

Abstract

Ascites is an important metabolic complication and one of the most important non-infectious factors that causes high mortality in broilers. The lack of balance between the ability of the respiratory and vascular systems to supply the oxygen needed by broiler chickens, which require high consumption of oxygen for their rapid growth, causes ascites. The aim of this study is to evaluate thyroid hormones (triiodothyronine (T3) and thyroxine (T4)), number of red blood cells, hematocrit, level of liver enzymes (AST and ALT), heart enzymes (CPK) in broilers in ascites syndrome and Histopathological investigation of the effects of ascites on possible lesions in the tissues of thyroid glands, lungs, liver and heart in broiler chickens. Ten healthy chickens and ten chickens with ascites were isolated from ten farms, where the Ras strain was raised in Sistan and Baluchistan in the sixth week of breeding. Their weight and blood were recorded and tested. To separate the chickens with ascites, they were first separated based on clinical characteristics, such as folds and dryness of the crown and beard, depression and cyanosis of the skin and for a definitive determination, necropsy was performed. To prepare samples for histomorphological examination, the liver, lungs, heart and thyroid glands were removed from the body and stabilized in 10% buffered formalin solution. Enzyme and hormone data were analyzed using SPSS v .20 statistical software and averages were compared by Independent samples t test. The hematocrit level in the ascites group was significantly higher than the control group ($p < 0.05$). The number of red blood cells in broilers with ascites is significantly higher than the control group ($p < 0.05$). Statistically, T3 hormone and ALT and CPK enzymes were significantly increased in the ascites group compared to the control group ($p < 0.05$). And the level of T4 hormone in the ascites group was significantly reduced ($p < 0.05$) But there was no significant difference in the amount of AST enzyme between the two groups ($p > 0.05$). In the microscopic examination of the lung, edema, hyperemia, fibrin, and hemorrhage were observed, and in the liver, irregularity in hepatocyte cords, vacuolation of hepatocytes, dilated sinusoids, hyperemia, and bile duct hyperplasia were observed. In the myocardium of the heart, there was edema and the myocytes were seen very thin and elongated, and in the thyroid glands, a large number of small follicles with thin walls were seen and hyperplasia was observed in thyroid follicles. Hypertrophy or increase in the size of thyroid follicles was seen in a small number of samples. According to the results obtained from this research in broiler chickens, ascites syndrome causes disturbance

in thyroid hormones and liver and heart enzymes and leaves destructive effects on lung, heart, liver and thyroid tissues.

Key words: Ascites , thyroid hormones, broiler chickens, Lung, Liver.



University of Zabol
Graduate school
Faculty of Veterinary
Department of pathobiology

The Thesis Submitted for the Degree of DVM

**Evaluation of thyroid hormones and
pathology of lung, liver, heart and
thyroids glands in broiler ascites**

Supervisors:

Dr. Seyeda Aida Davari

Advisors:

Dr. Mohammad Jahantigh

By:

H. Kalantari

Summer 1401