectiveness of IMCs depends not on the form of state registration, but on the doses they contain, the forms of micronutrients and the initial supply of the body.

Vitamins and minerals are essential nutrients that the body must receive in sufficient quantities to fully cover the body's needs for the normal functioning of all organs and tissues. However, in modern conditions, insufficient consumption of vitamins and vitamin deficiency in the body are common among the population (children of all ages, pregnant and lactating women, etc.). To compensate for



insufficient intake, food products enriched with micronutrients and/or vitamin and mineral complexes are used.

However, despite the fact that the word “vitamins” has been familiar to everyone since childhood, attitudes towards their use can vary greatly, from uncontrolled use to wariness and even refusal to take them.

The lack of understanding of the role of vitamins in the body, their mechanism of action and the consequences of deficiency raises unfounded concerns when using micronutrients in physiological doses to eliminate their nutritional deficiencies. In this regard, again and again the need arises to once again clarify the use of vitamins in the diet of modern humans.

Material and methods

The main principles justifying the need to enrich the diet with vitamins are formulated in a fundamental review by the outstanding domestic vitaminologist Professor V.B.Spirichev.

They are as follows: each vitamin in the body (most often in the form of its coenzymes) performs a role unique to it; one vitamin cannot replace another vitamin; not a single vitamin performs its function in the form in which it comes from food; a deficiency of one or more vitamins can interfere with the conversion of other vitamins into their biologically active forms, thereby causing a functional vitamin deficiency; An adequate supply of one or another vitamin can potentiate the effect of another vitamin, ensuring the effective formation of its metabolically active form.

The functional role of each vitamin is well known, disorders caused by their deficiency have been described, and it has been proven that taking vitamins completely restores disorders caused by a deficiency of a particular vitamin. The positive effect of additional intake of vitamins and minerals appears only if there was initially a deficiency of this vitamin, and the activity of the corresponding vitamin-dependent enzymes was reduced due to a lack of coenzyme forms of the vitamin and does not appear in people well supplied with vitamins. Accordingly, the clinical manifestation is eliminated only if its cause was a lack of vitamins.

There is a group of food products that occupies a borderline position between fortified food products and dietary supplements. Food supplements intended for children are produced in a form that is acceptable and attractive to children (lozenges or lozenges instead of conventional capsules and tablets). Therefore, sugar, glucose, marmalade mass, chocolate, etc. are used as auxiliary components, carriers or bases for children’s forms of dietary supplements.



As a result, children's IUDs become very similar in shape to a food product: lozenges, lollipops, chewing candies, marmalade, chocolate, powders for preparing instant drinks, syrups, etc. Such products can be classified into one class or another based on the degree of their enrichment with vitamins and minerals and the recommended level of daily consumption. The differences, and even then not always, relate mainly only to the fundamental possibility of using higher doses of micronutrients in dietary supplements. The possibility and benefits of including fortified consumer products and specialized food products in the diet are described in previous publications. The use of such products is convenient, since people use them instead of traditional products, which does not require changing eating habits. However, the volumes of fortified products produced in our country at the initiative of manufacturers are small, in connection with this there is a need to use vitamin-mineral complexes (VMC).

Result and discussion

The micellized form of vitamin D is intended for patients with cystic fibrosis, cholestasis and other liver dysfunctions (steatohepatitis, etc.) or following certain diets when the secretion of bile acids is reduced. In comparative studies of the effectiveness of microencapsulated (lecithin), micellar (water-soluble) and oil forms of vitamin D, conducted on intact (healthy) laboratory rats, it was shown that microencapsulated and oil forms of vitamin D₃ have better bioavailability for the body compared to micellar vitamin D₃.

In studies on patients with reproductive disorders, it was shown that the water-soluble form is less effective than the oil form: the deficiency when taking it lasts longer, the concentration in the blood increases more slowly. In other words, state registration of a vitamin as a medicine does not necessarily mean that it is more effective in correcting deficiency. The list of forms of vitamins and minerals permitted for use in the production of food products and dietary supplements for food is contained in the Appendices to the “Unified Sanitary-Epidemiological and Hygienic Requirements for Goods Subject to Sanitary-Epidemiological Surveillance (Control)” of the EurAsEC Customs Union. There are no such restrictions for micronutrients included in medicines.

Reliable information about food products and dietary supplements that have passed state registration and are permitted for import and circulation on the territory of the Russian Federation, information about their hygienic characteristics, dosage, and method of use, contraindications is posted on the official website of the Federal Service for Supervision of Consumer Rights Protection and Welfare person



(Rospotrebnadzor) on the Internet (<http://fp.crc.ru/>). A proven way to replenish insufficient intake of vitamins in the diet is the use of multicomponent VMCs or, as they are often called, multivitamin (multivitamin) complexes, specially designed for children and officially registered as dietary supplements or vitamin-enriched specialized food products for baby food. An example is the results of a long-term study. Inclusion during the year in the diet of children attending kindergarten, a vitamin-enriched drink containing all vitamins in a dose of 30–50% of physiological needs, the concentration of all vitamins in the blood in the group observation was significantly 1.2–2.5 times higher than in the comparison group receiving a drink enriched with vitamin C, and corresponded to physiological; the number of children with a normal level of physical development increased by more than 30%, by 32% - with health groups I and II, while the rate of acute morbidity decreased by 20%.

Conclusion

Prevention of micronutrient deficiency in young children is aimed at ensuring full compliance between the body's needs for vitamins and minerals and their intake from food. The existence of intervitamin interactions, as well as the high incidence of polyhypovitaminosis conditions among the child population, serve as the basis for the use of multicomponent IUDs. IUDs are indicated for all conditions in which vitamin deficiency is detected due to decreased intake, limited availability of certain foods, elimination diets, or impaired absorption.

It is noted that guidelines are needed for the adequate use of IUDs, including in the prevention and treatment of many diseases. The positive effect of additional intake of vitamins and minerals appears only if there was initially a deficiency of this vitamin, if the activity of the corresponding vitamin-dependent enzymes was reduced due to a lack of coenzyme forms of the vitamin, and does not appear in groups of people well supplied with vitamins. Accordingly, the clinical manifestation is eliminated only if its cause was a lack of vitamins. This is often indicated by the authors of publications themselves, who did not find a positive effect of taking an IUD.

Thus, the authors explained the lack of effect of taking IUDs on the cognitive functions of male doctors by the fact that the study participants ate fairly well, while the positive effect of taking IUDs is usually observed in groups of people with insufficient dietary intake of the corresponding vitamin and is not found in well-nourished people. One study did not find a preventive effect of taking an IUD on the development of cardiovascular disease, cancer, or mortality. The authors themselves state in the study's limitations section that they "found no evidence of an effect of



dietary doses of vitamins or minerals on cardiovascular disease, cancer, or mortality in healthy individuals without known nutritional deficiencies."

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