and seronegative were observed between groups for BoHV-1 at M1 to M10. The maximum Abs titers for BVDV was 160 (M1), observing negative reactions from 3 months of age; for BoHV-1 was observed geometric mean titers of 113.8, 90.5; 113.8; 90.5; 101.8; 90.5; 36.0; 16.0; 6.9; 3.0; 1.3, 1.5 M0 to M12 , respectively. Differences were detected between titers of Abs in the G1 and G2 groups for specific BoHV -1 M0 to M9 ($P < 0.05$). The maximum titer obtained for the BoHV was 512 (M1), observing negative reactions from the M7 (30 days). In general, the subpopulations of T lymphocytes ($CD3^+$), helper ($CD4^+$) and B lymphocytes ($CD21^+$) were higher in the blood of calves born to vaccinated mothers. Statistical differences were detected: for absolute median values ($x10^3$ cells/µL) of $CD3^+$ in G2 (4.3) compared to G1 (2.8) in M4; for $CD4^+$ ($x10^3$ cells/µL) between moments M1 (0.8- G2 and 0.6- G1) and M4 (1.6 - G2 and 0.8- G1); for $CD21^+$ ($x10^3$ cells/µL) was detected differences between groups in M4 (0,5- G2 and 0,3- G1).

Conclusions: The intensification of the humoral IR in calves of vaccinated cows could be confirmed by the higher proportion of B cells and specific titers of Abs these animals. Furthermore, the largest proportions of $CD3^+$ and $CD4^+$ suggest greater cellular IR in the group of calves that ingested colostrum from vaccinated cows. The immune profile presented by calves born from cows unvaccinated suggest higher susceptibility to BVDV and BoHV-1. In this way, it is concluded that maternal contact with the viral agents is critical to the transfer of passive immunity to newborns and their protection in the first weeks of life.

Correlation of 146S Antigen Dose with the Serum Neutralizing Antibody Response and the Level of Protection induced in CattleVaccinated by FMD virusTrivalent Vaccine

Bazid, AbdelhamidI[2,*]; El-Ashmawy, WagdyR[1]; El-Sayed, MagdyM[1]
1-Department of internal medicine and infectious disease, faculty of Veterinary Medicine, Cairo University., Giza, Egypt
2-1- Department of Virology, Faculty of Veterinary Medicine, Sadat City University, Monofeyia, Egypt

Objectives: Foot-and- mouth disease (FMD) is a highly contagious disease, and use of vaccine is known to be effective for FMD control. Vaccine manufacturers evaluate the efficiency of their vaccines according to the method which is defined in the European pharmacopeia (EP). The method used most often to establish the potency of foot and mouth disease vaccine requires viral challenge of vaccinated cattle. There are some difficulties to find animals for potency tests in Egypt where FMD is endemic and vaccine campaigns are carried out. In addition, potency test must be carried out in containments having high bio-security levels. So the present study aimed to evaluate alternative approaches, such as challenge-free serological tests (SNT) of vaccinated animals in relation with the protein content (146S) in the vaccine could be useful for vaccine evaluation.

Methods: FMDVs (O/EGY/4/2012, A/EGY/1/2012 and SAT-2/EGY/A/2012) were propagated in BHK21 to reach the maximum titers. The viruses were clarified by filtration and inactivated by two cycles of BEI (3mm) then the excess of BEI was neutralized by 2% of sodium thiosulphate. The inactivated antigens were treated by PEG 6000 8% at 4C then concentrated by Millipore filters and were eluted with Tris Kcl buffer pH 7.6. The antigen contents (146S) were estimated before and after concentration by using sucrose density gradient ultracentrifugation by determining the absorbance at 254nm using ISCO 520C Density Gradient system. The antigens were prepared follow: 2.7µg, 2.4µg and 1.4µg per dose for serotypes SAT-2, O pan Asia and A Iran 05 respectively. Vaccine formulation was done as follow: the oil phase consisted of Montanide ISA50, mixed with I part of the antigen (weight/weight), and mixed thoroughly. The prepared vaccine was evaluated by challenge test and by SNT on sera of vaccinated animals in the field as well as the challenged ones.

Results: To develop FMD vaccine using three different serotypes of foot and mouth disease virus, the viruses should propagated on BHK_{21} cells till reach the maximum titer and maximum yield of complete virus particle (146S). The antigenic content (146S) of FMDV (1.4 and 2.4µg/serotype/dose) for serotype A and O respectively were good enough to give 100 protection in the challenge test and 1.5log10 in sera collected from the tested calves as well as in the field trial the antibody levels against serotype A was 1.92 log10, and for serotype O 1.9 log10 (protective level). The antigenic content for serotype SAT2 (2.7µg/dose) not enough to give protection 100% and the results of SNT against serotype SAT2 was four animals gave 1.5 log10 and one animal gave 0.9 log 10 also in the field trial the serotype SAT2 gave the lowest titer (1.74 log10). So the results indicate using the same concentration of antigens (146S) for serotype A and O was enough to give protection 100% but the concentration of serotype SAT2 should be increased more than 2.7µg/dose.

Conclusions: The 146S content of FMDV (1.4 and 2.4 µg/serotype/dose) for serotype A and O respectively were good enough to give 100% protection in the challenge test and protective levels of neutralizing antibodies in sera collected from the tested calves as well as in the field trial. For serotype SAT2 (2.7µg/dose) not enough to give protection 100%.The results of SNT against serotype SAT2 was lowest titer. So we recommend using the same concentration of antigens (146S) for serotype A and O but the concentration of serotype SAT2 should be increased more than 2.7µg/dose.

The specificity of alloantibody in Bovine Neonatal Pancytopenia (BNP).

Bell, CR*; MacHugh, ND; Connelley, TK; Degnan, K; Morrison, WI
Rosin Institute and Royal (Dick) School of Veterinary Studies, Roslin, Midlothian, UK

Objectives: Bovine Neonatal Pancytopenia (BNP) is a disease of calves characterised by profound depletion of peripheral leukocytes and thrombocytes and bone marrow trilineage hypoplasia. It is mediated by ingestion of alloantibodies in colostrum. BNP has been linked epidemiologically to vaccination of the dams of affected calves with a particular vaccine (Pregsure BVD), which incorporates a novel adjuvant. It has been suggested that BNP-alloantibodies are directed against Major Histocompatibility Complex (MHC) class I molecules, and are induced by contaminant bovine cellular material from MDBK cells used to grow virus for the vaccine. This project aimed to investigate the specificity of BNP-alloantibody for bovine MHC I alleles, in particular those expressed by the MDBK cell line, and from this to gain an understanding of how this influences the number of cows and calves affected. Furthermore, it aimed to investigate whether the specificity of pathology for particular cell types is due to the levels of MHC I expressed by the affected cell types.