Differences of biochemical and haematological indices in the aging process in cold-blooded horses Norik Muráň type

Novotný František•, Noskovičová Jana•, Igor Valocký•, Ján Pošivák•, Martin Boldižár•, Vladimír Hura•, Milan Baranovič▪, Ján Bílek▲

•Equine Clinic, University of Veterinary Medicine and Pharmacy, Košice, Slovakia

▪Department of neurology, Faculty of Medicine, University of Pavol Jozef Safarik, Košice, Slovakia

▲Avian and Exotic Clinic,University of Veterinary Medicine and Pharmacy, Košice, Slovakia

The aim of was to compare of biochemical and haematological parameters in the aging process in a cold-blooded mares breed Norik Muráň type. 27 of breeding mares Norik Muráň type without pathological symptoms in horse breeding farm in Dobšiná (Slovakia) were used in this study. Mares were divided by age into four groups: A (n = 7, 5-8 years), B (n = 6, 9-15), C (n = 7, 16-20) and D (n = 7, 21-23). Blood samples were collected from v. jugularis externa by needles (Vacutainer ® Precision Glide ™, BD Diagnostics, USA) in serum tubes (Serum-SST TM II Advance, BD Diagnostics, USA) in the morning hours, kept at 8 to 10 °C and analyzed as soon as possible. Biochemical parameters of blood serum like aspartate aminotransferase (AST), alkaline phosphatase (ALP), creatinine (CREA), urea (Urea), albumin (ALB) and glucose (Glu) were analyzed using biochemical analyzer Cobas c 111 (Roche, Switzerland). Reference values were determined by Laboratory of Clinical Biochemistry and Haematology (UVMF, Košice). Were used a same nutrition for all mares. The results were statistically processed using Student\'s t-test. The concentrations of AST decreased in mares with aging (A=5.69 ± 1.13 μkat/l; B=5.36 ± 0.9 μkat/l; C=5.13 ± 1.1 μkat/l), but in the oldest mares (D=5.88 ± 1.37 μkat/l). Were higher than the youngest age group A. Were found no significant differences between groups (P> 0.05). The concentrations of ALP increased with age (A=2.47 ± 0.3 μkat/l; C=2.66 ± 0.43 μkat/l; D=2.77 ± 1.17 μkat/l), but in the middle age mares were found (B= 2.44 ± 0.46 μkat/l) (P> 0.05). Crea concentrations had a decreasing trend (A=139.1 ± 37.49 μmol/l; B=118.45 ± 23.18 μmol/l; C=119.31 ± 19.85 μmol/l; D=111.59 ± 21.08 μmol/l) (P> 0,05). Urea increased with age (A=7.88 ± 2.04 mmol/l, B= 7.97 ± 0.8 mmol/l, D= 8.29 ± 1.23 mmol/l) except C (7.76 ± 0.85 mmol/l) (P> 0.05). ALB decreased with age (A=31.34 ± 3.24 g/l; B=30.03 ± 2.41 g/l; C=30±2.77 g/l; D=29.67± 2.85 g/l) (P> 0.05). Also glucose concentrations were lower in older mares (A=4.51 ± 0.99 mmol/l; B=4.69 ± 1.05 mmol/l; C= 4.69 ± 1.05 mmol/l; D =4.03 ± 0.64 mmol/l) (P> 0.05). Significantly differences were found in leukocytes between group A =2.76±1,82 g/l versus groups B=6.74±0,56 g/l, C =6,46±1,14 g/l and D =6.13±1,61 g/l (P<0.05), also in neutrophiles between A=2.06±1.26 109/l versus B= 3.47±1.17 109/l, C =3.12±0.9 109/l and D =2.88±0.71 109/l (P<0.05). Were found significantly differences in eosinophiles between group A =0.06±0.09 109/l versus groups B=0.21±0.17 109/l, C=0.19±0.1 109/l and D=0.12±0.11 109/l (P<0.05), also in lymphocytes between A=4.59±1.59109/l versus B =2.95±1.04109/l, C=2.99±1.14109/l and D=2.65±1.87109/l (P<0.05). This research evaluated selected biochemical and haematological parameters of breed mares Norik Muráň type of different ages. We found that age affects these indices in mares Norik Muráň type. Data from this study may enhance our understanding of the biochemical parameters in this species, allowing a veterinarian to fix the interpretation of laboratory data and give these animals the appropriate care.

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Corresponding author:
Novotný František
Tel: +421915984693
Fax: +4210556711674
E-mail: fnovotny@uvm.sk