

Etiopathogenesis Of Hypocobaltosis In Productive Cows

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Abstract: The article describes the cause, pathogenesis of hypocobalosis, symptoms and changes in the cicatricial fluid in this pathology in productive cows.

Keywords: Diet, Hypocobaltosis, Microfossils, Osteodystrophy, Parakeratosis, Mutation, Hypo Dynamics, Anterior Gastritis, Acidosis, Ketosis, Dystopia, Infusorians



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Introduction

The analysis of literature data shows that the adaptation of imported cows to the climatic conditions of our country, including the prevalence, causes, and symptoms of hypocobaltosis, among them, has not been fully studied. Effective methods of treatment and prevention of the disease have not been developed.

The spread of hypocobaltosis among imported and domestic cows in cattle farms, economic damage, causes, importance of alimentary factors in their origin, development mechanisms, study of early detection methods, development and implementation of effective methods of treatment and prevention of the disease, today's veterinary medicine is one of the urgent problems facing science and practice.

Cobalt stimulates the breakdown of carbohydrates, activates phosphoglucomutase, enclose and anginas, increases phosphorus accumulation in bones and protein metabolism. Cobalt deficiency causes vitamin B12 deficiency and anemia. As a result of cobalt deficiency, the processes of synthesis of organic and mineral parts of bones are derailed and cause the development of osteodystrophy in animals (Kondrakhin I.P., Levchenko V.I. 2005).

Biotin, para-aminobenzoic acid and vitamin B12, as well as 100 mg/l of iron and 10 mg/l of cobalt should be present in the amniotic fluid for micro flora to function normally (Hemmer P.J. 1996).

Lack of cobalt in the diet causes the development of hypovitaminosis V12 and anemia, as well as the synthesis of organic and mineral parts of bones is derailed and causes the development of osteodystrophy in animals (Kondrakhin I.P., Levchenko V.I. 2005).

Disruption of the sugar-protein ratio in the diet of dairy cows, lack of fiber, chronic lactic acidosis in the large stomach and ruminates. Changes in quantity and quality of micro flora in the pre-

gastric sections, decrease in the number of large and medium infusorians, decrease in their activity, increase hydrolysis and deficiency of fiber. An excess of concentrated nutrients in the diet provides an average pH of 6.5 ± 0.05 (normal 6.8-7.4) in the rumen fluid (N.D. Grace, D.N. Lewis, 1999).

Deficiency of microelements such as copper, cobalt, zinc, manganese in the diet of cows leads to the cessation of development of the micro flora of the large stomach, increased acidity, absorption of intermediate products and ammonia into the blood resulting from incomplete breakdown of proteins, acidosis and chronic intoxication (I.P. Kondrakhin, 1999).

Among the symptoms of deficiency of iodine, cobalt, vitamins A and D in cows cared for in radioactively affected areas, 86.7% of animals have dry skin and parakeratosis, 26.7% of animals have exophthalmoses, 90% of animals have pale conjunctiva, 57.8% of animals have bradycardia, 3.35% of animals have signs of thyroid enlargement and me edema were detected. Also, anemia was noted in 92.6% of weaned cows, hypocalcaemia in 93.8-100% of animals, hypophosphatemia in 50-92.6%, and a decrease in the amount of copper, cobalt and zinc in blood serum in 90% of animals (I.P. Ligomina, 2003).

In clinically healthy animals, run was 6.65 ± 0.06 in large abdominal fluid, 6.37 ± 0.05 during chronic large abdominal acidosis, 6.25 ± 0.06 in ketosis, 6.49 ± 0.03 in secondary osteodystrophy. , 6.30 ± 0.09 in microelement sis, 595 ± 43 thousand/ml of the number of infusorians in clinically healthy animals, 90 ± 56 thousand/ml in large abdominal acidosis, 370 ± 26 thousand/ml in ketosis, 435 ± 23 thousand/ml in secondary osteodystrophy , and in microelement sis it was 300 ± 43 thousand/ml (Khmelkov Ya.T.,2006).

The purpose of the study. To study the spread of hypocobaltosis in dairy cows, economic damage, causes, mechanism of development, clinic, changes in morph biochemical parameters of blood and large abdominal fluid.

Methods

Scientific research work was carried out in the conditions of the cattle farm "Omar zamia", Pastdargom district, Samarkand region.

