

To The Study of the Provision of Convicts in Penal Institutions with Vitamin C

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ABSTRACT:

The purpose of the article is to assess the status of vitamin C supply in prisons. As research methods, the status of vitamin C metabolism was assessed by the analysis of the daily amount of MG/hour exertion of vitamin C in 197 individuals by the N. S. Jeleznyakov method. As a result of the research, the optimization of the daily diet rations in the institutions of execution of punishment with national products and Greens has resulted in an increase in the supply of vitamin C in the body of convicts to 25-30% in the winter-spring season and 35-40% in the summer-autumn season, and as a result, the excretion of vitamin

KEYWORDS: food rations of specialized institutions, the immune state of the body, supply of ascorbic acid, summer-autumn season.

The relevance of the problem. There are enough publications in the literature on legal issues of the problem of keeping convicts in penitentiary institutions (UIN), as in the works of foreign jurists A.I.Ushatkov, B. B. Kozak, 2001 [1], R. Baron, N. Kerr, N. Miller, 2003 [2], R.Bleckbourne, 2004 [3], and Uzbek scientists Sh.Kh. Inogamov, 2001 [4], A.A. Shamansurov, 2000, 2018 [5,6]. This article contains provisions that have methodological significance for the analysis of legal technologies used in penitentiary activities.

Despite the importance in the spread of tuberculosis, infectious hepatitis, HIV infection among the population at the expense of persons released from correctional institutions (M. Platek, 2000 [7], there are no works on nutrition issues that have a leading role in providing defense mechanisms against infectious diseases among this contingent of people.

A special role in increasing the immune state of the body belongs to the state of vitamin C supply. The WHO Expert Committee, 2005 [8], believes that when assessing the effectiveness of food, it is necessary to take into account not only the amino acid composition, but also the supply of vitamin C.

Vitamins are included in many enzyme systems that are directly involved in a number of metabolic processes. Many researchers have studied changes in the metabolism of vitamins in various pathological conditions. A number of works are devoted to the study of vitamin C, they indicate a decrease in people under stressful conditions of the metabolic rates of this vitamin. This is especially evident when a small amount of ascorbic acid is consumed in food. So when receiving an average of 30-35 mg of ascorbic acid in 20 healthy people aged 40-60 years, the blood plasma of ascorbic acid contained only 0.13 mg (WHO, Global Nutrition Report, - 2015 [9].

Until now, there is no unified understanding of the formation of the vitamin value of rations in penitentiary institutions, due to the lack of such studies and the peculiarities of the structure of their organization of nutrition.

RESEARCH METHODS AND MATERIALS. To assess the impact of stressful situations, it becomes necessary to assess changes corresponding to nutritional disorders associated with the state of the internal environment, in particular, indicators of the state of C-vitamin metabolism.

The state of C vitamin metabolism was assessed by N.S. Zheleznyakova, (Spirichev VB, 1985 [10] by analyzing the daily, mg / hour excretion of vitamin C in the urine in 197 individuals (including 95 men, 80 women and 22 adolescents).

In accordance with the requirements of evidence-based medicine, the subjects were divided into 2 groups: 1 group, the main one, who received a modified diet; 2, a control group, who received actual nutrition. The diet of the 1st group included targeted foods in accordance with the norms with the addition of national products and dishes.

The duration of the test period was 30 days in each season of the year. From the first day of the experimental period, before eating, the persons of the 1st group received new rations based on local products and national dishes. From the moment of taking the rations, urine was collected every day (from 8 am) in a separate dish with a preservative (5 ml of toluene).

Research results and discussion. Indicators for assessing the structural composition of the average daily food rations of the subjects characterize the fulfillment of the accepted norms of a set of products in accounting accounting and reporting documents (layout menu). To assess the qualitative characteristics of the state of actual nutrition, confirmation is required from the side of generally accepted biochemical indicators of the state of metabolism, which characterize the actual intake of nutrients that preceded the studies, i.e. 3-4 days before the research. According to the literature data from the vitamin complex, the greatest information about the actual consumption of vitamin sources is vitamin C. In addition, the above studies are easily performed by a simple collection of urine from the subjects, with further biochemical studies in laboratory conditions. As evidenced by the results of biochemical studies of the state of C-vitamin metabolism in the studied group 2, who received diets without corrections are at a significantly low level both in the summer-autumn (table 1.) and in the winter-spring seasons (table 2.) ... Thus, the indicator of C-vitamin provision in the subjects under study against the actual background is 0.1 ± 0.02 mg / hour of excretion of ascorbic acid in the urine with the content of 44.2 - 1.0 mg vitamin C in diets. Against the changed background of nutrition, the content of vitamin C in the diet of juveniles kept in educational colonies was 68.0–3.0 mg in the winter-spring season, and 70.0–3.0 mg in the summer-autumn season. At the same time, the indicator of mg / hour excretion of ascorbic acid in the urine increased 5 times, reaching 0.6 ± 0.03 mg / hour in winter-spring and 0.7 ± 0.03 mg / hour, which is the lower limit of the biochemical criterion of vitamin supply C for this group.

