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THE STATE OF VITAMIN DEFICIENCY DUE TO PARASITIC DISEASES

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✓ ***Resume,***

Reducing parasitic diseases is one of the pressing issues. To overcome this problem requires the study of metabolic processes between the host and the parasite. Studies have shown that the accumulation of certain vitamins in the body of helminths depends on the concentration of vitamins absorbed in the digestive system of the host. Through the interaction between the host and the parasite, the helminths absorb the vitamins that are absorbed in the gut and intestines. Our research was based on the study of vitamins in parasitic tissues. Research in this area dates back to the forty-eighth century. They have done very little research in this area. We have used calorimetry, spectrophotometry, fluorometric methods and laboratory methods in our presentations.

Keywords: helminths. patients with helminthiasis. vitamins C. B1. B12. A. E.

PARAZITAR KASALLIKLAR TUFAYLI VITAMIN ETISHMASLIGI HOLATI

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✓ ***Rezyume,***

Parazitar kasalliklarni kamaytirish dolzarb masalalaridan biri. Ushbu muammoni bartaraf etish uchun xo'jayin va parazit o'rtasidagi metabolik jarayonlarni o'rganishni talab qiladi. Gelmintlarning tanasida ma'lum vitaminlarning to'planishi aynan xo'jayin hazim tizimida so'riladigan vitaminlar konsentiratsiyasiga bog'liqligi tadqiqotlar davomida o'rganildi. Xo'jayin va parazit o'rtasidagi o'zaro munosabatlar orqali gelmentlar ichaklar va ichaklarda so'rilayotgan vitaminlarni o'zlashtiradi. Bizni olib borgan izlanishlarimiz parazit to'qimalaridagi vitaminlarni o'rganishdan iborat bo'ldi.. Ushbu yo'nalishda olib borilgan tadqiqotlar o'tgan asrning qirq sakkizinchi yillariga to'g'ri keladi. Ular bu yo'nalishda juda oz tadqiqotlar olib borishgan. Biz taqdidotlarimiz davomida kalorimetriya, spektrofotometrik usul, florometrik usullar va laborator usullardan foydalandik.

Kalit so'zlar: gelmintlar, gelmintozli bemorlar. vitaminlar S.E. A. B1. B12.

СОСТОЯНИЕ ДЕФИЦИТА ВИТАМИНОВ ИЗ-ЗА ПАРАЗИТАРНЫХ ЗАБОЛЕВАНИЙ

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✓ ***Резюме,***

Уменьшение паразитарных заболеваний является одной из актуальных проблем. Для преодоления этой проблемы необходимо изучение метаболических процессов между хозяином и паразитом. Исследования показали, что накопление определенных витаминов в организме гельминтов зависит от концентрации витаминов, всасываемых в пищеварительной системе хозяина. Благодаря взаимодействию между хозяином и паразитом гельминты поглощают витамины, которые всасываются в кишечнике и кишечнике. Наши исследования были основаны на изучении витаминов в тканях паразитов, исследования в этой области восходят к сорок восьмому веку. Они провели очень мало исследований в этой области: в наших презентациях мы использовали калориметрию, спектрофотометрию, флуорометрические методы и лабораторные методы.

Ключевые слова: гельминты. больные гельминтозами. витамины C. B1. B12. A. E.

Relevance

Data from parasitological studies of environmental objects made it possible to determine that the main routes of infestation of invasive material as a result of violations of the requirements for the design and equipment, maintenance and operation of water intake facilities are storm (37.2 ± 0.5%) and flood (40.3 ± 0, 3%) of water, as well as the use of individual buckets (22.5 ± 0.1%). [3]Drinking water from a non-centralized water supply is parasitological unsafe, it contains lamblia cysts, cryptosporidium oocytes, tenciida oncospheres, roundworm eggs, toxocar, pinworms, whipworms. Measures for the protection of non-centralized water supply structures from the receipt of invasive material should include: technical arrangement of structures, creation of sanitary protection zones, cleaning of bottom sediments, and elimination of pollution sources.

