ACADEMICIA

ISSN: 2249-7137 Vol. 11, Issue 8, August 2021 Impact Factor: SJIF 2021 = 7.492

ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Peer Reviewed Journal)

DOI: 10.5958/2249-7137.2021.01805.X

RESULTS OF GROUP-PROPHYLACTIC TREATMENT OF CHICKEN HYPOVITAMINOSIS

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ABSTRACT

This article describes the main causes of hypovitaminosis in laying hens, the analysis of clinical and hemomorphobichemical parameters, as well as the results of group-prophylactic treatment. When the amounts of retinol and carotenoids in the egg yolk in the egg samples obtained from the chickens in the experimental group were examined, the chickens in the experimental and control groups showed almost the same values at the beginning of the experiments.

KEYWORDS: *Chickens, Hypovitaminosis, Hypodynamics, Retinol, Cholecalciferol, Tocopherol, Ascorbic Acid, Choline Chloride, Vitaprem, Monvit-R, Carotenoids.*

INTRODUCTION

Relevance of the topic

Poultry farming is one of the fastest growing industries in the world today. Poultry farming is an important branch of animal husbandry, which allows the production of poultry meat, dietary meat products made from it, eggs, feathers and feathers. Therefore, increasing the number of poultry farms, their rational use, increasing the egg productivity of chickens is of great scientific and practical importance. Metabolic disorders play a major role in the development of non-communicable diseases in poultry, with more than 25% of deaths due to hepatosis, more than 17% to avitaminosis and hypovitaminosis, more than 23% to diseases of the digestive system, and more than 10% to rickets [6]. .

In most countries of the world, metabolic disorders, including hypovitaminosis, are common among egg-laying hens and are often latent and chronic. The development of an effective solution to this problem is important to meet the demand of the population for eggs and dietary poultry, as well as to ensure food security.

The main reason for the decrease in egg productivity in chickens is feeding on an unbalanced diet of minerals and vitamins. In such chickens, changes in the morph biochemical parameters of the blood, the percentage of egg production, physicochemical parameters of the egg, as well as productivity are clearly visible [8].

According to the literature, retinol deficiency is the main cause of hypovitaminosisA in laying hens, the growth of the organism is slowed down, natural immunity is weakened, skin epidermis migration and dermatitis have been observed. The disease is characterized by branching and metaplasia of the mucous membranes, decreased vision and decreased ovulation [1].

The main causes of retinol deficiency in chickens are endogenous and exogenous. Endogenous causes of hypovitaminosis A include decreased intestinal absorption of vitamin A and carotene due to infectious and parasitic diseases as well as gastrointestinal diseases. Exogenous causes of the disease are a decrease in its reserves in the body as a result of lack of carotene and vitamins in the diet. Hypovitaminosis A has been found to be caused by a lack of carotene and retinol in egg yolks in young chickens (at 2 weeks), and in adult chickens, the disease is mainly caused by a lack of these substances in the diet [2, 5, 7].

When chickens lack vitamin C, all types of metabolism in the body are disrupted. This pathology is characterized by oxidation of amino acids, formation of adrenal steroid hormones, DNA synthesis, disruption of biochemical processes in tissues, decreased activity of many enzymes (arginase, amylase, proteases), impaired collagen synthesis in bones, decreased hematopoiesis, impaired antibody formation [7; 9].

Depending on the age and physiological condition of the birds, their need for vitamins will vary. For example, 1 ton of feed for laying hens contains 10 million XB of vitamin A, D_3 - 2 million XB, E - 10 g, V_1 - 2 g, V_2 - 5 g, V_3 - 20 g, V_4 (choline chloride) -500 g , V_{12} - 0.025 g, C - 50 g. Feeding of chickens varies depending on the conditions of their storage, especially when kept in

cages, it is necessary to ensure that the feed rations are fully valuable in terms of nutrients, minerals and vitamins [3, 7].

To prevent hypovitaminosis A in poultry, 0.2 ml of retinol acetate fatty solution is administered intramuscularly, and betacinol vitamin drug is mixed with 2.5-3.0 ml per 1000 head of water once a day for 7-10 days [1].

