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THE EFFECTIVENESS OF A NEW FOOD SUBSTANCE - A HARD GELATIN CAPSULE - "SEDAN BARK" IS BEING STUDIED IN CHILDREN WHO HAVE RECOVERED FROM THE CORONAVIRUS.

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Abstract. Based on the results of our own research, a new food product has been developed - prophylactic soft and hard gelatin capsules - sedan bark. produced by SHANAZ LLC (Uzbekistan), contains a sufficient amount of protein, minerals, vitamins and dietary fiber. The study of effectiveness in patients with coronavirus showed: normalization of metabolism; improvement of hematological parameters, decrease in plasma concentration of liver enzymes (AST, ALT and GGT), as well as total bilirubin, which characterize the detoxification activity of the liver, decrease in the concentration of total cholesterol and glucose in the blood.

Keywords: nutritional substance - prophylactic soft and hard gelatin capsules - sedan bark, sick children after coronovirus, biochemical parameters

Nutrition is an important determinant of immune status, with malnutrition being the most common cause of immunodeficiency worldwide [1]. Deficiencies in vitamins A, B6, B12, folic acid, C, D, E, and micronutrients such as iron, selenium, copper, and zinc are associated with immune dysfunction. A balanced diet can provide most of the essential nutrients, including zinc, iron, magnesium, manganese, selenium, and copper, to help maintain and modulate immune system function [22, 23]. Several epidemiological and clinical studies suggest that in addition to poor personal hygiene, sanitation, or contamination of food and water, the risk of infection is increased with nutrient deficiencies [24]. To date, food safety agencies around the world have not allowed any food or nutrient to be labeled as protective against infection. The role of vitamins C and D in maintaining immunity has been particularly well studied. Vitamin C influences several aspects of immunity, including maintenance of the epithelial barrier, growth and function of both innate and adaptive immune cells, migration of leukocytes to the site of infection, phagocytosis, and antibody production [2].

At the beginning of the COVID-19 pandemic, the World Health Organization (WHO) identified the nutrition factor as one of the key factors in maintaining public health under quarantine and self-isolation. The WHO European Office for the Prevention and Control of Noncommunicable Diseases has developed a set of essential relevant rules. It is known that the nutrition factor plays a key role in the prevention of not only various diseases, but also health disorders in conditions of self-isolation and quarantine. (1.13).

The purpose of the work : to study the effectiveness of a new food substance - a hard gelatin capsule - " sedan bark " in children who have recovered from coronavirus.

Materials and methods of research .

The materials for the study were LLC " NUMA " developed food substance - hard gelatin capsule - sedan bark, produced from oils, obtained by pressing with additives from minerals, vitamins, plant extracts (TI), medical records, case histories of children who suffered coronovirus .

Evaluation of the effectiveness of a new food substance - a hard gelatin capsule - " sedan bark " was carried out in 16 and 18 family clinics of the Almazar district of Tashkent. Under observation were 37 children (19 girls), (18 boys) aged 3 to 14 years who had been ill with coronavirus. The mean age was 51.6±0.82 (Table 1).

Table 1.

The average age of patients suffering from coronovirus (in%).

Age	girls, n=19	boys, n=18	Total number , n= 37
3-5	9 (47.36)	6(33.33)	15 (40.54)
6-8	4 (21.05)	3 (16.67)	7 (18.91)
9-11	4 (21.05)	5 (27.77)	9 (24.32)
12-14	2 (10.52)	4 (22.23)	6 (16.21)

In the polyclinic, together with doctors, a clinical and outpatient examination was carried out, which included a biochemical blood test with the determination of hemoglobin and erythrocytes in the blood. The study was carried out at the beginning and at the end of diet therapy.

The data obtained during the study were subjected to statistical processing on a Pentium-IV personal computer using the Microsoft Office Excel-2013 software package, including the use of built-in statistical processing functions.

Research results and discussion.