Changes in social production and living conditions of the population of the Republic of Uzbekistan (development of private property, [14] farming and individual production, the increasing trend of migration not only within the country but also in countries near and far abroad, the intensification of the processes of human transformation of nature, increased frequency of natural disasters) have changed the living environment of pathogens of intestinal parasitosis in the environment that strongly requires the adjustment and improvement of existing and development of new approaches to their prevention [13].

According to the world Bank, the economic damage caused by intestinal parasitosis ranks fourth among the

losses caused by all diseases and injuries [5]. The world health organization has called on countries that register ascariasis to reduce the level of infection in the population by 80% by 2010.

Purpose. The aim of the study was to find out the peculiarities of vitamin C metabolism. B1, B12. E. A in trematodes (Fasciola hepatica. Opistorchis felineus). cestodes (Taenia solium. Taeniarhynchus saginatus. Hymenolepis nana. Diphyllobothrium latum).nematodes (Ascaris lumbricoides. Ascaris suum. Toxocara canis. Trichocephalus trichiurus. Trichinella spiralis) and in patients with the development of a parasitic disease. Materials for analysis were collected parasites in meat processing plants. during expeditions to the centers of opisthorchiasis. when conducting experimental studies to gimenolepidoz and trichinosis. as well as patients with helminthiasis. who had their blood serum taken at the time of admission to the Bukhara region infectious diseases hospital. Installed. that in the tissues of trematodes cestodes and nematodes found vitamins C. B1. B12. E. A.[15] which helminths get from the intestinal contents or tissues of the host. In patients with helminthiasis. caused by flukes. cestodes and nematodes. it is characterized by a decrease in the levels of vitamins C. B1. B12. a. E in the blood serum.

The solution of questions of the formation of the host parasite system requires the study of metabolic processes. occurring as in the body of helminths. so in their masters. To understand the characteristics of the relationship. developing in the host parasite system. It is of interest to study the metabolism of vitamins in helminths and elucidate their role in the life of invasive organisms.[17] The studies carried out in this direction belong to the forties and eighties of the last century. They are not numerous. carried out using calorimetric. spectrophotometric. fluorometric methods. the results of which are often controversial.

Dedicated to the simultaneous study of the content of vitamins C. B1. AT 12. E.A. in helminths and their metabolism in invasive organisms. the aim of the study was to elucidate the characteristics of the exchange of these vitamins in trematodes (hepatic and cat flukes).[9,11,15] cestode (unarmed. armed and dwarf tapeworms. wide tape) and nematodes (human roundworm. pork and dog; whipworm; trichinella) and in patients with the development of parasitic disease.

Material and methods

Materials for analysis were collected parasites in meat processing plants. during expeditions to the foci of opisthorchiasis. When conducting experimental studies on hymenolepidosis and trichinosis, as well as patients with helminthiases from whom blood serum was taken at the time of admission to the Bukhara regional infectious diseases hospital.

Vitamin C was determined by the dinitrophenylhydrazine method [12]. B1 vitamins. E. A - by the fluoremetric method [12,18]. The research results were processed statistically and presented in tables.

Results and discussion

An analysis of the data allows us to state. that in whole parasites and their tissues significant quantities of both water-soluble (C. B1. B12) and fat-soluble (E. A) vitamins are determined. In parallel with these results, significant changes are noted in the metabolism of these vitamins in the body of patients with helminth infections. When comparing the levels of vitamins in the blood serum of donors and patients with invasive diseases, it can be stated.

