Survey on thyroid hormones and their relationship with serum biomarkers of myocardial injury in cattle, sheep and lambs with FMD

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Abstract

FMD is a vesicular and acute clinical disease of angulated animals such as domestic ruminants and pig. It is one of the most prominent sanitary problems in farm animals. Although the role of FMD virus in the induction of myocarditis has been known in the farm animal newborns, due to controversy about the changes in thyroid hormones in patients with FMD and their possible association with the occurrence of myocarditis, this study was designed and conducted on 50, 15 and 15 sheep, lambs and cattle, respectively. After blood sampling, sera were analyzed for troponin I, triiodothyronine (T3) and thyroxine (T4) measurement and based on normal value of serum troponin I, each group of animals was divided into higher and lower troponin groups. The mean serum troponin I, T3 and T4 were also compared with normal levels in reliable sources. Unlike the sheep, a significant difference was found between troponin I level with the normal value in cattle and lambs. Except for a significant increase in the serum T3 level of cattle, the serum thyroid hormonal changes were not significant in the lambs and sheep. There were no significant differences for serum T3 and T4 between two groups of higher and lower troponin cattle. In comparison with the lower-troponin lambs, the higher-troponin I lambs had a significant decrease in serum thyroid hormones. In conclusion, there was evidence of serum myocardial damage in cattle and lambs with FMD. Reducing thyroid hormones in the high-troponin lambs may be attributed to thyroid glands injury from FMD virus. It seems that there is no link between myocardial damage and serum thyroid hormones level in the cattle and sheep.

Key words: Thyroid hormones, Myocardial injury, FDM, Cattle, Sheep

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References


