

## TESTING MAMMARY GLAND SECRETIONS TO PREDICT FOALING IN JENNIES

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Work type: Original Research

Topic: theriogenology and obstetrics

**Purpose of the work** - To ensure a correct delivery assistance and the birth of a live and viable foal it is necessary to add a simple and inexpensive field test to the clinical observations. The aim of this study is to evaluate the electrolyte (Ca<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup>) and the pH changes in pre-foaling mammary secretions.

**Materials and used methods** - A sample of 3-4ml of mammary secretion was collected daily from 9 mix-breed jennies, after 6pm, at Day -4, -3, -2, -1, 0 before foaling. Ca<sup>2+</sup>, Na<sup>+</sup>, K<sup>+</sup> concentrations were detected by a BT3500VET (Biotecnica Instruments SpA) biochemistry analyzer. With the testo@230 pHmeter and strip test (range 1-14) pH was determined. The data were analyzed by a mixed model two-way ANOVA test, considering time as fixed factor and jenny as random factor. For sampling time the Least Significant Difference (LSD) test was used ( $p < 0.05$ ). Correlations were determined among parameters.

**Outcomes** - Ca<sup>2+</sup> levels significantly increased ( $p < 0.05$ ) in the last 5D before foaling, especially between D-2 and D-1 ( $p < 0.01$ ). Mean Ca<sup>2+</sup> concentration at D-2 was 22 mmol/L (876 ppm). 5/9 jennies reached 1000 ppm at D0. No significant changes in Na<sup>+</sup> and K<sup>+</sup> levels and their ratio were detected until foaling. No significant decrease of pH was detected by pHmeter, conversely test strips measure showed a significant decrease between D-4 and -3, D-3 and -2. 6/9 jennies foaled within 48h after reaching a pH 6.5 detection by both methods. Ca<sup>2+</sup> levels showed a correlation (-0,8) with both the day of sampling and the test strip pH.

**Conclusions** - In conclusion, Ca<sup>2+</sup> levels reported in our work are in accordance only with the one of Mancuso (1) and are supposed to be a good indicator of fetal maturity in mares and also in the jennies (2) but not a sign of impending delivery. Na<sup>+</sup> and K<sup>+</sup> levels do not show the inversion cited by Carluccio (2) and the pH values are comparable to the few data available on mare (3,4). Currently a vulvar device is the only option to assist promptly a foaling jenny. The alarm system is expensive but justified by the incidence of dystocia and the economic value of newborn and lactation.

### Bibliography

1. Mancuso et al, Ippologia, 2004.
2. Carluccio et al, *Reprod Dom Anim*, 2008.
3. Canisso et al, *Vet Rec*, 2013.
4. Korosue, *Vet Rec*, 2013.

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