NUMA LLC technologists have developed a food substance - a hard gelatin capsule - sedan bark, produced from oils, obtained by pressing with additives from minerals, vitamins, plant extracts, as well as other substances by mixing and further producing them in the form of soft and hard capsule forms .

100 g of bark-sedan contains the following vitamins: vitamin A, RE (mcg) - 18±0.457; Vitamin B1, thiamine (mg) - 0.383±0.04; vitamin C (mg) 21±0.535; Vitamin E 2.5± 0.137, alpha tocopherol 2.5±0.137; vit.PP-3.6066±0.205. In addition, the food substance contains the following minerals: potassium (mg) - 1351±11.931; calcium, Ca (mg) -689±11.661; magnesium, Mg (mg) - 258±4.112; sodium, Na (mg) - 17±0.347; phosphorus, P (mg) - 568±7.425; iron, Fe (mg) - 16.23±0.241; selenium, Se (μg) - 12.1±0.254; zinc, Zn (mg) - 5.5±0.113 (Shaykhova)

A technological instruction has been developed for this product - "Drinking soft and hard gelatin capsules". TI 202224500-7:2019, approved by the Ministry of Health of the Republic of Uzbekistan and GOST of the Republic of Uzbekistan .

We have studied the effectiveness of a hard gelatin capsule - sedan bark in children who had a coronavirus. The study was carried out, as indicated in the materials and methods of research in 16 and 18 family clinics in the Almazar district of Tashkent. Under observation were 37 children (19 girls), (18 boys) aged 3 to 14 years who had recovered from coronovirus.

When examining ill children with coronavirus infection, when studying the medical history, concomitant diseases were found: anemia, obesity, diabetes mellitus, chronic tonsillitis, parasitic diseases. According to the results of the study and scientific, literary data, patients with coronavirus under 5 years of age are twice as likely to need hospitalization if they have anemia, bronchial asthma (literature).

When studying the actual nutrition using a survey of mothers of children who had recovered from coronavirus, it was revealed that the parents themselves violated the diet, bought fast foods, confectionery for children, low consumption of fruits, berries and vegetables, melons, as well as vitamins was revealed, and this led to insufficient consumption macro and microelements, vitamins and other biologically active compounds.

According to melon literature (12.14, 20) Patients with anemia are more prone to infections. Research scientists show that the age of sick children and concomitant diseases such as anemia, diabetes mellitus, bronchial asthma are the most powerful predictors of hospitalization. The WHO Centers for Disease Control and Prevention (CDC) says children with anemia and diabetes are at higher risk of complications from COVID-19 (8,9,1 0).

An analysis of literature data shows that detoxification of patients with coronavirus infection and people during quarantine and self-isolation is most effective with the use of specialized preventive dietary foods (3,4,5). All this requires intensive research, as well as rehabilitation measures not only during illness, but also after clinical recovery and discharge of patients.

Children who recovered from coronavirus and were under our supervision received a standard diet at home. Purpose of appointment: to provide good nutrition, to moderately stimulate the secretory function of the digestive apparatus, to normalize motor function. General characteristics: physiologically complete diet with moderate sparing and moderate stimulation of the secretion of the digestive - apparatus. Dishes of varying degrees of grinding and heat treatment are allowed - boiled, stewed, baked, fried without the formation of a rough crust (do not bread in

breadcrumbs or flour). Pureed dishes - from foods rich in connective tissue or fiber. Exclude foods and dishes that linger in the stomach for a long time, are difficult to digest, irritate the mucous membrane of the digestive tract, very cold and hot dishes. Chemical composition depending on the age of children: proteins - 90- 100 г(60% animals), fats - 90-100 g (25% vegetable), carbohydrates - 400-420 g; energy value 11.7-12.6 MJ "(2800-3000 kcal); sodium chloride - up to 15 г, free liquid - 1,5 л. Diet: 4-5 times a day without heavy meals.

Recovered children with coronavirus (3) at home during breakfast and dinner twice a day received hard gelatin capsules: “sedan bark”.