Table 1

The content of vitamins in helminths and their tissues (?mol / kg of raw tissue)

№ p/p	Vitamins Helminths	n	C	B1	B12	E	A
				Trematodes			
1	**Fasciola hepatica**	**7**	**346±17**	**0,18±0,004**	**3,04±0,05**	**24,8±0,56**	**0,021±0,003**
2	**Opisthorchis felineus**	**12**	**290±12**	**0.19±0.003**	**3,12±0,04**	**23,4±0,45**	**0,022±0,004**
Cestodes							
3	**Taeniarhynchus saginatus**	**5**	**24,8±1,2**	**0.17±0.004**	**15,04±0,07**	**20,3±0,32**	**0,017±0,003**
4	**Taenia solium**	**5**	**28,6±1,3**	**0,18±0,002**	**12,04±0,06**	**25,4±0,34**	**0,018±0,003**
5	**Hymenolepis nana**	**15**	**18,1±0,9**	**0,20±0,002**	**9,08±0,07**	**20,4±0,41**	**0,019±0,004**
6	**Diphyllobothrium latum**	**5**	**18,9±0,9**	**0.17±0.003**	**24,07±0,12**	**22,2±0,42**	**0,018±0,003**
				Nematodes			
7	**Ascaris lumbricoides**	**5**	**478±18**	**0,14±0,003**	**8,12±0,05**	**34,2±0,44**	**0,013±0,002**
8	**Ascaris suum:** **- intestines** **ovaries** **testes** **- muscles**	**10** **10** **10** **10** **10**	**494±11** **749±17** **494±12** **488±13** **290±8**	**0,12±0,004** **0,15±0,004** **0,13±0,003** **0,13±0,003** **0,09±0,002**	**8,22±0,06**	**36,2±0,38**	**0,012±0,002** **0,037±0,003** **0,017±0,003** **0,018±0,004** **0,021±0,005**
9	**Trichocephalus trichiurus**	**10**	**449±11**	**0,15±0,003**	**7,34±0,12**	**30,1±0,92**	**0,018±0,003**
10	**Toxocara canis**	**7**	**483±9**	**0,13±0,004**	**7,98±0,09**	**32,4±0,28**	**0,019±0,003**
11	**Trichinella**	**10**	**505±17**	**0,14±0,004**	**7,68±0,08**	**35,2±0,43**	**0,020±0,004**

that the levels of all the studied serum vitamins were significantly lower than the control values.

The fact is generally recognized. that ascorbic acid is actively involved in the redox reactions of the body. It. as known. serves as a hydrogen donor. Ascorbic acid is an important biological substance. actively participating in all metabolic reactions of the body. Vitamin C (ascorbic acid) is present in significant quantities in whole helminths (fasciol. Opisthorchis; human roundworm. Pork and dog; whipworm) and in their tissues (intestines. Ovaries. Testes. Pork roundworm muscles). as well as in the larvae of tissue nematodes (trichinella). However, in cestodes (bovine and pork tapeworms. Dwarf tapeworm. Wide ribbon), vitamin C levels were significantly lower. than in trematodes and nematodes (Table 1).

Low levels of vitamin C in cestodes are associated with the ability of the latter to synthesize ascorbic acid [5,6]. and the decrease in vitamin C reserves in hosts invaded by helminths is due not so much to its consumption. how much with the expenditure on the protective and adaptive mechanisms of the patient [19].

Helminths. containing significantly higher levels of vitamin C. in their tissues than those found in the tissues of their hosts. able to absorb vitamin C from the intestinal contents and tissues of the patient. This thesis is confirmed by the presence of maximum values of vitamin C in the intestines of the helminth and various concentrations of vitamin in the tissues of pork roundworms. collected in the months of August-October and February-March. Ascaris intestines are the first to come into contact with swallowed food. which should determine the higher vitamin content in it. About. that vitamin C is not synthesized in the parasite. but absorbed from the host. It is confirmed by the dependence of the vitamin content in the helminth on the nutritional characteristics of its hosts.

Conclusions

According to the World Health Organization, vitamin B deficiency is a serious problem for public health. Vitamin B is an important factor that plays a direct role in the process of differentiation and maturation of lung tissue. In addition, other vitamins are very important for the body. Assimilation of these vitamins by parasitic helminths showed that they accumulate in the tissues when we determined by the results of the study.

It has been established that the tissues of trematodes of cestodes and nematodes contain a significant amount of vitamins C. B1. AT 12. A. E. Helminths receive vitamins due to the predominant absorption of the latter from the intestinal contents and tissues of the host..

