РАЗДЕЛ III. ХИМИЯ

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Treatment of animals without antibiotics

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Abstract

The aim of our study was to develop a technology for treating animals with direct electrochemical blood oxidation. The process of direct electrochemical oxidation of blood occurs on the surface of a platinum wire electrode inserted into the blood vessel along its axis. The wire electrode is not in electrical contact with the DC power source. It is polarized by the current flowing between the additional electrodes. A solution containing a culture of staphylococci was poured into a test tube. After the passage of current through the system, staphylococci die. The cause of their death was not the electric current itself, but the products of sodium chloride electrolysis. Two chlorine atoms form a molecule that interacts with water to form an unstable hypochlorite ion, which decomposes to form atomic oxygen. Atomic oxygen is harmful to bacteria, viruses and their waste products. Positive results have also been obtained in treating dogs and calves for pneumonia.

Keywords: treatment of animals with direct electrochemical blood oxidation, antibiotics.

Аннотация

Целью нашего исследования была разработка технологии лечения животных с прямым электрохимическим окислением крови. Процесс прямого электрохимического окисления крови происходит на поверхности электрода из платиновой проволоки, вставленного в кровеносный сосуд по его оси. Проволочный электрод не имеет электрического контакта с источником постоянного тока. Он поляризован током, протекающим между дополнительными электродами. В пробирку наливали раствор, содержащий культуру стафилококков. После прохождения тока по системе стафилококки погибают. Причина их гибели - не сам электрический ток, а продукты электролиза хлорида натрия. Два атома хлора образуют молекулу, которая взаимодействует с водой и образует неустойчивый ион гипохлорита, который разлагается с образованием атомарного кислорода. Атомарный кислород вреден для бактерий, вирусов и продуктов их жизнедеятельности. Положительные результаты были также получены при лечении собак и телят от пневмонии.

Ключевые слова: лечение животных прямым электрохимическим окислением крови, антибиотики.

Introduction. The constancy of the internal environment of an animal's body is the most important factor in its vitality and productivity. This is most clearly manifested in the example of the problem of ketosis in cows. Ketosis is an animal disease characterized by impaired carbohydrate, protein and fat metabolism, and is widely discussed in the literature. Works [1 - 5] are devoted to the method of detecting this disease, its stabilization, and treatments. Signs of the disease are detected by blood tests [6], and other tests such as chromatography [2]. The treatment is also associated with exposure to the blood: the introduction of a glucose solution into the venous blood. Indicators for metabolic disorders by infrared spectroscopy of blood, systems for automatic monitoring of metabolic parameters are being developed [2,7]. The effectiveness of using anolyte for binding antibodies is being studied [3]. A photometric study of the content of ketones in the blood is described [4 - 6]. However, none of the described methods provides for the synthesis of drugs from the blood itself in a blood vessel.

Obviously, the method of treating animals by direct electrochemical oxidation of blood directly in a blood vessel, proposed in this article for the treatment of various diseases, is extremely relevant, especially since its use eliminates the need for antibiotics.

Materials and Methods. To carry out the electrolysis process in a blood vessel, a platinum wire electrode with a diameter of 0.2-0.3 mm and a length of 200-300 mm is used. At one end of the electrode, a ball is formed with a diameter of 10-20% larger than the diameter of the wire. The ball is formed by plasma reflow of the end of the platinum electrode for its safe insertion, excluding trauma to the vessel. The platinum electrode is inserted through a syringe needle (like a mandrel) previously inserted into a blood vessel. After the introduction of platinum into the blood vessel along its entire length, the needle is removed in order to exclude the participation of the metal of the needle in the electrolysis process. The use of the plastic needle is another alternative. The tip of the wire remaining on the surface is bent to prevent its complete immersion in the vessel channel.

The upper limit of the current value is limited by the appearance of pain at the point of contact of the patch rubber electrodes with the skin surface. In the selected current range, its passage is practically not felt by the treated animal. With the current of 10 mA, an unbearable pain sensation occurs.

