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USE OF THE DRUG NEUROVIT

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Abstract
Of the vitamins of Group B, B1, B6 and B12 have neuroprotective effects. Vitamin B12 is essential for lipid metabolism, hematopoiesis, and has neuroprotective effects. At the molecular level, many synergistic interactions of vitamins B1, B6 and B12 have a significant impact force on the metabolism of amino acids, carbohydrates and lipids, the formation of neural structures, the hematopoiesis system. The importance of the synergy of vitamins B1, B6 and B12 at the molecular level are important vitamins for the Prevention of neuroprotection and cerebrovascular pathology.

Keywords: Energy metabolism of vitamins B1, B6 and B12, cell, micronutrient metabolism, neuroprotective, classical hepatoprotector.

Introduction

Vitamin B12 is a group of biologically active substances called cobalamines, which refers to corrinoids containing a cobalt atom(III) and containing chelate compounds. cyanocobalamin (Co-a-[a-(5,6-dimetil-benzimidazolil)]-(Co-b-siyano)kobamid; CN-Cbl; S 63 H 89 O 14 N 14 PCo), in which CN binds cobalt. - -group, the most stable compound synthesized or formed by artificial separation from living organisms, does not occur in natural conditions; hydroxocobalamin (or oxycobalamin or vitamin Ko-a-[a-(5,6-dimetil-benzimidazolil)]-(Co-b-gidrokso)kobamid; OH-Cbl; C 62 H 90 O 15 N 13 PCo) in which is replaced by CN - OH - group, the naturally active form of vitamin B 12 present in reverse converted to aquacobalamine[8]; aquacobalamine (or vitamin B 12b : Co-a-[a-(5,6-dimethyl-benzimidazolyl)]-(co-B-Aqua)cobamide; AQ-CBL; C 62 H 91 O 15 N 13 PCo). reverse converted by microorganisms to hydroxocobalamin in alkaline media; itrocobalamin (or vitamin B 12C), in which it is replaced by CN - ONO - group; B12-deficient linkage anemia is also known as HyperChrome anemia. Nursimon fungus, which produces the antibiotic streptomycin when taking vitamin B12 in industry - Streptomyces griseus, Bac. Megatherium, some species of microorganisms in the Propio-nibacterium family have been used. The essence of taking Vitamin B12 according to the microbiological method is that under certain conditions, after streptomycin was isolated from the liquid from which the nursimon fungus was grown, vitamin B12 was soaked in activated charcoal from the remaining waste liquid. It is then desorbed from the charcoal content with a mixture of butyl alcohol in water. It is cleaned of foreign substances using various solvents. The drug is again purified by the chromatographic method by passing it through a tube containing aluminum oxide with organic solvents. Vitamin B12, purified in this way, is recrystallized from acetone. When the fungus is added to the grown mixture from cobalt salts in a certain and necessary amount, the amount of vitamin formed increases. In the process of biosynthesis, glucose, oat extract, vegetable and animal oil, soy flour, kunjara and others are obtained from natural products that store protein, as well as ammonium

