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Investigation of inflammatory markers in horses with acute abdominal pain

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Objectives

Investigation of the diagnostic and prognostic potential of serum and peritoneal fluid (PF) levels of serum amyloid A (SAA) and haptoglobin in horses with colic

Methods

- SAA and haptoglobin measured in serum and PF samples from 61 colic horses and 19 healthy horses.
- Colic cases classified according to diagnosis, treatment and outcome.
- Concentrations are log-transformed and compared between groups with student´s t-test and ANOVA.

Conclusions

The peritoneal fluid concentrations of SAA and haptoglobin are more indicative of diagnosis, treatment necessary and outcome than the serum concentrations.

Figure 3. Equine colic surgery.
The purple small intestine is strangulated and needs to be surgically removed for the horse to survive.

Combining SAA and haptoglobin levels in peritoneal fluid seems to be helpful as diagnostic and prognostic markers in colic horses and should be investigated further.

Results

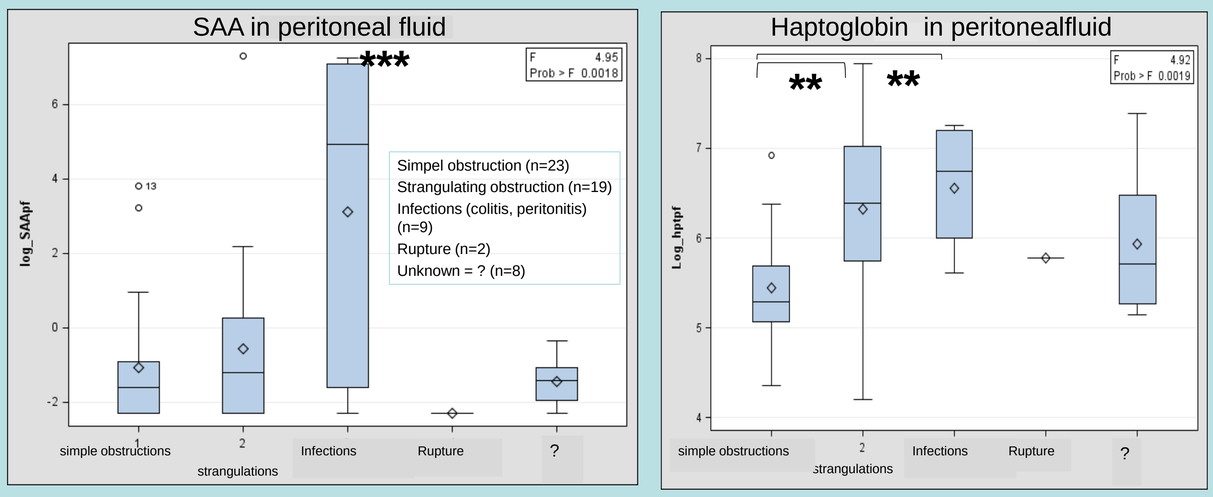

Figure 1. Logarithmic transformed concentrations of PF SAA and haptoglobin in colic horses grouped according to diagnosis and compared with ANOVA. The box plot shows the median with the 25% and 75% quartile as well as the mean (◊). The wiskers are the maximum and minimum concentrations within 1,5 times the interquartile range. Outlyers are marked with (○).

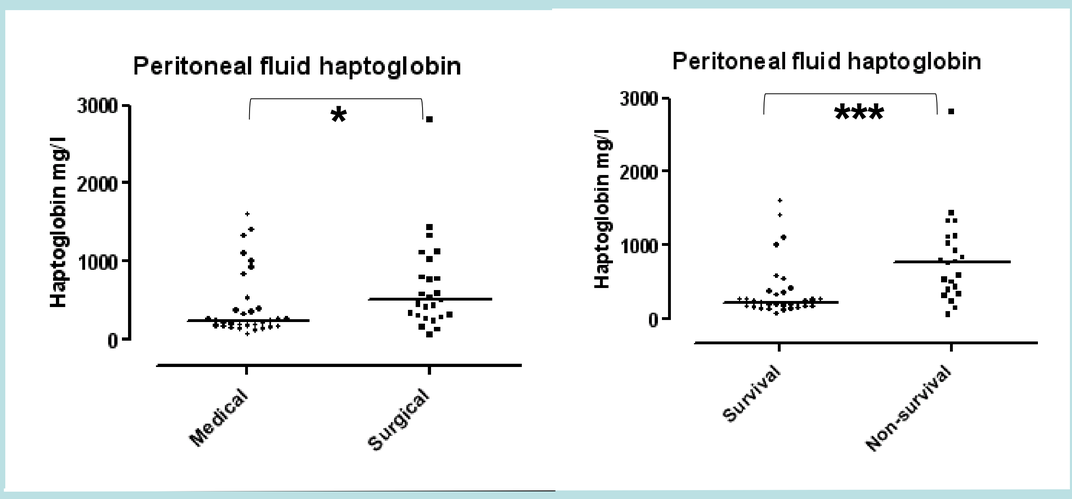

Figure 2. PF haptoglobin concentrations in colic horses grouped according to treatment and outcome. The horisontal line shows the median concentration.

- PF SAA was higher in horses with infectious conditions compared to all other diagnoses (p<0.001)
- PF haptoglobin was higher in both strangulating (p=0.004) and infectious conditions (p=0.009) compared to simple obstructions.
- PF haptoglobin was the only protein found to be different between horses needing medical vs. surgical treatment (p=0.034) and between survivors vs. non-survivors (p=0.003).

Tabel 1. Serum and PF concentrations of SAA and haptoglobin in control and colic horses.
Concentrations are shown as medians with ranges, but the comparisons are made between the logarithmic transformed mean values.

	SAA (mg/l)				Haptoglobin (mg/ml)			
	Serum		Peritoneal fluid		Serum		Peritoneal fluid	
	n	Median (range)	n	Median (range)	n	Median (range)	n	Median (range)
Control	19	0.3 (0.1-1.6)	11	0.1 (0.1-0.2)	19	1423 (260-2210)	11	120 (50-334)
Colic	61	2.8 (0.1-3347)	57	0.2 (0.1-1493)	61	1078 (126-1185)	57	332 (67-2818)
P-value		<0.0001		<0.0001		0.1303		<0.0001

- Colic horses had significantly higher mean concentrations of serum SAA, PF SAA and PF haptoglobin compared to controls (tabel 1).
- Serum haptoglobin was not statistically different in any of the groups of horses compared.