

## Pre- and per-operative parameters related to hypotension and hypoxaemia during anaesthesia in colic horses: a retrospective study

L. Devisscher<sup>1</sup>, C. Delesalle<sup>2</sup>, J. Dewulf<sup>3</sup>, P. Deprez<sup>2</sup>, S. Torfs<sup>2</sup>, S. Schauvliege<sup>1</sup>, A. Martens<sup>1</sup>, F. Gasthuys<sup>1</sup>

1. Department of Surgery and anaesthesia of domestic animals, 2. Department of Internal medicine and clinical biology of large animals, 3. Department of Reproduction, obstetrics and herd health. Faculty of Veterinary Medicine, University of Ghent, Salisburylaan 133, B-9820 Merelbeke, Belgium.

Horses undergoing colic surgery under general anaesthesia have an increased risk of mortality (Johnston et al., 1995). The aim of this retrospective study was to point out relations between pre- and per-operative parameters in these horses.

Presurgical parameters and anaesthetic protocols were reviewed in 354 horses referred for colic surgery between 2004 and 2006. The relation between clinical parameters and the lowest mean arterial pressure (MAP) recorded during anaesthesia was analysed using univariable linear regression. Afterwards variables with  $p < 0.05$  were re-entered in a multivariable model, using a stepwise backward procedure (Grechanovsky & Pinsker, 1995). The relation of the parameters and hypoxaemia ( $\text{PaO}_2 < 95$  mmHg) was analysed in a comparable manner (univariable followed by multivariable) using logistic regression.

Hypotension ( $\text{MAP} < 60$  mmHg) occurred in 57.3% of the horses. Horses with a colon strangulation were at higher risk for a lower MAP compared to non-strangulated colon patients ( $p = 0.029$ ). The univariable analysis revealed that the MAP was significantly lower in horses with a high pulse rate, cyanotic/congested mucosae, a delayed capillary refill time, a weak skin turgor, a lower Base Excess (BE) or a higher packed cell volume before anaesthesia ( $p < 0.05$ ) and in horses with a long anaesthesia, a low peranaesthetic BE or peroperative euthanasia ( $p < 0.05$ ). In the multivariable analysis only the turgor at admission and the lowest BE recorded during anaesthesia remained significantly related to the lowest MAP ( $p < 0.001$ ). Hypoxaemia occurred in 54.9% of the colic patients. Increasing age or body weight, a low BE during anaesthesia and peroperative euthanasia were significantly associated with the occurrence of hypoxaemia ( $p < 0.05$ , univariable analysis). In the multivariable model, horses with a heavy weight or peroperative euthanasia showed a significantly ( $p < 0.05$ ) higher frequency of hypoxaemia.

The findings of the present study highlight the importance of pre-anaesthetic stabilisation of the equine colic patients.

### References:

Grechanovsky E., Pinsker, L. (1995) Conditional P-values for the F-statistic in a forward selection procedure. *Computational Statistics & Data analysis* 20 (3), 239-263.

Johnston GM, Taylor PM, Holmes MA, et al. (1995) Confidential inquiry of perioperative equine fatalities (CEPEF-1): preliminary results. *Eq. vet. J.*, 27(3), 193- 200.