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nitrate, potassium phosphate, cobalt nitrate or cobalt chloride, sodium chloride and Chalk, as the main nutrients for the normal growth of the microorganism and their production of vitamin B12. Products rich in Vitamin B12 make Vitamin B12 in the body of a person microorganisms in the intestine, it is collected in the liver, kidneys and intestinal walls. Natural products rich in Vitamin B12; liver, kidney, yeast, cod fish and whale liver, are fish flour. While beef liver is rich in vitamin B12, its use as a raw material is considered technologically and economically unfavorable. For example, 8 tons of liver contains only 0.01-0.02 g of vitamins. B1-dependent proteins have allowed the separation of 4 main directions of action of thiamine on the body:neurological roles (activation of myelin sheath,adenosine receptor signaling pathway, adenosine metabolism, pyramidal development neurons, thalamus development, hippocampus development, striatum development, cerebellar cortex development); cell energy metabolism and ATF synthesis (mitochondria, mitochondrial a-ketoglutarate dehydrogenase, Krebs cycle, pyruvate dehydrogenase, oxoglutarate dehydrogenase, magnesium ion binding).; Carbohydrate metabolism (glycolysis,glucose metabolism, transketolase), fats (a-oxidation of fatty acids), hematopoiesis (folate carrier, cell differentiation in hematopoiesis). Vitamin B6 binds to proteins in the form of pyridoxal-5-phosphate cofactor and has the following effects-vitamin B6 in the body: neurological roles (sphingolipid biosynthesis, GAMK biosynthesis , myelin); amino acid metabolism (l-cysteine, l-phenylalanine, l-alanine, l-aspartate, l-serine, l-glutamate, l-tryptophan, l-lysine, transaminases increase activity levels; Cell energy metabolism and ATF synthesis (hypoxia response, mitochondrial matrix, 2-oxoglutarate metabolism, glyoxylate metabolism, pyruvate biosynthesis, gluconeogenesis, catabolism ,glycogen); synergic pyridoxine microelements (magnesium,tetragydrofolate, gem, selenium). Thus, a deficiency of vitamin B1 B6 B12 causes various disorders in neuromuscular function. B12 has the following effects on the body: fat metabolism (lipoprotein metabolism, cholesterol metabolism, fatty acid catabolism, digestion). Impaired activity of related proteins is clinically expressed by the formation of atherosclerotic lipid profile, hematopoiesis (cobalamin metabolism, folate metabolism). Impaired activity of related proteins corresponds to the formation of B12-dependent anemia. Neuroprotective and neurotrophic effects (axonal injury response, glutathione metabolism). With vitamin B12 deficiency, the activity of the corresponding proteins is disrupted, which reduces neuronal survival and contributes to the ischemization of nervous tissue.Micronutrient metabolism (cobalamin metabolism, folate metabolism, vitamin D metabolism, heme biosynthesis). Lack of activity of Vitamin-B12-dependent proteins, especially in the intrauterine period with highly undesirable consequences, congenital septal abnormalities associated with anomalies, hereditary vaidiopathic neuropathy) and such pathologies, metabolic disorders (acidemia, aciduria,cardiomyopathy, and other pancreatic diseases bilirubin metabolism disorders) are caused by vitamin B12 deficiency. In the treatment of liver pathology , vitamins B6 , B9, B12 have been used for more than 80 years, this is vitamin B12 (cyanocobalamin), which is a "classic hepatoprotector". The biological role of cyanocobalamin is diverse and studied in detail.Cyanocobalamin enters the human body through food with animal products . When taken, vitamin B12 binds to the internal factor of the fortress, which protects against breakdown under the influence of the intestinal microbiota, and its absorption occurs in almost the entire small intestine . Once in the bloodstream, vitamin B12 binds to one of the transport proteins (transcobalamin II), taking it to the hematopoietic cells of the bone