THE MAIN FINDINGS AND RESULTS

Results obtained and their analysis. Experiments were conducted to identify the main causes of hypovitaminosis in laying hens and to develop group-prophylactic treatment methods. During the dispensary study, the feed rations of chickens in poultry farms were analyzed. In particular, in the diet of chickens of the farm "K.Eldor" (farm 1) wheat grain - 32%, corn - 22.85%, soybean - 18%, sunflower - 11.34%, vegetable oil - 2.26%. ni, monocalcium phosphate 0.65%, izvestnyak 10.4%, premix 2.5%. The total nutrient content of the diet in 100 g of mixed feed is 264.0 kcal of metabolic energy, 16% crude protein, 5.1% fiber, lysine 0.70%, methionine 0.30%, threonine 0.42%, calcium 3.1%, phosphorus was 0.64%. The saturation of the chicken ration [4] was determined by comparison with the feeding norms. 26 kcal of metabolic energy relative to the norms of nutrition in the diet; a deficiency of 0.5% calcium, 0.06% phosphorus, 300 XB retinol, 80 XB cholecalciferol, 0.2 mg tocopherol, 0.5 mg ascorbic acid, and 5 mg choline chloride (V4) was detected.

In order to study the effect of vitamin and mineral nutrient mixtures on the organism and productivity of chickens, 4 groups of 50 to 20-week-old Lomann Brown - Classic hens were formed in each of the farm chickens. The storage conditions of the birds in the groups were the same, in addition to the diet of chickens in the first experimental group in the amount of 1 g / kg of Monvit-R, in the second group in the amount of 1 g / kg of Vitaprem (vitamin complex), in the third group Vitaprem (vitamin complex) and Vitaprem (mineral complex) was added at a rate of 1 g / kg from each of the drug. Chickens in the control group were fed on a farm ration. The experiments lasted 60 days.

Clinical examinations of birds revealed general condition, appetite, mucous membranes, color of crown and earrings, skin, feathers and feathers, condition of limbs, color of beak and feet, egg-laying percentage, egg shell condition, heart rate per minute and respiratory rate . Checks were performed once every 30 days.

Prior to and during the experiments, the amount of hemoglobin (hemoglobin-cyanide method), glucose (color reaction with orthotoluidine), total protein (refractometric method), and the amount of vitamin A and carotenoids in eggs (spectrophotometric method) were determined. The effectiveness of the experiments was evaluated according to the hematological parameters of the chickens and the level of egg productivity.

According to the results of clinical trials in chickens, in all experimental groups and control group chickens at the beginning of experiments on average 30% of crown and ear whitening, hypodynamics, stunted growth, weight loss, decreased productivity, dry skin, 20% of feathers, 10-15% of chickens serum from nostrils retinol deficiency and clinical signs characteristic of conjunctivitis and keratitis were observed, such as catarrhal discharge, hair loss, and the appearance of thickened areas on the skin of the eyes, ears, and feet.

Leg curvature of the legs, which is a characteristic symptom for hypovitaminosis D, was observed in 15-20% of chickens with thin shells of eggs, sometimes without shells.

By the end of the experiments, it was noted that crown whitening in chickens increased from 30–35% to 40% in the control group, decreased by an average of 15% in the first and second experimental groups, and by an average of 5% in the third experimental group.

At the beginning of the experiments, the average number of breaths per minute was 24 ± 1.4 times in the first experimental group, 22 ± 1.5 times in the second group, 24 ± 1.5 times in the third group, and 26 ± 1.4 times in the control group. at the end, an average of 22 ± 1.5 times in the first group, 21 ± 1.4 times in the second group, an average of 20 ± 1.6 times in the third group, and an average of 30 ± 1.6 times in the control group.

TABLE 1. CLINICAL INDICATORS OF EXPERIMENTAL CHICKENS (P = 50)

Groups	**Check time**	**Number of breaths, 1[1]**	**Heart rate,1[1]**	**Тожларнинг оқариши, %**	**Feather fluttering, %**	**Thin-shelled eggs (%)**
Control	A	26±1,4	146±5,0	30	20	20
	B	30±1,6	154±5,0	40	35	34
Experiment 1	A	24±1,4	142±6,2	32	20	20
	B	22±1,5	136±5,0	15	-	10
Experiment 2	A	22±1,5	148±5,1	30	20	20
	B	21±1,4	142±5,1	15	-	-
Experiment 3	A	24±1,5	145±6,1	30	20	20
	B	20±1,6	142±5,1	5	-	-

By the end of the experiments, it was found that the number of heartbeats in chickens decreased by an average of 6 times compared to the beginning of the experiments in the first and second experimental groups, and by an average of 3 times in the third group. In the control group, the heart rate increased by an average of 8 times during the experiments.

