DRUG INDUCED STRESS CAUSES CHANGES IN CELL-MEDIATED NON-SPECIFIC AND SPECIFIC IMMUNE REACTIVITY

Spînu Marina, Gh.F. Brudaşcă, Carmen Dana Şandru, R. Stefan

University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, Cluj, Str. Mănăștur 3-5, email: marina.spinu@gmail.com

Key words: stress, delayed type hypersensitivity, hiperbasophilic reaction, chickens

SUMMARY

Stress-induced alterations represent a most actual problem in veterinary medicine, where improper technological conditions are more and more frequent under intensive and meanwhile more and more artificialized breeding/exploitation of the domestic birds and mammals, (Mizoguchi Y. et al., 1987; Muntean S., 1990; Schulz V. et al., 1998; Zarnea G., 1990) that negatively influence the results of vaccinations.

Immunological changes subsequent to stress can be investigated in field trials, by administering corticosteroids to the birds. Non-specific (hyperbasophilic reaction) and specific (delayed type hypersensitivity) cell-mediated reactions were monitored during a 38 days long experiment on 39 weeks old, Rock x Cornish hens (n=34), divided into groups: I – vaccinated, Supercortisol treated (10 mg/bird/day for the entire duration of the experiment); II – vaccinated, non-suppressed; III – non-vaccinated, untreated control. The birds were primed with booster use of a 9R Salmonella pullorum live vaccine. Hyperbasophilic reaction was monitored against 0.1 ml PHA M/wattle, while the delayed type hypersensitivity was recorded by administering a vaccine lysate (2.9 mg of protein/ml, 0.1 ml/wattle), both on days 8 and 15 of the experiment.

The increase in circulating corticosteroid concentrations diminished the reactivity against the mitogen (1.420 ± 0.954 mm) after 24 hours in group I when compared to group II (1.318 ± 0.580 mm) or III (1.599 ± 0.650 mm). The reactivity of suppressed birds diminished even more after the second injection (1.180 ± 0.340 mm). The results for delayed type hypersensitivity were similar, statistically significant (p<0,001), with reversed results after the first and second injection respectively (0.178 ± 0.125 mm and 0.540 ± 0.280 mm).

Supercortisol treatment diminished hyperbasophilic reaction, poorer after 72 hours than after 24 hours and reproduced the effects of external stresses, significantly reducing the reactivity towards the Salmonella vaccine.

BIBLIOGRAPHY