In order to study the spread of hypocobaltosis in cows, its causes, development characteristics, clinical signs, morph biochemical changes in the blood, and indicators of large abdominal fluid, dispensary studies were conducted, and 10 heads were selected as standard animals from 5-6-year-old dairy cows of the black and white breed on the farm. . In the 2nd, 3rd, 4th, 5th and 6th months of lactation in dairy cows, clinical and hematological examinations were performed once a month, and the large abdominal fluid obtained from them was examined according to some indicators.

General condition, appetite, degree of fatness, response to external influences, mucous membranes, skin and skin covering, condition of movement organs, contractions of pre-gastric sections in 2 minutes, heart rate and respiration rate in 1 minute, number of incisors It was determined whether there were clinical signs of hypocobaltosis in the level of movement and restoration of the last tail vertebrae.

In blood samples from dairy cows, the number of erythrocytes (Goryaev count type), hemoglobin (hemoglobin-cyanide method), glucose (color reaction with ortho-toluidine), total protein in blood serum (Refract metric method), alkaline reserve (I.P. Kondrakhin method), total calcium (by the method of V.P. Vichev, L.V. Karakashov), inorganic phosphorus (by the method of V.F. Kromyslov and L.A. Kudryavtseva by pulse), the amount of trace elements in the blood (by the method of atomic absorption spectrophotometer), large the environment of the abdominal fluid (using the RNT-026 multi-parameter water quality monitor device), the activity of the micro flora in the large intestine (according to G. Dirksen), the number of infusorians (according to the Goryaev counting type), the cobalt element (McClure Aldrich) was determined using the method[8].

Results and Discussion

Cows on the farm are mostly kept in one place in all seasons of the year. Therefore, herd syndromatics in cows was characterized by many non-infectious diseases such as chronic ketosis, secondary osteodystrophy, hypomicroelementoses, postpartum paralysis, retained placenta, alimentary anemia. Also, 30% of cows have chronic ketosis and secondary osteodystrophy, 12% of animals have retained placenta, mastitis, endometritis, 20% of animals have postpartum paralysis and various pathologies of hooves.

During the inspections, the body temperature of cows on the farm was within the limits of physiological norms, but the heart rate per minute was on average 66.4 ± 3.8 beats per minute at the beginning of the inspections, and 84.5 ± 6.2 beats per minute by the end of the inspections (the average is 50-80 times per minute), the number of breaths accordingly, it was 14.6 ± 1.20 - 26.8 ± 1.45 times (the norm is 12-25 times per minute). The number of contractions of pre-gastric sections in 2 minutes was 4.8 ± 1.36 times on average at the beginning of the tests (the norm was 3-5 times in 2 minutes), by the end of the tests it was 2.8 ± 2.4 times.

Hypo tony of the pre-gastric sections in dairy cows can be explained by keeping them in one place throughout the year, one-sided silage-concentrate feeding, and low quality and nutritional content of the feed.

At the beginning of the tests, sucking of the last tail vertebrae and movement of the incisors were weakly observed in dairy cows, but during lactation, these signs became stronger. At the beginning of the inspections, 40-50 percent of cows had a change in appetite (lizukha), and 60.0 percent had pale mucous membranes. By the fifth month of lactation, these indicators were 60.0 and 80.0 percent, respectively.

Also, in almost all cows, a change in appetite (lizukha), indifference to external influences, increased heart rate and breathing rate, whiteness of mucous membranes, tearing, increased salivation from the mouth, loss of hair around the eyes and in some parts of the body, a decrease in the skin coating and hooves shine. characteristic signs of hypocobaltosis such as.

The number of erythrocytes in the blood of dairy cows was on average 5.18 ± 0.08 million/ μ l (standard 5.0-7.5 million/ μ l) at the beginning of the tests, and by the end of the tests, on average. to

4.68±0.06 million/ μ l, a decrease in hemoglobin concentration from 110.6±4.6 g/l to 86.4±5.7 g/l (normal 99-129 g/l) was observed ($R < 0.05$).

At the beginning of dispensary inspections, it was noted that the concentration of glucose in the blood of dairy cows was much lower than the standard values, and the average (standard 2.22-2.33 mmol/l) was 2.19±0.24 mmol/l. During lactation, this indicator decreased, and at the end of the tests, it averaged 2.12±0.06 mmol/l. The decrease in the amount of glucose in the blood during the tests can be explained by the low level of satisfaction of the energy needs of the cows during the lactation period.