In chickens in the third experimental group, in which 1 g / kg of vitaprem (a complex of vitamins and minerals) was added to a granular feed from each, it was observed that clinical performance changed for the better at the end of the experiments compared to other groups.

Analysis of the results obtained during the experiments showed that the amount of hemoglobin in the blood was 104.0 ± 1.24 g / l in the first experimental group, 106.0 ± 1.22 g / l in the second experimental group, and 105 in the third experimental group. , 0 ± 1.26 g / l, and by the end of the experiments, these values averaged 114.0 ± 1.20 g / l in the first experimental group and 118.0 ± 1.20 g in the second group, in the third experimental group an average increase of 120.0 ± 1.20 g / l was noted.

At the end of the experiments, it was found that the amount of hemoglobin in the blood of chickens in the control group decreased by an average of 3.0 g / l compared to the initial values.

TABLE 2. BIOCHEMICAL PARAMETERS OF CHICKEN BLOOD AND EGG YOLK (N = 50)

Groups	*Check time*	*Hemoglobin, g / l*	*Total protein, g / l*	*Glucose, mmol / l*	*In the egg yolk*	
					Retinol, mkg / g	*Carotene-noids, mkg / g*
Experiment 1	*A*	*104,0±1,24*	44,6±0,24	4,78±0,42	5,4±0,12	12,4±0,22
	B	119,0±1,46	46,8±0,30	5,02±0,38	6,8±0,17	16,4±0,20
	V	124,0±1,20	49,2±0,42	5,80±0,38	7,9±0,21	18,6±0,18
Experiment 2	*A*	*106,0±1,22*	45,6±0,20	4,76±0,22	5,2±0,10	12,1±0,18
	B	118,1±1,38	48,4±0,34	5,08±0,18	6,4±0,12	15,4±0,20
	V	125,0±1,20	51,2±0,38	5,68±0,40	7,5±0,20	19,3±0,16
Experiment 3	*A*	*105,0±1,26*	44,8±0,24	4,78±0,42	5,4±0,21	12,8±0,20
	B	119,0±1,46	46,8±0,30	5,02±0,38	7,2±0,17	18,0±0,20
	V	120,0±1,20	56,5±0,32	5,86±0,42	8,4±0,20	22,6±0,22
Control4	*A*	102,5±1,30	45,9±0,22	4,70±0,40	5,2±0,14	12,8±0,21
	B	100,0±1,31	44,8±0,24	4,65±0,36	5,0±0,12	12,6±0,20
	V	99,2±1,22	44,6±0,30	4,60±0,42	4,6±0,14	10,6±0,16

***Note**: A - before the experiment; B-30 days later; V - After 60 days.*

The total protein content of serum in the experimental chickens ranged from 44.6 ± 0.24 g / l in the first experimental group to 49.2 ± 0.42 g / l in the first experimental group and averaged 45.6 ± 0.20 g / l in the second experimental group. from 51.2 ± 0.38 g / l to an average of 44.8 ± 0.24 g / l in the third experimental group to 52.5 ± 0.32 g / l in chickens in the control group. , Decreased from 9 ± 0.22 g / l to 44.6 ± 0.30 g / l (R <0.05).

Blood glucose levels increased by an average of 1.02 mmol / l compared to baseline in the first experimental group, by an average of 0.92 mmol / l in the second group, and by an average of 1.08 mmol / l in the third group, respectively. an average decrease of 0.10 mmol / l was observed.

When the amounts of retinol and carotenoids in the egg yolk in the egg samples obtained from the chickens in the experimental group were examined, the chickens in the experimental and control groups showed almost the same values at the beginning of the experiments. At the end of the experiments, the amount of retinol and carotenoids averaged 2.5 mcg / g and 6.2 mcg / g in the first experimental group, and 2.3 mcg / g and 7.2 mcg / g, respectively, in the second group, in the third group, an average increase of 3.0 mcg / g and 9.8 mcg / g, respectively, in the control group, chickens were found to decrease by an average of 0.6 mcg / g and 2.2 mcg / g, respectively.

CONCLUSION

The addition of Vitaprem (complex vitamin + mineral) premix (1 g / kg) to the diet of laying hens improves the metabolism and clinical and physiological parameters in poultry; the mean hemoglobin and glucose levels in the blood were 21.1% and 26.0%, respectively, compared with the control group, the total serum protein content was 17.7%, the yolk retinol content was 3.8 µg / g, and the total carotenoid content was 12.0%. mcg / g and an average increase of 13.3 -14.0% in the egg productivity of chickens compared to the control group.

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