

Research Summaries

Session II - BVD and Neospora

Moderators: Sandra Godden
Nigel Cook

Diagnosis of A Novel Variant of Bovine Viral Diarrhea Virus Infection in a Bull

D. Gnad¹, B. Debey², S. Kapil², M. Wilkerson²

¹Department of Clinical Sciences, Kansas State University, Manhattan, KS 66506

²Department of Diagnostic Medicine and Pathobiology, Kansas State University, Manhattan, KS 66506

Introduction

Bovine viral diarrhea virus BVDV is economically devastating to the beef and dairy industries in most parts of the world, and diagnosing variant strains of BVDV can challenge the practitioner. Being aware of available diagnostic tests and their limitations will aid in making an accurate diagnosis.

Materials and Methods

A nine-month-old bull presented with unthriftiness, ataxia and poor weight gain. While hospitalized, he developed hyperkeratotic skin lesions, became completely anorectic and severely depressed.

Serum BVDV antigen enzyme linked immunosorbent assay (ELISA)^a was negative, BVDV antibody titer was negative (<1:2), and serum BVDV polymerase chain reaction (PCR) with BVD I and BVD II primer sets (n=4) were negative. BVDV immunoper-

oxidase with 15C5^b was weak positive, with staining in cells within follicular epithelium. A non-cytopathic BVDV was isolated from multiple tissues and blood samples. We suggest that the discrepancy in test results was due to a novel BVDV isolate which was confirmed by polyclonal anti-BVDV antiserum.^c

The bull was immunosuppressed, with lowered serum IgA (undetectable), lowered serum IgG (900 mg/100ml), and lowered serum IgM (160 mg/100 ml) levels, and was seronegative for infectious bovine rhinotracheitis and commensal agents such as *Escherichia coli*. On euthanasia, dermatitis and multiple enlarged lymph nodes were found. Histologically, parakeratotic hyperkeratosis of skin, scattered intestinal crypt epithelium necrosis, and paracortical hyperplasia of lymph nodes were noted.

BVDV is an RNA virus, allowing it to mutate rapidly in nature. Therefore, it is critical that we continue to monitor and investigate variant strains of BVDV.

^aSyracuse Bioanalytical, Ithaca, NY

^bDr. E. Diboui, Cornell, NY

^cNVSL, Ames, IA