

**HEMATOLOGICAL, BIOCHEMICAL AND SEROLOGICAL INDICES
IN HORSES POSITIVE FOR EHV-1 IN POLYMERASE CHAIN REACTION**

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Equine viral rhinopneumonitis may be caused by equine herpesvirus type 1 (EHV-1) and equine herpesvirus type 4 (EHV-4). Infection with either virus may be manifested clinically or remain latent. Latently infected horses are therefore the source of infection and can be diagnosed with the help of PCR. PCR enables to detect specific viral DNA sequences in peripheral blood leukocytes in clinically healthy animals, so carriers of EHV-1 infection can be identified.

Aim of the study. The aim of this study was to establish hematological, biochemical and serological measures accompanying EHV-1 positive PCR results in clinically healthy horses.

Materials and Methods. 46 adult horses from Ukrainian stud were examined and recognized clinically healthy. Heparinized blood samples were taken from them to obtain peripheral blood leukocytes for DNA isolation and for PCR. Blood samples were also taken for hematological, biochemical and serological tests. PCR specific for EHV-1 was performed by Dr. Marcin Banbura from Division of Virology, Mycology and Immunology, Department of Preclinical Sciences, Faculty of Veterinary Medicine, Warsaw Agricultural University. In our laboratory routine hematology, total serum protein, serum lysozyme activity, vitamin C level and serum immunoglobulin level were conducted. We have also measured the specific antiviral antibodies by hemagglutination inhibition test (HI).

Results. From 46 examined horses only 4 were positive in PCR for EHV-1, whereas 19 were serologically positive in HI test. In table 1 we have summarized the results of hematological, biochemical and serological studies performed in PCR positive animals. Hematocrit, red blood cells count, hemoglobin, total serum protein and lysozyme activity was decreased, however the vitamin C and immunoglobulin level was elevated in PCR positive animals when compared with PCR negative/HI negative horses.

Table 1. Hematological, biochemical and serological indices in horses positive for EHV-1 in PCR.

Name of the horse	PCR result	Hematocrit (1/1)	Hemoglobin (g/D)	RBC ($\times 10^{12}/l$)	Total serum protein (g/l)	Vitamin C (mmol/l)	Scrum lysozyme activity (%)	HI antibody titer	Isoantibodies level
Spring	+	0,33	88	6,0	74,2	45,43	29,8	ND	1:2
Lasta	+	0,37	92	7,4	65,5	45,43	31,5	1:64	1:2
Sabur	+	0,39	92	6,4	81,4	11,36	28,4	1:128	1:16
Lastic	+	0,44	100	7,3			ND		

M±m	0,39±0,02	93±2,51	6,78±0,3 4	73,7±4,6	34,07±11, 36	*29,03± 0,46	1:96	*6,66± 0,04
PCR/HI negative (control) horses N=27	0,49±0,04	108±12	7,7±0,55	75±6,2	25±3,2	35±3,6	0	2,31±0 ,02

Note: * $p < 0,01$ as compared to the control

ND - not done

We have concluded that from 46 clinically healthy horses 4 (9%) were latently infected with EHV-1, as revealed positive PCR result. Latently infected animals had increased level of isoantibodies ($p < 0,01$) in comparison with PCR negative controls.

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