MLV Type I BVD vaccine. This vaccine was prepared according to the current outline of production for MLV BVD vaccine. Product was reconstituted and administered according to the label directions at the time of use. **2)** Killed Type I BVD vaccine. This vaccine was prepared according to the current outline of production for KBVD vaccine. Product was administered according to the label directions. **3)** Killed Type II BVD vaccine. This vaccine was prepared and formulated according to the current outline of production for KBVD vaccine **except** that Type II BVD Strain 125 (NVSL, Ames, Iowa) was used in place of strain C24V. 9CFR final product release tests were performed on the final product. Animals were inoculated with 2 ml of the preparation containing no less than 6.5 logs of Type II Killed BVD virus per dose. **4)** Killed Type I BVD/MLV Type II BVD vaccine. MLV Type I BVD vaccine was reconstituted with the killed type II BVD vaccine described in 3). **5)** RPMI 1640 (untreated control).

Calves were bled on days 21 and on day of challenge. Calves from each group were challenged with Type II BVD (BVD CHV, "890" 94-9, 11/94, NVSL, Ames, Iowa) according to the NVSL Type II challenge protocol on day 28. After challenge, animals were observed daily. Daily rectal temperatures were obtained and clinical signs were scored according to the Diamond Animal Health Carlisle Research Facility scoring key. Daily nasal swabs were taken for virus isolation. Additional serum samples were collected 7 and 14 days after challenge. All serum samples were assayed for the presence of both Type I and Type II BVD-neutralizing antibodies.

Data from clinical scores, viral shedding and serum neutralization studies were statistically evaluated to determine the relative efficacies of the different vaccines. Results showed that the killed Type II, the MLV Type I, and the killed Type II/MLV Type I combination vaccines were effective in protecting calves from Type II BVD challenge, while the killed Type I vaccine was not. Serum neutralization titers suggested that the killed Type II vaccine might confer longer duration of immunity than the MLV Type I vaccine.

Evaluation of IBR Vaccine Virus Shedding After Parenteral Administration to Suckling Calves

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Abstract

Many vaccine strains of IBR are assumed to be abortigenic. There is therefore concern about administering modified live IBR vaccines to suckling calves because of the possibility of shedding of the vaccine virus by vaccinates and subsequent transmission to the pregnant dam. The purpose of Phase I of this study was to show whether IBR MLV vaccine strain RT-22 causes virus shedding after parenteral vaccination of IBR-susceptible calves. Phase II of the study was designed to show whether immunosuppression 90 days after vaccination would result in recrudescence of the vaccine virus and subsequent viral shed.

This vaccine was prepared according to the current outline of production for MLV IBR vaccine except that the vaccine was formulated at 100X the normal release dose titer. Calves (n=12) susceptible to IBR (SN < 1:2) approximately 3-5 months of age were used. For Phase 1, five calves were injected intramuscularly and five were injected subcutaneously with the experimental vaccine. Each vaccinated calf received a single 2 ml dose of the experimental vaccine. Two calves were held as non-vaccinated contact controls. All calves were monitored for nasal virus shed, serum antibody titers, rectal temperatures and clinical responses.

For Phase II, two additional non-vaccinated contact controls were added to make a total of 14 calves. Approximately 90 days after the initial inoculation, all calves were treated daily with dexamethasone (0.1 mg/kg body weight) intravenously for five consecutive days. On the third day of dexamethasone treatment, cattle received LA200 tetracycline (9 mg/lb body weight) to aid in control of potential secondary infections resulting from immunosuppression caused by the dexamethasone treatment. Nasal virus shed was monitored, and blood samples were drawn daily for virus isolation to monitor for viremia.

The Phase I study showed that there was no viral shed by either group of vaccinates or by the contact controls. In addition, the contact controls did not show any evidence of exposure.

Phase II also showed no viral shed by either group of vaccinates or by the contact controls. IBR was isolated from the blood of one animal on one day, but not from the nasal secretions. The contact controls did not show any evidence of exposure.

Effect of Certain Antibiotics on the Bacterial Load and Fertility of Cattle and Buffalo Semen

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Abstract

Semen samples were collected aseptically from 11 Native and 4 buffalo bulls. All animals were clinically healthy and free from brucellosis, tuberculosis and trichomoniasis. Bacteriological identifications, total viable bacterial count (T.V.B.C.) and antimicrobial sensitivity tests were done from the raw semen before evaluation. Six different antibiotics were added to equal portions of egg yolk buffer citrate solutions and another sample was kept free as control before semen extension . Only samples with initial individual motility more than 60% were subjected to cooling and preservation at 4 °C for further studies.

The results showed significant difference in T.V.B.C. ($X10^6$) of fresh semen between cattle (5.37 ± 0.34) and buffaloes (3.23 ± 0.29). The numbers of different isolates were 31 in cattle and 14 in buffaloes. The recovered Microorganisms from bull semen included *E. Coli* (36.36%), *Staph. epidermidis* (27.27%), *Corynebacterium renal* (27.27%), *Klebsiella oxytoca* (13.64%), *Strept. faecalis* (13.64%), *Strept. pyogenes* (13.64%), *Enterobacter cloacae* (4.55%) and *Proteus mirabilis* (4.55%). In buffalo bulls, the isolated bacteria included *E. Coli* (75.0%), *Staph. epidermidis* (50.0%), *Strept. faecalis* (12.5%), *Strept. pyogenes* (12.5%), *Klebsiella oxytoca* (12.5%) and *Proteus mirabilis* (12.5%).

The sensitivity tests showed that *Gentamycin* was the most effective antibiotic (88.8%) followed by Amikacin (86.6%), *Chloramphenicol* (80.8%), *Rifadine* (77.7%), *Amoxil* (73.4%), *Penicillin* (51.1%) then *Streptomycin* (42.3%).The highest percentages of sperm motility after 4 days storage at 4°C were recorded with *Gentamycin* (60.3 2.4) followed by *Chloramphenicol* (57.2 2.04), *Penicillin-Streptomycin* (54.83 2.44) and *Amoxicillin* (52.5 2.38). *Gentamycin* could reduce markedly the T.V.B.C. from 35.65 3.12 ($x10^5$) to 9.6 1.5 ($x10^5$) after storage while the untreated samples showed a higher increase to 46.5 3.4 ($x10^5$). The clinical applications of *Gentamycin* and *Penicillin-Streptomycin* treated semen resulted in pregnancy rates of 63.2% and 52.9% in inseminated cows respectively.

As a conclusion, ***Gentamycin*** proved to be effective in terms of reduction of bacterial count, safety for sperm survival and improvement of fertility in bovine.