

## NON-SPECIFIC IMMUNOMODULATION AT POST-PARTUM IMPROVES UTERINE CONDITION AND FERTILITY IN MARES

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The foal heat usually has a low fertility rate, with poor uterus involution, inflammation and contaminant microorganisms. Settle™ (Bioniche Animal Health USA, Inc., Athens, GA) a biological immunomodulator was shown to significantly reduce endometrial inflammation in Post Breeding Endometritis.<sup>a</sup> This study evaluated the efficacy and safety of Settle given after foaling and its impact on breeding efficiency at the Foal Heat.

Eighty-one Argentina Saddle Horse mares were allocated to one of two treatments: (i) Settle i.v. -1.5 mg or (ii) placebo. All mares were ultrasound scanned at 15 days post ovulation. Twenty-five of them were swabbed for bacteriology and exfoliative cytology (PMN count) on the day after foaling (S1) and again seven days later (S2).

**Pregnancies:** A significant higher proportion of mares were pregnant in the Settle group than in controls (P=0.0003, Fisher's test).

**Bacteriology:** The bacteria and isolation frequencies are shown in the table. At S1, both groups had high contamination scores. At S2, almost all of the control mares were highly infected except three, which cultured negative. In the Settle group, most mares (11/13) were cultured negative. Whereas both groups did not differ at S1 (p>0.05), they did at S2 (p<0.05). While there was no significant variation between both samples (S1 v S2), in the control group, the effect of Settle resulted in a highly significant (p<0.001) difference between S1 and S2.

**Cytology:** At S1 the controls had high cytology scores, which decreased at S2 (not significantly; Kruskal-Wallis test). The mares given Settle also showed a high score at S1 but they demonstrated a dramatic decrease (p<0.001) at S2. Whereas both groups did not differ in their cytology scores at S1, they did significantly at S2 (p<0.05).

	Placebo		Settle	
	S1	S2	S1	S2
<b>Pregnancy</b> (n=81)	9/38 (24%)		28/43 (65%)	
<b>Bacteriology</b> (n=25)	1-4 (3)	0-3 (3)	0-4 (3)	0-0.2 (0)
<i>Isolates (n)</i>				
<i>S. zooepidemicus</i>	8	6	4	1
<i>S. equisimilis</i>	1	1	2	0
<i>S. equi</i>	1	0	0	0
<i>E. coli</i>	5	2	7	1
<i>Klebsiella</i> spp.	0	0	1	0
<i>Proteus</i> spp.	1	0	0	0
<b>Cytology</b> (n=25)	12.4-60 (30.1)	0.8-35 (14.9)	12.8-60 (21.8)	0-0.25 (0.8)

In parentheses: median.

**Conclusions:** Settle administered the day after foaling promoted (i) a significantly higher pregnancy rate (ii) a dramatic pathogen-independent decrease in bacterial contamination in the endometrium, (iii) a significant decrease in the number of endometrial inflammatory cells presented at foal heat. Furthermore the Settle treatment has demonstrated to be a safe, intravenous, non-antibiotic therapy for nursing mares.

<sup>a</sup> Fumuso, E., *et al.* Use of Immunomodulation in Persistent Post-breeding Endometritis. Effect on Proinflammatory Cytokines IL-1β, IL-6 and TNFα mRNA transcription studied by Real Time PCR Annual Meeting, The Society for Theriogenology, Colorado Springs, August 7-11, 2002.

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