

AASRP Research Summaries

Experimental infection of pregnant sheep with bovine viral diarrhea virus 1b (AU526)

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Introduction

Bovine viral diarrhea virus (BVDV) lacks strict host-specificity and can infect many species in the order Artiodactyla. BVDV infection in pregnant heterologous hosts can be deleterious. Limited information exists regarding genomic changes occurring in BVDV upon infection of heterologous hosts. Using a BVDV isolate previously demonstrated to cause PI cattle, goats, and white-tailed deer, this study investigated the outcome of serial infection in pregnant BVDV-naïve sheep, a heterologous species that is phylogenetically closely related to cattle.

Materials and Methods

Six pregnant ewes were included between days 30 and 60 of gestation. On day 0, the first ewe was intravenously inoculated with 1ml of BVDV 1b AU526 (1x10⁶ CCID₅₀/mL) of bovine origin. Weekly, 1 additional ewe was intravenously inoculated with 1 mL of serum from the preceding ewe following confirmation of viremia. Blood samples were

collected for virus isolation and RT-PCR (days 0, 5, 7, 9) and virus neutralization (day 0 and every 28 days until lambing). Gestational viability was evaluated by transabdominal ultrasonography every 28 days.

Results

BVDV infection was confirmed in all ewes by virus isolation and seroconversion. Initially, clinical signs were mild (pyrexia and inappetence) and pregnancies appeared viable. Subsequently, BVDV infection resulted in abortion, fetal mummification, birth of weak lambs, precolostral seropositivity, and birth of persistently infected offspring.

Significance

The outcome of infection with BVDV AU526 of pregnant sheep was similar to previous reports in cattle, goats, and white-tailed deer. Currently, genomic changes of BVDV resulting from serial infection of pregnant sheep are under investigation.

The use of trans-abdominal ultrasound for pregnancy detection and fetal aging before day 45 of gestation in the sheep

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Introduction

Trans-abdominal ultrasound is a reliable technique for pregnancy detection in the small ruminant, and has become increasingly adaptable to field conditions in a production

setting. Currently, limited information is available related to early pregnancy detection and estimating fetal age using this technique. Therefore, our objective was to determine the accuracy of trans-abdominal ultrasound during early pregnancy in the ewe. We hypothesized that trans-abdominal ultrasound