Research Summaries

GENERAL

Moderator: Dan Grooms

Demonstration of the Efficacy of a New *Leptospira interrogans* serovar pomona Antigen in Combination with *Campylobacter fetus* - *Leptospira* serovars canicola, hardjo, icterohaemorrhagiae and grippotyphosa by Challenge in Young Cattle

Jennifer Conlon[1]; Guillermo Gallo[1]; Daniel Penka[1]; Carole Bolin[2]
[1]*Biocor Animal Health, Omaha, Nebraska*
[2]*Michigan State University, East Lansing, Michigan 48824*

This study was conducted to demonstrate the protection afforded by a vaccine containing a new *L. interrogans* serovar pomona antigen using an experimental challenge model in cattle. The new serovar pomona antigen was formulated at minimum protective dose in combination with the *Campylobacter fetus – Leptospira* serovars canicola, hardjo, ictero-haemorrhagiae and grippotyphosa antigenic components of BIOCOR's Vibrio-L5. Twenty colostrum-deprived calves, less than 3 months of age at first vaccination and seronegative to all vaccine components (*Leptospira* titers <1:12.5), were randomly allocated to two groups: a vaccinated group (Group 1; n=14) and a control group (Group 2; n=6). Animals were vaccinated with 5 ml of the vaccine or a placebo (physiological saline) subcutaneously on Day 0 and Day 28. One animal (Group 1) died due to bovine respiratory disease between the second vaccination and challenge, and therefore, only 13 vaccinated and six controls were challenged six weeks after second vaccination. Challenge was by conjunctival instillation of *L. interrogans* serovar pomona (type kennewicki) on three consecutive days. The challenge strain was of demonstrated pathogenicity and heterologous to the vaccine strain. Animals were observed daily for signs of clinical disease, and urine samples were collected from two weeks pre-challenge to eight weeks after challenge. The primary variable to evaluate protection during this period was the presence or absence of *Leptospira* in the urine. Eight weeks after challenge, all animals were humanely euthanized and kidney samples were collected for leptospiral isolation. Five of the six control animals in the study became infected and shed serovar pomona (83%) post-challenge, while only one of the 13 vaccinated animals (8%) became infected with serovar pomona. Satisfactory protection was demonstrated by a significantly lower (p=0.001) incidence of urinary shedding and kidney colonization post-challenge in the vaccinated group as compared to animals in the control group. These data demonstrate that the serovar pomona component of this new VL5 vaccine is efficacious in preventing urinary shedding and disease caused by *L. interrogans* serovar pomona.