Children who recovered from coronavirus underwent a clinical examination: complaints, an anamnesis of the disease, and examination of children were identified.

The results of clinical studies of the effectiveness of the use of the gelatin capsule "sedan bark" showed that within three months, the examined children with coronavirus who had recovered from the disease had an improvement in their health.

In table. 2 and 3 before and after taking Sedan cortex capsules in recovered children with coronavirus, the following biochemical blood parameters were recorded.

Table 2.

Biochemical parameters of blood in recovered children with coronovirus when using hard gelatin capsule sedan bark

o.	**Indicators**	**Norm**			**Control group (10 people)**	
			Before treatment	After treatment	Before treatment	After treatment
	Hb (hemoglobin)	*110.0-150.0g/l*	98.6±20.2	122 ±11	97.4 ± 16.3 _	100.2 ± 20.2
	(SOE)	*E; 4-15mm/soat*	13.0±7.98	6.33 ±7.42	14.2 ± 8.8	8.8 ± 12.7
	WBS (leukocyte)	*5.0-9.5 10 ^{9} /l*	6.6 ±6.9	4.6± 0.58	6.9 ± 8.2	5.0 ± 12.4
	Lymph (lymphocyte)	*26-60%*	55.25±5.77	31.96±4.08	57.8 ± 8.67	45.0 ± 8.22
	ALT	*0-40*	38 ±39	22.83 ± 23.5	37.4 ± 33	32.0 ± 22.2

	AST	*0-40*	34. 94±35.5	22 ±20	38.6 ± 25.3	29.2 ± 20
	Glucose	*3.3-6.1mmlo/l*	5.7 6 ±0.48	4.8 3 ± 0.31	6.00 ± 2.2	5.5 ± 0.2

After taking gelatin capsules after 2 months, mothers of children who had recovered from the disease noted a significant improvement in the condition of their children, an improvement in appetite. There was an improvement in hematological parameters, a decrease in the concentration of hepatic enzymes (AST, ALT and GGT) in the blood plasma, while in the comparison group the differences were minimal (Table 3).

Laboratory studies in individuals of the main group established a significant increase in hemoglobin by 10-12%. The most pronounced decrease was in the subgroup of patients with ESR and CRP concentration, which decreased by 16 and 13% from the initial level, respectively, and in the subgroup that received 34 and 26%. In all subgroups of the main group, a statistically significant decrease in the concentration of glucose by 6–17% and cholesterol by 9–18% from the initial level was revealed. In the control groups, compared with the main group, no such changes were found.

The consumption of products of the gelatin capsule of the sedan bark led to a significant decrease in the concentration of urea and creatinine, which indicates an accelerated removal of toxins and metabolic products formed in the body.

Thus, the developed food substance "sedan bark" prophylactic soft and hard gelatin capsules for detoxification of the body are indicated for use:

- during the period of self-isolation and quarantine of children in order to prevent intoxication of the body;
- in chronic diseases and their exacerbation; with a general deterioration in the state of the body, accompanied by a decrease in immunity, appetite, chronic fatigue and weakness;
- after drug therapy (antibiotic therapy, hormonal therapy and other medications);

CONCLUSIONS

1. There was an improvement in hematological parameters, a decrease in the concentration of hepatic enzymes (AST, ALT and GGT) in the blood plasma, as well as total bilirubin, while in the comparison group the differences were minimal in the decrease in the concentration of hepatic enzymes in the blood plasma (AST, ALT and GGT) characterizing detoxifying activity of the liver .

2. Prophylactic soft and hard gelatin capsules " Sedan Bark " indicated for use: during the period of self-isolation and quarantine in order to prevent intoxication of the body, in case of chronic diseases and their exacerbation; with a general deterioration in the state of the body, accompanied by a decrease in immunity,

appetite, chronic fatigue and weakness; after drug therapy, antibiotic therapy, hormonal therapy and other medications.

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