

LIVER DISEASE IN THREE HORSES

Contributor name: Margarita Dvornik Gojsalić, DVM

Contributor Email: Margarita-Dvornik-Gojsalić@idexx.com

Coauthor: Ernst Leidinger, DVM, DECVCP

Company: IDEXX Laboratories (Invitro Laboratory), Vienna, Austria

Signalment:

Patient 1: Pony, 18 years old, sex not reported

Patient 2: Haflo-Arab, 14 years old, sex not reported

Patient 3: Icelandic Horse, 18 years old, male

Clinical findings: as far as clinical findings were reported or asked from the clinicians they included: anorexia, abdominal pain and jaundice of mucous membranes.

Lab diagnosis:

A number of biochemical parameters and a CBC were performed in all three patients (**Tables 1,2**).

Table 1: Haematology results (Advia 2120i, Siemens Healthcare Diagnostics, Tarrytown, USA)

Analytes (units)	Patient 1, Day 1	Patient 2, Day 1	Patient 2, Day 10	Patient 3	Reference Intervals (SI)
RBC (T/L)	8.7	10.5	8.2	7.1	6.5-11
HGB (g/L)	169	176	142	116	10-18
HCT (L/L)	0.51	0.51	0.41	0.34	0.32-0.53
MCV (fL)	↑58.5	48.3	49.7	47.6	37-55
MCH (pg)	↑19.4	16.8	17.3	16.3	13-19
MCHC (g/L)	↓332	↓348	↓348	↓342	360-400
WBC (G/L)	↑12.4	4.2	5.8	5.6	5-10
NEUTROPHILS (G/L)	↑10.29	3.32	4.86	2.84	3-7
LYMPHOCYTES (G/L)	1.98	↓0.48	↓0.71	2.11	1.5-4.0

MONOCYTES (G/L)	0.12	0.39	0.2	0.13	-0.5
EOSINOPHILS (G/L)	0	0	0.01	0.52	-0.35
BASOPHILS (G/L)	0	0.01	0.02	0	-0.15

Table 2: Biochemistry results (Dimension EXL 200, Siemens Healthineers, Frimley, Camberely, UK)

Analytes (units)	Patient	Patient 2, Day 1	Patient 2, Day 10	Patient 3	Reference Intervals (SI)
Glucose (mmol/L)	↓ 2.71	↑ 6.66	n.t.	5.00	3.05-5.27
Urea (mmol/L)	↓ 2.16	↓ 2.33	n.t.	5.1	3.33-6.66
Creatinine (µmol/L)	141.4	106	n.t.	11.9	-176.8
Bilirubin, total (µmol/L)	43	↑ 62	↑ 55	23.4	12.0-53.0
Bilirubin, direct (µmol/L)	↑ 6	↑ 10	↑ 13.2	0.23	1.7-5.1
Bilirubin, indirect calc,(µmol/L)	37.3	↑ 51.3	42	1.14	10.3-47.9
ALP (U/L)	44	↑ 1456	↑ 1358	↑ 244	-350
AST (U/L)	4	↑ 693	↑ 847	↑ 549	-500
GGT (U/L)	↑ 271.4	↑ 435	↑ 486	↑ 101	-30
LDH (U/L)	↑ 587	↑ 1629	↑ 1464	↑ 741	-450
CK (U/L)	17	↑ 453	n.t.	↑ 233	-200
Total protein (g/L)	68.4	↑ 77.4	↑ 85.9	69.1	55-75
Triglycerides (mmol/L)	↑ 0.66	↑ 9.27	n.t.	0.23	- 0.57

Cholesterol (mmol/L)	↑ 4.66	↑ 4.66	↑ 4.99	2.5	0.5-3.1
Calcium, total (mmol/L)	2.6	2.7	n.t.	3.0	2-3.20
Phosphorus (mmol/L)	1.2	0.8	n.t.	0.9	0.5-1.3
Magnesium (mmol/L)	↓ 0.5	↓ 0.5	n.t.	0.8	0.7-1.2
Iron (μmol/L)	23.2	n.t.	n.t.	n.t.	11.8-37.8
Sodium (mmol/L)	144	n.t.	n.t.	n.t.	126-157
Potassium (mmol/L)	4.2	n.t.	n.t.	n.t.	3.5-4.5

Questions:

1. What are the major differentials for liver disease in horses?
2. How could you reach a final diagnosis?