GLUTATHIONE PEROXIDASE ACTIVITY, SUPEROXIDE DISMUTASE ACTIVITY AND TOTAL ANTIOXIDANT ACTIVITY IN BOVINE LEUKEMIA VIRUS DAIRY INFECTED COWS

Fernando Nogueira Souza1, Rebeca Alves Weigel1, Aline Alberti Morgado1, Giovanna Rocha Nunes1, Andréia Oliveira Latorre2, Maiara Garcia Blagitz1, Eduardo Milton Ramos Sanchez3, Andrea Moreira Monteiro4, Francisco Palma Rennó4, Magnus Ake Gidlund3, Maria Claudia Araujo Sucupira1, Alice Maria Melville Paiva Della Libera1

1Department of Clinical Science, 2Department of Pathology, Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo, 3Department of Immunology, Institute of Biomedical Sciences - University of São Paulo, São Paulo, 4Department of NUTRITION and Animal Production, Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo, Pirassununga, Brazil

The present study tries to investigate the glutathione peroxidase (GSH-Px) activity, superoxide dismutase (SOD) activity and total antioxidant activity in dairy cows naturally infected with BLV. The B cells count (mouse anti-bovine CD21+ conjugated with phycoerythrin) was also performed by flow cytometry using monoclonal antibodies (MCA1424PE). Thus, 100 Holstein cows from the same herd were sera tested by agar gel immunodiffusion (AGID) and enzyme-linked immunoabsorbent-assay (ELISA), 72 days before and at the day of the assay. From these animals, 15 animals were selected and divided uniformly in three groups (negative, almonochytic (AL) and LP). The mean total leukocyte count of the 15 cows used in presented work and divided according to the sera tests and hematological profile was 11.18 x 10^5/mL (±1.03), 10.70 x 10^5/mL (±0.98) and 23.90 x 10^5/mL (±7.59) in negative, AL and LP groups, respectively. The mean total lymphocyte count was 7.10 x 10^5/mL (±1.27), 6.44 x 10^5/mL (±0.54), 18.44 x 10^5/mL (±7.20) in negative, AL and LP groups, in that order. The percentage of B cells counts in whole blood were 20.82% (±3.65), 23.40% (±8.25) and 41.82% (±6.30) in negative (P < 0.05), AL and PL animals, correspondingly. The mean GSH-Px activity was 351.29 U/g Hb (±35.15), 277.24 U/g Hb (±63.88) and 304.33 U/g Hb (±41.08) (P = 0.087) in negative, AL and LP groups, and 351.29 U/g Hb (±35.15) and 290.78 U/g Hb (±52.61) in negative and positive animals (P = 0.038), respectively. The mean SOD activity was 2463.72 U/g Hb (±466.25), 1883.35 U/g Hb (±462.54) and 2157.80 U/g Hb (±348.34) (P = 0.082) in negative, AL and LP groups, and 2463.72 U/g Hb (±466.25) and 2020.58 U/g Hb (±412.23) in negative and positive animals (P = 0.082), respectively. The mean total antioxidant activity was 0.814 µmol/L (±0.071), 0.793 µmol/L (±0.116) and 0.815 µmol/L (±0.097) (P = 0.70) in negative, AL and LP groups, respectively. So, a reduced in GSH-Px activity and a tendency in lower SOD activity was observed in BLV infected animals. The correlation between GSH-Px activity and the percentage of B cells was r = -0.107 (P = 0.704), and between SOD activity and the percentage of B lymphocytes was r = -0.286 (P = 0.302). In face of, the present work showed a decrease in GSH-Px activity and a tendency in lower SOD activity in dairy cows naturally infected with BLV, but it can be not associated with PL.