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marrow and to the liver cyanocobalamin used by tissues only after conversion to coenzyme active forms in the liver: methylcobalamin, which is actively involved in the process of DNA methylation, and deoxyadenosylcobalamin, which is involved in the formation of fatty acids. Methylcobalamin is one of the active coenzyme forms involved in metabolic reactions, generating the energy necessary for the body's cells in the exchange of fats and carbohydrates so that vitamin B12 not only improves metabolic and recovery processes in the liver, but also stimulates the protein-synthetic function of the liver at the DNA level. The use of drugs containing cyanocobalamin leads to the elimination of hypoxia, is accompanied by an increase in hepatocyte resistance, an acceleration of regenerative processes in the liver parenchyma and an improvement in its detoxification function . Methylcobalamin is necessary for the full functioning of the folate cycle, methionine synthesis from homocysteine, DNA methylation, which is the basis for the use of drugs containing vitamin B12 in the complex treatment of liver diseases. Cobalamin is absorbed from the gastrointestinal tract, but can be absorbed non-adequately when prescribed in high therapeutic doses. Absorption is impaired in patients without an internal factor, in intestinal disease or anomaly, after gastrectomy. A significant portion of cyanocobalamin is excreted in the urine within 24 hours after injection; when a dose of 100 mcg is administered, only 55% is retained in the body and 15% at 1000 mcg. Vitamin B12 is broadly associated with plasma proteins, and the so-called transcobalamines (Transcobalamin II) are thought to be involved in the rapid transport of cobalamines in tissues.Vitamin B12 is collected in the liver, excreted in bile fluid, and subjected to extensive enterogepatic processing; the injected dose is excreted in one part of the urine, a large part of it within 8 hours. However, urine excretion accounts for a negligible proportion in the decrease in the total volume of fluid in the body. Vitamin B12 passes through the placenta barrier and is detected in breast milk.Addison-Birmer disease (B12-deficient anemia) and other macrocytic anemia with neurological disorders.Primary 1000 mcg is prescribed any day until the intramuscular condition improves.The retaining dose is 1000 mcg per month. Prevention of macrocytic anemia associated with vitamin B12 deficiency as a result of gastrectomy, certain malabsorption syndromes and a strict vegetarian diet is 250 mcg - 1000 mcg per month. Thiamine (vitamin B1; old name Aneurin) is an organic heterocyclic compound, a water-soluble vitamin, C12H17N4OS. satisfies the formula. Colorless crystalline substance, well soluble in water, insoluble in alcohol (there is also a fat — soluble analogue of vitamin B1 (thiamine) - benfotiamine). In an acidic environment, aqueous solutions of thiamine withstand heating to high temperatures without reducing biological activity. In a neutral and especially alkaline environment, vitamin B1, on the contrary, is quickly destroyed when heated. To date, four forms of thiamine are known in the human body: non-phosphorylated thiamine, thiamine monophosphate, thiamine diphosphate (aka thiamine pyrophosphate), and thiamine triphosphate. Thiamine diphosphate is the most common form of thiamine. Thiamine plays an important role in the metabolic processes of carbohydrates, fats and proteins. The human body can store up to 30 mg of thiamine in tissues. Thiamine is concentrated mainly in skeletal muscle. The other organs in which it is found are the brain, heart, liver and kidneys. This substance is necessary for normal growth and development and helps to ensure the proper functioning of the heart, nerves and digestive systems. Thiamine is a water-soluble compound that is not stored in the body and does not have toxic properties. Lack of thiamine as a result of improper nutrition and excessive alcohol

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consumption leads to Vernik — Korsakov syndrome and vitamin deficiency. These disorders are characterized by changes in the nervous system, which can be restored with high levels of thiamine intake and appropriate nutrition.Other derivatives of thiamine: thiamine triphosphate, found in bacteria, fungi, plants and animals, E. coli plays the role of a signaling molecule in response to amino acid hunger.Adenosine thiamine diphosphate-E as a result of carbon starvation. accumulates in coli . A person receives the main amount of thiamine from plant foods. Plant foods such as wholemeal wheat bread, soybeans, beans, peas, spinach are rich in thiamine. The content of thiamine in potatoes, carrots, cabbage is less. Liver, kidneys, brain, pork, beef are excreted from animal foods containing thiamine, and it is also found in yeast. Its milk contains about 0.5 mg / kg. Vitamin B1 is synthesized by some types of bacteria that make up the microflora of the colon.Systemic deficiency of thiamine causes the development of a number of serious diseases, in which damage to the nervous system occupies a leading place. The complex of consequences of thiamine deficiency is known as beriberi disease and Korsakov-Vernik syndrome. As a rule, the development of thiamine deficiency is associated with eating disorders. This may result from insufficient intake of thiamine with food or excessive consumption of foods containing large amounts of anti-thiamine factors. Thus, fresh fish and seafood contain a large amount of thiaminase, which destroys the vitamin; tea and coffee inhibit the absorption of thiamine.With Beriberi, weakness, weight loss, muscle atrophy, neuritis, mental dysfunction, digestive and cardiovascular system disorders, the development of paresis and paralysis are observed.

