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Impact of activation and subsequent antimicrobial treatment of dormant endometrial streptococci in the Thoroughbred problem mare – a descriptive field study

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The expected fertility of problem mares (non-pregnant for ≥ 3 cycles despite intensive breeding management) is reduced compared to the general broodmare population (15 to 50% vs. 80 to 85% foaling rate).¹ *Streptococcus equi* subspecies *zooepidemicus* (*S. zoo*) can enter an inactive/dormant state with a multifocal distribution deep within the endometrium of a chronically infected mare. As most antimicrobial compounds assert their activity against metabolically active bacterial cells, we hypothesized that activation of bacterial growth and subsequent antimicrobial treatment of dormant streptococci would increase treatment efficacy and indirectly increase the fertility of the problem mare.

A total of 64 problem mares from intensively managed stud farms in Central Kentucky during the 2011 and 2012 breeding seasons satisfied the inclusion criteria (barren ≥ 3 cycles, gynecologically normal). A low volume lavage sample and endometrial biopsy were obtained in early estrus, and a bacterial activation solution (10 mL; Bactivate) was infused into the uterine lumen. A specimen for endometrial culture (low volume lavage or guarded swab) was obtained 24 h after activation. Activation was classified as successful if culture-negative or *S. zoo*-negative (e.g. *E. coli*) on day 0 changed to culture-positive for > 5 CFUs *S. zoo* 24 h after activation. On the day following activation, mares with positive uterine cultures were treated with systemic and intrauterine antimicrobials, ecboolics, uterine lavage with or without mucolytics, and bred in the following cycle (maximum two cycles). Pregnancy was established in 53 (83%) mares. Of the 21 pregnancies established in 2011, 18 (86%) gave birth to a live foal. Foaling data from the 2012 season are pending. Since all mares were infused with the activation solution, the pregnancy rate of non-activated mares cannot be determined. The results clearly indicate that activation and subsequent antimicrobial treatment of dormant *S. zoo* in problem mares can restore the expected pregnancy and live foal rates to levels reported for the general mare population.

Keywords: Chronic endometritis, mare, *Streptococcus zooepidemicus* dormancy, activation, fertility

Reference

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