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Bovine viral diarrhea virus: Its effects on estradiol, progesterone and prostaglandin secretion in the cow

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Abstract

Bovine viral diarrhea virus (BVDV) is a major cattle pathogen responsible for a spectrum of symptoms, including reproductive failure. This study was designed to establish the effects of BVDV infection on estradiol, progesterone and PGF₂α secretion in the cow. Seven BVDV-free cows were challenged with non-cytopathogenic BVDV (strain Pe 515: 5sx10⁶tissue culture infected dose₅₀) so that peak viremia occurred during the initial phase of luteal development in a synchronized estrous cycle. Ovulation was also synchronized in 7 shaminfected animals.

Within 2 wk of inoculation, viremia, leukopenia and serum neutralizing antibodies were recorded in all of the BVDV-infected cows but not the sham-infected animals. Between Day 4 and Day 9 post estrus the BVDV-infected cows had significantly (P<0.01) lower

plasma estradiol levels than the sham-infected animals. However, the BVDV infection did not alter rectal temperatures, plasma progesterone concentrations or PGF2alpha secretion 17, 18 and 19 d post estrus. These data highlight a potential causal link between BVDV viremia, endocrine dysfunction and poor fertility in the cow.



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Key words

bovine viral diarrhea virus; cow; estradiol; ovary

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