Pyridoxine is a form of vitamin B6. These are colorless crystals that are soluble in water.Vitamin B6 (Pyridoxine) is primarily used as a stimulant in metabolism. It is a coenzyme of proteins involved in amino acid processing and regulating protein absorption. Pyridoxine is involved in the production of blood cells and their coloring pigment, hemoglobin, and is involved in the same supply of cells as glucose. As an additive, it is used to treat and prevent side effects or complications when using pyridoxine deficiency, sideroblastic anemia, pyridoxine-dependent epilepsy, certain metabolic disorders, isoniazid and certain types of fungal poisoning.Vitamin B6 (Pyridoxine, pyridoxal, pyridoxamine) helps to effectively use glucose in the cell, protects the body from sudden changes in blood glucose levels, in which adrenaline is excreted from the adrenal glands and blood sugar levels rise sharply. According to psychophysiologists, the frequent manifestation of aggression is an unconscious mechanism, an intuitive way to increase the availability of people for cells of energy materials by releasing adrenaline. Vitamin B6 (Pyridoxine, pyridoxal, pyridoxamine) improves metabolism in brain tissue because it is the main catalyst for amino acid metabolism, the synthesis of most neurotransmitters of the nervous system. Thus, vitamin B6 increases the performance of the brain, helps to improve memory and mood. Therefore, the normal distribution of glucose using vitamin B6 (Pyridoxine, pyridoxal, pyridoxamine) has a beneficial effect on the central and peripheral nervous systems, increases mental, physical indicators and strengthens the nervous system. Lack of vitamin B6 leads to a violation of glutamine metabolism, as a result of which a violation of the central nervous system (convulsions, etc.) occurs. Vitamin B6 (Pyridoxine, pyridoxal, pyridoxamine) has a regulatory effect on the nervous system, specifically trophic innervation. Lack of vitamin B6 disrupts the synthesis of neurotransmitters such as dopamine, serotonin, gamma-aminobutyric acid (GABA), norepinephrine and the hormone melatonin. There is also a violation of the control of the release

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of hormones of the hypothalamus-pituitary system with a lack of vitamin B6. Heat treatment of food loses a significant part of the vitamin. Pyridoxal phosphate is found in three forms of B Foods Vitamin B6: Pyridoxine, pyridoxal, pyridoxamine, which have approximately the same biological activity. Nevrovit - After intravenous administration, thiamine hydrochloride is rapidly absorbed from the injection site.-it enters the bloodstream (484 ng/ml after 15 minutes). Due to the absence of.There are significant reserves of vitamin in the body, it must be ingested daily orally. Approximately 1 mg of thiamine is broken down daily in the body. Any excess vitamin is excreted in the urine.Pyridoxine Hydrochloride (vitamin B6).After intramuscular injection of pyridoxine, hydrochloride is rapidly absorbed into the bloodstream and distributed in the body, acting as a coenzyme after phosphorylation of the CH2OH group in the 5th position. About 80% of the vitamin binds to plasma proteins. Pyridoxine is distributed throughout the body, passes through the placenta and is found in breast milk, deposited in the liver and oxidized to 4-pyridoxic acid, which is excreted in the urine in an amount of 0.05-0.1 mmol / kg of body weight per day, a maximum of 2-5 hours after absorption. The human body contains 40-150 mg of vitamin B6 and its daily renal excretion rate is about 1.7-2.6 mg with a replenishment rate of 2.2 – 2.4%..Cyanocobalamin (vitamin B12).Cyanocobalamin is mainly excreted in the bile, in an amount of 0.5- 5 micrograms per day, while about 70% is reabsorbed and enters the enterohepatic circulation. When high doses (about 0.1-1 mg) are administered, significant amounts of cyanocobalamin are excreted by the kidneys (about 50-90% within 48 hours in healthy subjects). Cyanocobalamin has a relatively long elimination half-life (T1/2) of 123 hours. Pharmacodynamics.Neurotropic B vitamins have beneficial effects on inflammatory and degenerative diseases of the nerves and the motor system. Thiamine hydrochloride (vitamin B1) plays a key role in carbohydrate metabolism, as well as in the Krebs cycle, with subsequent participation in the synthesis of thiamine pyrophosphate and ATP.Pyridoxine hydrochloride (vitamin B6) is involved in protein metabolism and partially in the metabolism of carbohydrates and fats. The physiological function of both vitamins is to potentiate the action of each other, which manifests itself in a positive effect on the nervous and neuromuscular systems.Cyanocobalamin (vitamin B12) participates in the synthesis of the myelin sheath, reduces pain associated with damage to the peripheral nervous system, and stimulates nucleic metabolism through the activation of folic acid.Indications for us Neurological disorders caused by vitamin B1, B6, and B12 deficiency that cannot be eliminated by nutritional correction:neuritis, neuralgia,polyneuropathies (diabetic, alcoholic, etc.),myalgia, radicular syndromes, plexopathy, retrobulbar neuritis, shingles, facial nerve paresis. Method of administration and dosage Injections are performed deep intramuscularly. In severe cases and with acute pain, one injection (2 ml) is administered intramuscularly to rapidly increase the level of the drug in the blood. After the disappearance of the acute stage and with milder forms of the disease, 1 injection is given 2-3 times a week. Intravenous administration is contraindicated; in case of accidental intravenous administration, monitoring of patients in the hospital is necessary. The drug contains lidocaine hydrochloride. Before using lidocaine hydrochloride, it is mandatory to conduct a skin test for individual sensitivity, as indicated by swelling and redness at the injection site.One of the classic signs of vitamin B deficiency is a constant feeling of fatigue. The fact is that due to the lack of vitamin B12, megaloblastic anemia can develop — it produces red blood cells that supply oxygen

