IMMUNOLOGICAL CHANGES CORRELATED WITH OXIDATIVE STRESS IN EQUINE INFECTIOUS ANEMIA

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SUMMARY

Equine infectious anemia (EIA) can be considered nowadays one of the most important and difficult to control infectious disease of horses, due to its high morbidity, mortality and transmission rate.

Sixteen adult, both positive (n=8) and negative (n=8) horses, from private farms located in Cluj county, were investigated in order to correlate the immunological and oxidative stress changes induced by the infection. Blood samples were taken on heparine for the immunological tests and without a clott preventing agent for the sera.

To quantify the immune response, we used the in vitro carbon particle inclusion and the blastic transformation tests (1). As indicators of oxidative stress catalase, peroxidase and superoxid-dismutase activities were monitored (3).

The spontaneous phagocytic activity was increased in seropositive horses (0,147 ± 0,059 optical density units, ODU), when compared to the seronegative ones (0,116 ± 0,100 ODU). The spontaneous blast capacity was slightly increased in infected horses compared to healthy individuals (67,55 ± 13,59% and 68,99 ± 10,06 %, respectively). The response to PHA was diminished in positive horses (82,77 ± 7,19 %) compared with the negative ones (80,37 ± 5,34%); the data proved the cellular effort to adapt to the potential antigenic aggression.

Superoxid-dismutasis activity (SOD) was meaningfullly reduced in the EIA infected group (27.52 U/ml) in comparison with the healthy horses (37.3 U/ml), while the catalase acted at a lower level (544 U/ml and 565 U/ml, respectively). As oposite, general peroxidase activityincresed in the diseased group (80,4 U/ml and 67,3 U/ml, respectively).

The decreased antioxidant enzyme activity leads to summing up of reactive oxygen species as well as of products from lipid, protein and nucleic acid oxidative degradation, leading to a persistent pro-oxidant status at cellular level (oxidative stress)(2).

The alterations of the oxidative metabolism are able to induce changes of the immune response, alleviation of the in vitro blast transformation and mitogenic response.

BIBLIOGRAPHY