Effect of vitamin C on apoptosis via measurement of caspase (1) gene expression in heart and lung of broiler chickens with pulmonary hypertension syndrome

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Abstract
Pulmonary hypertension syndrome with high pulmonary arterial pressure, right ventricular hypertrophy and dilation is a problem of broilers. On the other hand it is proved that apoptosis in heart failure and pulmonary hypertension increases. In this study, for the first time the effect of vitamin C on apoptosis by measuring the expression of caspase (1) in the heart and lungs of broilers with pulmonary hypertension syndrome was evaluated. T3 as a thyroid hormone was added to the ration after week 1 of rearing. Pulmonary hypertension was induced at 49 days based on RV/TV ratio index. After PCR for caspase1 and b-actin (Housekeeping) genes the density of each band were measured and were recorded as the ratio caspase1 / b-actin and this ratio were compared at different ages in witness groups (the right ventricle and lung). The amount of mRNA of the caspase 1 gene in the right ventricle at 21 and 49 days and in lung tissue at 49 days significantly reduced in the treatment group compared to the control group(p<0.05), this significant difference represents the reduction of apoptosis in the group who by receiving the hormone T3 were infected to pulmonary hypertension, and yet have been treated with vitamin C. Also, according to the results, the RV/ TV ratio improved in the treatment group.

Keywords: Apoptosis, pulmonary hypertension syndrome, vitamin C, caspase1