Efficacy of a BVD Type I MLV Vaccine Against a Virulent BVD Type II Experimental Challenge in Young Calves

L. Siger, *DVM, MSc;* **F. David,** *DVM, MS, PhD;* **G. Gallo,** *DVM, DVSc, PhD;* **J. Rice Conlon,** *DVM, MSc, PhD*
Merial, 115 Transtech Drive, Athens, Georgia, 30601, USA

Introduction

The objective of this study was to determine the efficacy of a vaccine containing modified-live bovine viral diarrhea virus Type I (BVD1) against a highly virulent BVD Type II (BVD2) challenge in calves.

Materials and Methods

In this study thirty-nine, 4 month-old, colostrum-deprived calves were used. All calves were determined to be seronegative (<1:2) for neutralizing antibodies to BVD1 and BVD2, parainfluenza-3 (PI3), bovine respiratory syncytial virus (BRSV) and infectious bovine rhinotracheitis (IBR). These calves were randomized into two groups: vaccinates (n=19) and controls (n=20). On Day 0 and Day 21, vaccinates received 2 mL of an experimental combination vaccine containing IBR and PI3 modified live virus (MLV), IBR and BRSV killed virus and BVDV Type I MLV (NADL strain) at minimal protective dose. Controls were not vaccinated. All calves were challenged intranasally with a highly virulent BVD Type II strain (strain1373) on day 35. BVD Type I and Type II serum neutralizing titers were determined on samples collected at days 0, 21, 35 and 49. Clinical signs, rectal temperatures, blood for differential cell counts and nasal swabs for virus isolation were collected daily from 3 days pre- to 14 days post-challenge.

Results and Conclusions

All vaccinated calves demonstrated high serum-neutralizing titers to BVD1 and BVD2 on the day of challenge. After challenge, 100% (20/20) of controls died, whereas mortality was only 5.3% (1/19) in the vaccinated animals. Viral shedding, clinical scores, hyperthermia, leukopenia and thrombocytopenia were significantly reduced in the vaccinated calves as compared to control calves.

This study demonstrates that this combination vaccine containing BVD Type I MLV is highly protective against a virulent BVD Type II challenge in young calves.