

عنوان مقاله:

An evaluation of some oxidative and enzymatic biomarkers in different stages of naturally occurring copper poisoning in sheep

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نویسندگان:

J Salar-amoli - *Toxicology and Poisoning Research Center, Department of Toxicology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran*

S Yazdani - *Department of Internal Medicine, University of Groningen, Groningen, the Netherlands*

T Aliesfahani - *Toxicology and Poisoning Research Center, Department of Toxicology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran*

N Ranjbar - *Graduated from the Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran*

خلاصه مقاله:

BACKGROUND: The early stage of Copper poisoning is difficult to be clinically diagnosed in sheep and has not been documented clearly yet. **OBJECTIVES:** To assess biomarkers in predicting early Copper poisoning in sheep, blood samples were collected from several groups of animals from a naturally Copper poisoning occurrence in an industrial region. **METHODS:** Animals were divided into four experimental groups; Group A: far from polluted region (Control group), Group B: inside polluted region, apparently healthy and without any clinically jaundice manifestation, Group C: slightly with jaundice signs and hemolytic crisis phase, and Group D: with clear jaundice signs. After collecting blood samples from each group, the serum was analyzed for evaluation of liver enzymes and oxidative stress parameters in different stages of Copper poisoning. In each blood sample, CPK, GGT, AST, ALT, total thiol (T-SH) group, and total proteins were determined. The Copper concentration in the serum, liver, and kidney of the dead animals in group D were also determined. **RESULTS:** There were significant differences in the blood parameters in group C illustrated by elevated level of serum AST, CPK, and GGT activities and total thiol (as biomarker of oxidative stress) when compared to control groups. In group D, these enzymes, in addition to T-SH, and the total protein were significantly ($p < 0.05$) different from those of the control and the other groups. Measurement of Copper in serum, liver, and kidney of group D (at the end stage of hemolytic phase) confirmed Copper poisoning in these groups. **CONCLUSIONS:** Based on the findings of the present study, the measurement of the liver enzyme activities and total thiol just closed to critical hemolytic phase could be reliable biomarkers for predicting Copper poisoning in sheep.

کلمات کلیدی:

copper, hepatic enzymes, oxidative stress, sheep

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