LIST OF REFERENCES:

1. Bebravicius V. Yu. The content of vitamin A in the blood serum of rabbits during experimental trichocephalesis and the introduction of interferon /V. Yu. Bebravicius. A. K. Medzevicius // Helminthology today: problems and prospects. - M .. 1989. - Part 1. - P. 43-44.
2. Bekish. V. Ya. State of the host genome in helminthiasis /B. Ya. Bekish. O. - Ya. L. Bekish. - Vitebsk: publishing house. VSMU. 2004. - 217 p.
3. Bekish. O. - Ya. L. Content of ascorbic acid in Ascaris suum / O. - Ya. L. Bekish // Materials of the scientific conference of the all-Union society of helminthologists. - M .. 1963. - Part 1. - P. 33.
4. Bekish. O.-Ya. L. Influence of trichinellosis invasion on the exchange of ascorbic acid / O.-Ya. L. Bekish / / Healthcare of Belarus. - 1972. - № 3. - C. 81-82.
5. Bogomaz T. A. Some features of vitamin C balance in helminth infestations and giardiasis in children / T. A. Bogomaz // Problems of Parasitology. Kiev, 1960, Pp. 87-88.
6. Gevondyan V. S. Influence of tocopherol on the content of sulfhydryl groups. free radical processes and migration of ascariid larvae in Guinea pigs / V. S. gevondyan // Regional infectious pathology and scientific bases for reducing and eliminating infectious diseases. - Yerevan. 1973. - Issue 6. - Pp. 317-319..
7. McLaren D.S., Kraemer K. Vitamin A in nature. World Rev. Nutr. Diet. 2012. vol. 103. P. 717.
8. De Luca L.M. Retinoids and their receptors in differentiation, embryogenesis and neoplasia. FASEB J. 1991. vol. 5. P. 2924-2933.
9. Livrea M.A., Tesoriere L. Antioxidant activity of vitamin A within lipid environments. Subcell. Biochem. 1998. vol. 30. P. 113-143.
10. Clagett-Dame M., Knutson D. Vitamin A in reproduction and development. Nutrients 2011. vol. 3. P. 385-428.
11. Rhinn M., Dolle P. Retinoic acid signaling during development. Development. 2012. vol. 139. P. 843-858.
12. Ross A.C. Vitamin A and retinoic acid in T cell-related immunity. Am. J. Clin. Nutr. 2012. vol. 96. P. 1166S-1172S.
13. Sommer A., Vyas K.S. A global clinical view on vitamin A and carotenoids. Am. J. Clin. Nutr. 2012. vol. 96. P. 1204S-1206S.
14. Esteban-Pretel G., Marin M.P., Renau-Piqueras J., Barber T., Timoneda J. Vitamin A deficiency alters rat lung alveolar basement membrane: Reversibility by retinoic acid. J. Nutr. Biochem. 2010. vol. 21. P. 227-236.
15. Desai T.J., Chen F., Lu J., Qian J., Niederreither K., Dolle P., Chambon P., Cardoso W.V. Distinct roles for retinoic acid receptors alpha and beta in early lung morphogenesis. Dev. Biol. 2006. vol. 291. P. 12-24.
16. McCollum E.V., Davis M. The necessity of certain lipids in the diet during growth. J. Biol. Chem. 2013. vol. 15. P. 167-175.
17. Brown C.H., Noelle R.J. Seeing Through the Dark: New Insights in to the Immune Regulatory Functions of Vitamin A. Eur. J. Immunol. 2015. vol. 45. P. 1287-1295.
18. Schmitz H.H., Poor C. L., Wellman R. B., Erdman J. W., Jr. Concentrations of selected carotenoids and vitamin A in human liver, kidney and lung tissue. J. Nutr. 1991. vol. 121. P. 16131621.
19. Biesalski H., Nohr D. The importance of vitamin A during pregnancy and childhood: Impact on lung function. In: Preedy V.R., editor. Vitamin A and Carotenoids: Chemistry, Analysis, Function and Effects. The Royal Society of Chemistry; London, UK. 2012.P. 532-554.

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