Against the changed background of nutrition, a significant increase in the indicators of C-vitamin supply of the organism of the subjects under all nutritional norms was achieved, correcting with an increase in the level of vitamin C in the diet. So, with an increase in the content of vitamin C in the winter-spring season by 25-30% and in the summer-autumn season by 35-40%, data were obtained indicating an increase in mg / hour excretion by 18-20% in the winter-spring season, and by 20-25% in summer-autumn seasons. The results obtained testify to the effectiveness of the corrections carried out in the diet of the special contingent of the penitentiary institutions.

Table 1 Indicators of C-vitamin supply in subjects under study on actual and changed nutritional backgrounds in the winter-spring season, M±m.

Categories of the special contingent of UIN according to nutritional standards		Actual nutrition		Modified nutrition	
		Vitamin C content in the diet	Mg / hour excretion of ascorbic acid	Vitamin C content in the diet	Mg / hour excretion of ascorbic acid
Norm No. 1	Men	42,6±2,0	0,2±0,02	60,0±2,0	0,4±0,02*
	Women	42,6±2,0	0,3±0,02	62,2±2,1	0,5±0,02*
Norm No. 2	Men	41,2±1,0	0,2±0,02	64,0±2,0	0,4±0,02*
	Women	42,8±1,5	0,3±0,03	66,2±2,1	0,5±0,03*
Norm No. 2A	Men	41,2±1,0	0,2±0,02	68,0±2,0	0,5±0,02*
	Women	42,8±1,5	0,3±0,02	67,3±1,8	0,6±0,02*
Norm No. 4	Men	42,6±1,6	0,2±0,02	60,0±1,5	0,5±0,02*
	Women	42,8±1,8	0,3±0,03	65,4±1,6	0,6±0,02*
Norm No. 5		44,2±1,0	0,1±0,02	68,0±3,0	0,6±0,03*

Note: here and in table 6.2 * - the differences relative to the data of the actual nutrition group are significant (- P <0.001)

Table 2 Indicators of C-vitamin supply in subjects under study on actual and changed nutritional backgrounds in the summer-autumn season, M±m.

Categories of the special contingent of UIN according to nutritional standards		Actual nutrition		Modified nutrition	
		Vitamin C content in the diet	Mg / hour excretion of ascorbic acid	Vitamin C content in the diet	Mg / hour excretion of ascorbic acid
Norm No. 1	Men	44,7±1,6	0,2±0,02	64,0±1,8	0,4±0,02*
	Women	46,6±1,7	0,3±0,02	66,2±1,9	0,5±0,02*
Norm No. 2	Men	44,2±1,0	0,2±0,02	64,0±2,0	0,4±0,02*
	Women	45,8±1,5	0,3±0,03	66,2±2,1	0,5±0,03*
Norm No. 2A	Men	44,2±1,0	0,2±0,02	68,0±2,0	0,5±0,02*
	Women	45,8±1,5	0,3±0,02	67,3±1,8	0,6±0,02*
Norm No. 4	Men	48,2±1,6	0,2±0,02	65,0±1,5	0,5±0,02*
	Women	49,8±1,5	0,3±0,03	67,2±1,6	0,6±0,02*
Norm No. 5			0,1±0,02	70,0±3,0	0,7±0,03*

The facts revealed by us are connected by the general regularity of the formation of food rations under the influence of technological losses in the production of agricultural products and the culinary processing of food, noted by other researchers. This provision testifies to the need to introduce additional methods for compensating micronutrient deficiencies in the special contingent of UIN in the form of micronutrient supplementation.

Thus, the studies carried out to assess the effectiveness of the nutritional adjustments carried out in the special contingent of penitentiaries based on the study of indicators of C-vitamin supply allow us to draw the following conclusions:

1. The content of vitamin C against the actual background of nutrition in all categories of persons of the special contingent, both in the winter-spring and in the summer-autumn seasons, is less than 50% of the physiological norms of needs.
2. Against the changed background of nutrition, an increase in the content of vitamin C was achieved in all contingents of UIN (except for norm No. 6) in the winter-spring season by 25-30%, and in the summer-autumn season by 35-40%, due to the inclusion of fresh greens and vegetables.
3. Against the changed background of nutrition, an increase in the indicators of C-vitamin supply of the organism of the studied was achieved in the form of an increase in mg / hour excretion by 18-20% in the winter-spring, and by 20-25% in the summer-autumn seasons, which indicates the effectiveness of the nutritional correction. special contingent of penitentiary institutions.
4. The greatest increase in the indicator of the body's supply of vitamin C was achieved in minors kept in educational colonies from 0.1 ± 0.02 mg / hour to 0.6 ± 0.03 mg / hour in winter-spring and $0.7 \pm 0, 03$ mg / hour in the summer-autumn season.

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