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in the body. As a result, the most important organs do not receive enough oxygen and there is a feeling of fatigue.Vitamin B12 is necessary for the normal functioning of metabolic processes in the brain, respectively, its deficiency can lead to serious memory problems and even the development of dementia. Therefore, if difficulties are felt in remembering or processing information, it should not be forgotten to check the level of B vitamins. Their deficiency can lead to serious and almost irreversible diseases.Vitamin B12 deficiency can also occur in people over the age of 50. The fact is that stomach acid is necessary for the absorption of this vitamin, and its production in the body decreases with age. Therefore, those over 50 years of age are advised to carry out an annual blood analysis and monitor the level of all the necessary vitamins and minerals.Thus, the drug neurovit promotes the achievement of an effective result.

References

1. Громова, О. А., Торшин, И. Ю., & Гусев, Е. И. (2017). Синергидные нейропротекторные эффекты тиамина, пиридоксина и цианокобаламина в рамках протеома человека. Фармакокинетика и фармакодинамика, (1), 40-51.
2. Глухов, А. А., Андреев, А. А., Лаптиёва, А. Ю., & Остроушко, А. П. (2020). Основные механизмы реализации лечебного действия цианокобаламина при патологии печени. Вестник Воронежского государственного университета. Серия: Химия. Биология. Фармация, (4), 84-90.
3. Meliqulov, O. J., & Baymuradov, E. S. (2022). VITAMIN B12 NING OLINISHI VA UNING AHAMIYATI. Oriental renaissance: Innovative, educational, natural and social sciences, 2(8), 324-327.
4. Qodirov, N. D., Qo'Yliyeva, M. U., & Boymurodov, E. S. (2021). DORILAR HAQIDA TUSHUNCHA, FARMAKALOGIK XOSSALARI, SAQLASH UCHUN SHAROIT YARATISH USULLARI. Oriental renaissance: Innovative, educational, natural and social sciences, 1(8), 580-586.
5. Halimbetov, Y. M., Yuldashev, S. J., & Jalilova, D. M. (2022). ABU ALI IBN SINO VA UNING TA'LIMOTI. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 403-405.
6. Jalilova, D. M. (2022). ABU ALI IBN SINO'S CONTRIBUTION TO FOLK MEDICINE AND ITS RELATIONSHIP TO MODERN MEDICINE. Новости образования: исследование в XXI веке, 1(4), 508-509.
7. Jalilova, D. M., & Shavazi, N. N. (2024). Prognosis of Fetoplasentar Insufficiency in Pregnant Women with Preterm Obstetric Care and Optimize Preventive Measures. International Journal of Integrative and Modern Medicine, 2(5), 323-327.
8. Rjechitskaya L. E., Gamayurova V. S. Piщevaya ximiya. Chast 2: Vodorastvorimie vitamini / Министерство образования и науки России, Казанский национальный исследовательский технологический университет // Kazan: Izdatelstvo KNITU, 2013 — 140 s. (128-131). ISBN 978-5-7882-1499-3.
9. Баймурадов, Э. С., & Олимов, С. М. (2022). Таркибида эфир мойлари булган доривор усимликлар ва маҳсулотлар. Science and Education, 3(11), 96-105.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