The amount of total protein in blood serum in dairy cows was on average 83.6±6.3 g/l at the beginning of the tests, and on average was 64.8±5.2 g/l by the end of the tests. The amount of alkaline reserve in the blood serum of cows is much less than the normal (normal 46-66 vol.%SO₂) indicators, and at the beginning of the tests it was on average 48.5±2.02 vol.%SO₂, by the end of the tests, it was on average 38.4±2. A decrease to 26 volume%SO₂ was noted. A decrease in the reserve of alkaline substances in the blood indicates a change in the environment to acidity in the body of dairy cows, that is, an increase in the state of acidosis ($R < 0.05$).

A decrease in total calcium and inorganic phosphorus levels in blood during lactation in dairy cows was characteristic. At the beginning of the examinations, the total calcium in the blood serum was on average 2.26±0.34 mmol/l (the norm is 2.5-3.13 mmol/l), by the end of the examinations, it was up to 2.16±0.26 mmol/l decrease was observed. Inorganic phosphorus, accordingly, averaged 1.56±0.52 and 1.18±0.34 mol/l ($R < 0.05$). Such a situation can be explained by the deficiency of microelements despite the excess of calcium in the diet of farm cows and the deterioration of calcium absorption due to the change of the environment in the big stomach towards acidity.

At the beginning of the tests, the amount of copper in the blood of cows was on average 10.6±0.22 mmol/l, and by the end of the tests, it decreased to an average of 9.06 ±0.32 mmol/l, and the amount of cobalt was correspondingly 0.34±0.02 from mmol/l to 0.19±0.06 mmol/l, manganese from 2.34±0.4 mmol/l to 2.18±0.3 mmol/l and zinc from 36.6±4.0 mmol/l A decrease from 1 to 19.8±4.7 mmol/l was observed ($R < 0.05$).

By conducting hematological tests in dairy cows, it was concluded that hypocobaltosis in them occurs with a decrease in the number of erythrocytes, hemoglobin, glucose, alkaline reserve, total calcium, inorganic phosphorus, cobalt, as well as copper, manganese, and zinc.

The environment (rN) of the rumen fluid was at the lower limit of the physiological norms at the beginning of the studies and was on average 6.50 ± 0.09 (normal rN-6.5-7.5), this indicator increased towards acidity during lactation and at the end of the studies it was characteristic that it decreased to 5.86±0.04 on average ($R < 0.001$).

The number of infusoria in large abdominal fluid was 578.2±54.2 thousand/ml on average at the beginning of the tests, and it decreased to 346.8±28.7 thousand/ml on average ($R < 0.01$) by the end of the tests. Also, by the end of the tests, a decrease in the activity of microorganisms was noted. These indicators indicate the creation of conditions for deterioration of absorption of cobalt by micro flora.

Conclusion

1. In cows, hypcobaltosis is observed as a complex pathology, with changes in appetite (lizukha), indifference to external influences, increased heart rate and breathing rate, paleness of mucous membranes, hypotony of the pre-stomach areas, loss of wool around the eyes and in some parts of the body, decreased luster, tears. path gnomonic signs and common clinical signs characteristic of micromolosis, such as grinding of incisors, desorption of the last tail vertebrae.
2. In hypcobaltous dairy cows, the average number of erythrocytes in the blood is 4.68 ± 0.06 million/ μ l, the amount of hemoglobin is 86.4 ± 5.7 g/l (anemia), and glucose is 2.12 ± 0.06 mmol/l (hypoglycemia), alkaline reserve up to 38.4 ± 2.26 volume% SO_2 , total calcium and inorganic phosphorus content up to 2.16 ± 0.26 and 1.18 ± 0.34 mmol/l, cobalt, copper, manganese and zinc content accordingly 0.19 ± 0.06 respectively; 9.06 ± 0.32 ; 2.18 ± 0.3 ; It is characterized by a decrease to 19.8 ± 4.7 μ mol/l.
3. In dairy cows, hypcobaltosis is characterized by a decrease in the run index in the rumen fluid to 5.86 ± 0.04 (acidosis), the number of infusorians to 346.8 ± 28.7 thousand/ml, and a decrease in activity.
4. Deficiency of cobalt microelement in fertile cows is characterized by metabolic rate, body weight decrease and appetite changes, hypotonic of the large abdominal wall, hypodynamia, whiteness of the mucous membranes and lacrimation.

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