

CPB 69700 RESEARCH SEMINAR

DEPARTMENT OF COMPARATIVE PATHOBIOLOGY

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“Transmission of bovine viral diarrhea virus type-1a from experimentally infected white-tailed deer fawns (*Odocoileus virginianus*) to colostrum-deprived calves.”

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VPTH 112
3:30 pm

Abstract: The objective of this study was to assess whether bovine viral diarrhea virus type 1a (BVDV-1a), originally isolated from free-ranging white-tailed deer (WTD), can be transmitted between experimentally infected WTD fawns and comingled, BVDV naïve colostrum-deprived calves. Five WTD fawns were inoculated intranasally with a ncp BVDV-1a isolate (2 ml containing $10^{6.7}$ TCID₅₀/ml). Two days post inoculation (DPI), fawns were comingled with six male Holstein colostrum-deprived calves until the end of the study. Throughout the study, serum was collected for virus neutralization and antibody ELISA; whole blood (buffy coat) and nasal, oral and swabs were collected for real time-PCR (RT-PCR) analysis. On 21 DPI, animals were euthanized, necropsied and tissue samples were collected for histopathology and virus isolation (VI). All fawns were infected and shedding the virus up to 18 days based on RT-PCR of buffy coat and swabs; and were positive by VI from multiple tissues. Virus neutralization and ELISA were positive in 3 and 4 fawns respectively by 21 DPI. Four calves became infected as demonstrated by RT-PCR in buffy coat at least on one sample and on VI from multiple tissues. BVDV was detected only on nasal swabs (1/6) and oral swabs (1/6) on two infected calves. By 21 DPI one infected calf seroconverted based on positive ELISA. No gross lesions were observed at necropsy. Marked lymphoid atrophy and some lymphoid necrosis were observed on histopathology in all fawns and 4/6 calves. IHC results indicated low numbers of positive stained cells in areas of lymphoid depletion/necrosis in the lamina propria of the villi of infected calves. Results indicate that transmission of ncp BVDV-1a from experimentally infected fawns to naïve calves is possible.