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USE OF SERUM TOTAL PROTEIN, SERUM γ-GLUTAMYLTRANSFERASE ACTIVITY AND γ GLOBULIN CONCENTRATION AS PREDICTORS OF PASIVE TRANSFER STATUS IN LAMBS

Fernanda Bovino1, Diogo Gaubeur Camargo1, Guilherme Gonçalves Fabretti Santos2, Juliana Regina Peiró3, Luiz Claudio Nogueira Mendes3, Francisco Leydson Formiga Feitosa1

1Mater’s Students, 2Veterinary Teaching Hospital Resident, 3Department of Clinics, Surgery and Animal Reproduction, Univ Estadual Paulista - UNESP, Araçatuba, Brazil

Aim: The aim of this study was to evaluate serum γ-glutamyltransferase activity (GGT) and serum total protein, as an indicative of passive transfer status.

Methods: Fifteen lambs, Suffolk half-breed, were evaluated on a farm in Araçatuba, São Paulo, Brazil. Blood samples from all lambs were collected from the jugular vein, immediately after the birth (presuckling; day 0), at day 1 (24 hours) and day 2 (48 hours) of age. Serum GGT activity was measured using commercially available kit, serum total protein was measured using manual refractometer, and γ globulin concentration was determined electrophoresis using cellulose acetate strips. Data were analyzed using a statistical program. Serum total protein and γ globulin on days 0, 1 and 2 were compared by the ANOVA which was performed to determine whether there were any significant differences between moments, and mean values were compared by use of a Tukey test. Non-parametric data were analyzed by use of the Friedman test followed by the Dunn test, used in order to evaluate the serum GGT activity. Simple linear regression analysis was performed to evaluate the correlation between serum GGT activity and serum total protein; between serum GGT activity and γ globulin concentration; and between serum total protein and γ globulin concentration.

Results: The comparision of the presuckling moment, and day 1 showed a significant increase (P< 0.05) in the serum GGT activity (1989.33 ± 1571.87), in the serum total protein (6.37 ± 0.98) and in the γ globulin concentration (2.34 ± 1.18). However, the comparision of day 2 and 1 showed a significant decrease (P< 0.05) in the serum GGT activity (724.47 ± 430.01), in the serum total protein (5.64 ± 0.9) and in the γ globulin concentration (1.62 ± 0.69). A “good” correlations was detected between serum total protein and γ globulin in day 1 (P< 0.01; R²=0.85); in day 2 (P< 0.01; R²=0.92). A medium correlation was detected between serum GGT activity and γ globulin concentration in day 1 (P< 0.01; R²=0.67). Poor correlation were detection, in day 1, between serum GGT activity and serum total protein (P< 0.01; R²=0.52); in day 2 between serum GGT activity and serum total protein (P< 0.01; R²=0.52) between serum activities of GGT and γ globulin (P< 0.05; R²=0.38).

Conclusions: Serum total protein is better than GGT as an indicative of passive transfer status, but both could be used for this same purpose.