Results and discussion. The technique of direct electrochemical oxidation of blood has been developed, which does not require the use of antibiotics in the treatment of animals. For the first time [8, 9, 10] the process of electrochemical oxidation of blood inside a blood vessel was performed. The chlorine ion, which is part of the sodium chloride in the blood plasma, is oxidized. The resulting molecular chlorine interacts with water by a disproportionation reaction to form a hypochlorite ion. Being unstable, it decomposes with the formation of atomic oxygen. Atomic oxygen destroys viruses and bacteria, as well as their waste products. At the same time atomic oxygen is safe for the animals cells. These cells are protected from the effects of atomic oxygen. The effectiveness of the described process has been successfully tested on various animals [11, 12]. The experiments were carried out on rabbits with staphylococcal infection. Auricle vessels were used to insert the electrodes. Rabbits in the control group were treated with antibiotics, and were sick 2 - 3 days longer [15, 16]. Dogs were treated for stubborn skin diseases. The calves were treated with pneumonia. Three sessions of 15 minutes were performed with one day interval. The animals in the control groups were treated according to the standard technology. They were sick more severely and longer.

During the treatment of the dogs, morphological and biochemical blood tests were carried out. Studies have shown that the electrochemical effect on the blood activates the production of erythrocytes, white blood cells, increases the level of hemoglobin in the blood, has a pronounced biostimulating and detoxifying effect. The treatment improves metabolic processes, increases the activity of the body's protective factors and promotes faster relief of the inflammatory reaction, healing of affected skin areas.

In the treatment of skin diseases in dogs in a clinic, more detailed studies of the method were carried out using biochemical and other techniques.

The experiments were carried out on 18 mongrel dogs aged from 1.5 to 2 years and weighted from 20 to 30 kg, selected according to the principle of analogues. Was formed 3 groups of 6 animals each: control group - clinically healthy; the first and second experimental groups - with a diagnosis of weeping eczema.

The control animals underwent morphological and biochemical blood tests. The data served as a control. The dogs of the first experimental group received drug treatment according to the scheme described below, without the use of direct electrochemical oxidation (PEE) of blood. Dogs of the second experimental group underwent drug treatment in combination with blood PEE. Eczema in the dogs was medically treated according to the generally accepted method by parenteral administration of glucocorticoids (at a dose of 4 mg / animal), gamavit (according to the instructions) and local treatment with antiseptic agents (terramycin).

The animals of the second experimental group additionally underwent PEE of blood using a device for detoxifying the body in order to treat endogenous and exogenous intoxication caused by

the accumulation of various toxic substances. For this, a conductor made of platinum wire was inserted into the cavity of the lateral saphenous vein of the forearm. Two oppositely polarized electrodes were applied to the skin at the ends of the conductor, which were connected to a direct current source, and a current of 3 mA was passed for 15 minutes. The procedures were carried out ten times every other day.

All sick animals before the experiment, and then after 1, 3, 7, 14, 21 and 28 days, underwent clinical examination, morphological and biochemical blood tests.

Blood tests of the dogs from the control group showed that the main morphological and biochemical parameters were within the physiological norm. In the dogs of both experimental groups, the following changes in blood were noted before treatment: a decrease in the number of erythrocytes, hemoglobin, increased ESR, leukocytosis, eosinophilia, neutropenia, lymphocytosis. The conducted studies of the content of erythrocytes in the blood during the treatment of animals with eczema using blood PEE showed an increase in erythrocytes number during all periods of the study. By the end of treatment they exceeded the control data by 2.78%. In the dogs of the first experimental group, by the end of therapy, the indicator was less by 8.33% in comparison with clinically healthy ones. The hemoglobin of the dogs of the first and second experimental groups before the experiment was 104.01.26 and 102.01.11 g / l, respectively. After the experiment - 125.03.6 and 135.04.0 g / l. In the dogs of the first experimental group it did not reach the control level by 6.72%, in contrast to the second experimental group. The data obtained indicate the beneficial effect of this method of treatment on the dynamics of erythrocytes and hemoglobin.

The ALT content in the blood of the dogs of the first and second experimental groups before treatment differed from those of clinically healthy animals by 2.2 and 2.4 times, respectively. Despite the rapid decrease in the amount of ALT in animals of both experimental groups, the content of this enzyme in dogs that received only drug treatment did not reach the level of clinically healthy ones and differed from it by 1.4 times. In the animals of the second experimental group, which were used in combination with the basic traditional therapy with blood PEE, the ALT index reached the level of clinically healthy dogs.

Conclusion. Thus, direct electrochemical oxidation of blood causes a significant positive dynamics of such laboratory parameters important for eczema as AST and ALT. Studies have also shown that the inclusion of blood PEE in the treatment regimen for eczema has a beneficial effect on the dynamics of alkaline phosphatase, total bilirubin, cholesterol, creatinine, and urea.

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