10. Makarchikov, A. F., Lakaye, B., Gulyai, I. E., Czerniecki, J., Coumans, B., Wins, P., ... & Bettendorff, L. (2003). Thiamine triphosphate and thiamine triphosphatase activities: from bacteria to mammals. Cellular and Molecular Life Sciences CMLS, 60, 1477-1488.
11. Kennedy, D. O. (2016). B vitamins and the brain: mechanisms, dose and efficacy—a review. Nutrients, 8(2), 68.
12. Boymurodov, E. S. (2024). Preparation of Raw Materials from Medicinal Plant Parts. Research Journal of Trauma and Disability Studies, 3(2), 114-117.
13. Meliqulov, O. J., Kodirov, N. D., & Baymuradov, E. S. (2022). 4–xlor-5, 6-dimetiltieno [2, 3-d] pirimidinning to'yingan geterosiklik birikmalar bilan reaksiyasi. Ta'lim fidoyilari, 18(5), 285-288.
14. Меликулов, О. Ж., Кодиров, Н. Д., Баймурадов, Э. С., & ИСПОЛЬЗОВАНИЕ, Б. О. (2022). № Special Issue 4-2. URL: https://cyberleninka. ru/article/n/ispolzovanie-barbarisa-v-farmakoterapii.
15. Rajabboevna, A. R., & Suyunovich, B. E. (2023). The Significant Significance of the Medicinal Plant in Zizyphus in Lowering Blood Pressure.
16. Боймуродов, Э. С. (2023). ТУТ БЕЛЫЙ, ШЕЛКОВИЦА (ТУТ)–MORUS ALBA L. Образование наука и инновационные идеи в мире, 15(2), 76-80.
17. Suyunovich, B. E. (2024). BIOLOGIK FAOL OZUQAVIY QO'SHIMCHALAR AHAMIYATI VA INSON ORGANIZMIGA TA'SIRI. Ta'lim innovatsiyasi va integratsiyasi, 18(5), 91-95.
18. Боймурадов, Э. С., & Койлиева, М. У. (2022). Фитотерапия при лечении сахарного диабета. Oriental renaissance: Innovative, educational, natural and social sciences, 2(Special Issue 4-2).
19. Jalilova, D. M., & Istamova, S. N. (2023). Allergic Rhinitis and its Treatment. Central Asian Journal of Medical and Natural Science, 4(6), 576-579.
20. Tosharova, M. A., Mardiyeva, J. S., & Jalilova, D. M. (2024). Use of Fluticasone Propionate in the Treatment of Allergic Rhinitis in Pregnant Women. Research Journal of Trauma and Disability Studies, 3(2), 1-3.
21. Jalilova, D. M., & Shavazi, N. N. (2024). Prognosis of Fetoplasentar Insufficiency in Pregnant Women with Preterm Obstetric Care and Optimize Preventive Measures. International Journal of Integrative and Modern Medicine, 2(5), 323-327.

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