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The effect of fluoroquinolones on chick blood viscosity

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The blood viscosity coefficient depends on many chemical and morphological factors, namely the plasma viscosity, the number and size of circulating cells, the salt content and carbon dioxide. Blood viscosity is affected by feeding, water regime and even time of day. Viscosity of plasma and serum depends on the content of albumin, globulins, and the amount of salts. The measure of viscosity is hydration and oncotic pressure from swelling of plasma and serum proteins. It is known that an increase in blood viscosity is associated with the occurrence of a number of pathological conditions.

Fluoroquinolones - a group of rapidly developing synthetic antibacterial agents. As a result of the use of fluoroquinolones, in some cases, there are some mild changes, manifested as anemia, thrombocytopenia, eosinophilia,

increased erythrocyte sedimentation rate, leukopenia or leukocytosis. In connection with these adverse reactions, the question arises about the effect of fluoroquinolones on the blood system.

The use of antimicrobial agents in modern poultry raising raises a number of questions concerning the effects of antibiotics, both on the physiological state of birds and on the physicochemical properties of blood. In connection with the above, the purpose of the presented work was to study the effect of antimicrobial drugs of the fluoroquinolone group on the chicken's blood viscosity. To achieve this goal, three groups of day-old chickens were formed: control, experiment 1 and experiment 2. For ten days, the chickens of the experimental groups were fed with norfloxacin and moxifloxacin in a dose of 200 mg / 1 water, respectively. The selection of blood for analysis carried out on the first, third, fifth, seventh and ninth day after the withdrawal of drugs. Blood obtained by intracardiac puncture was stabilized with sodium citrate. Blood viscosity was determined using a VK-4 viscometer. Studies have shown that the blood viscosity of chickens in the control group during the experiment ranged from 3.07 to 3.32 Pa·s. Accordingly, these values were taken as normal. The blood viscosity of chickens treated with norfloxacin, with a high degree of certainty, decreased on the fifth day after drug withdrawal by 17%. By the end of the experiment, the blood viscosity values returned to normal values. Feeding of moxifloxacin led to certain changes in blood viscosity indices. On the first day after the drug was discontinued, the viscosity of the blood of chickens significantly decreased by 11%, on the fifth day – by 13% compared with the control. By the ninth day, blood viscosity values returned to control values.

Thus, it has been established that the use of norfloxacin and moxifloxacin as a whole does not have a significant effect on the blood viscosity indices without disturbing the physicochemical properties of the internal environment of the body.