

Transmission of rotavirus antibodies against multiple serotypes in colostrum and milk following vaccination of Holstein heifers

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Objectives: The objective of this study was to determine serologic responses against three serotypes of rotavirus in heifers to vaccination with an anti-scours vaccine and the subsequent transmission of these antibodies to the colostrum and milk post calving.

Methods: One hundred and thirty four pregnant Holstein heifers were screened (study day 0, ~196 DCC) for pre-existing serological titers to bovine rotavirus (G6). Animals with Day 0 bovine rotavirus (BRV) neutralizing (VN) antibody titers (G6) > 1024 were excluded from the study. Sixty five heifers were randomly assigned to either unvaccinated controls (n=32), or were vaccinated twice with an inactivated vaccine containing bovine rotavirus (G6 and G10), bovine coronavirus, *Cl. perfringens* Type C toxoid and *E. coli* K99 antigens (SCOURGUARD 4KC®) (n=33). Heifers were administered their vaccine on study days 28 (~224DCC) and 56 (~252DCC). Serum samples were collected from all heifers on study days 28 and 56 and day of calving. Colostral samples were collected on day of calving from the first milking and from milk on day 10 post calving for determination of antibody levels. All samples had virus neutralization titers to bovine rotavirus (G6) assessed and for all three serotypes on study days 28, 56, day of calving and in the colostrum samples.

Results: There were no suspected adverse events attributable to the administration of the vaccine. Eleven heifers were removed from the study due to early calving dates, 5 controls and 6 vaccinates. Antibody titers of the controls remained low throughout the study and did not demonstrate any sero-conversion to bovine rotavirus. No significant differences were seen in the VN titer to three serotypes before calving. On day of calving significant differences were seen in both serum VN and colostrum titers against all three serogroups. In both groups there was significant concentrating of bovine rotavirus antibodies in colostrum. By day ten, while antibodies were still higher in the milk of vaccinates, the level of neutralizing antibody had decreased dramatically. Least squares mean antibody titers were back-transformed from the log₂ scale and comparisons made between controls and vaccinates. Statistical significance for all hypotheses tested was defined as P-value < 0.05. Bovine Rotavirus At calving mean serum and colostrum BRV VN titers for the vaccinates animals were significantly higher than mean BRV titers of the controls. BRV G6 titers for controls were 104 and 1537 compared to 716 and 10621. For G8 314 (2263 - 51200) 2876, 818, 9234 G10 2810 27182 5140, 52935 . and day 10 milk antibodies were also significantly higher than the controls. These antibodies levels decreased dramatically post calving and at 10 days post-calving were at 62 in the vaccinates versus 27 in the controls.

Conclusions: Administration of two doses of a vaccine against bovine rotavirus scours in heifers had a significant impact on serum neutralizing antibodies against multiple serotypes of bovine rotavirus on day of calving. These antibodies were transmitted at high concentrations to the colostrum. The vaccine, containing two serotypes, provided a high level neutralizing antibodies in the

serum and colostrum against a third serotype (g8). The antibody levels in the milk had decreased significantly by day ten after calving.

Evaluation of FMD Trivalent Vaccine Locally prepared in Egypt

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Objectives: The main objective of the study is evaluate the efficacy, safety and potency of locally produced trivalent vaccine (Tri-Aphovac®) containing serotypes A, O and SAT2 under the field conditions.

Methods: Vaccination of calves and adult cattle was carried out in four different farms in different governorates with different conditions. Vaccinated animals don't show any adverse reaction after vaccination. In the study a total sample of 81 representative animals belonged to 4 farms (16 from first farm, 20 from the second farm, 25 from the third farm and 20 from the fourth farm) were examined using Virus Neutralization Test (VNT) before vaccination and 3 weeks after vaccination. First farm samples taken from calves (n=8) and adult animals (n =8) examined before vaccination, 2 weeks, 3 weeks and 4 weeks post vaccination using VNT.

Results: Vaccinated animals don't show any adverse reaction after vaccination. The percent of positive animals to serotype O showed that 48.15% of animals had titer of 0.9 log₁₀, 24.69% had titer of 1.2 log₁₀, 16.05% had titer of 1.5 log₁₀ and 11.11% had titer of 1.8 log₁₀ before vaccination. 3 weeks of vaccination 4.94% had titer of 1.2 log₁₀, 14.81% had tier of 1.5 log₁₀ and 80.25% reach the maximum titer (1.8 log₁₀). The percent of positive animals to serotype A showed that 56.79% of animals had titer of 0.9 log₁₀ and 29.63% had titer of 1.2 log₁₀, 11.11% had titer of 1.5 log₁₀ and 247% had titer of 1.8 log₁₀ before vaccination. 3 weeks of vaccination 2.47% had titer of 0.9, 9.88% had a titer of 1.2, 9.88% had titer of 1.5 log₁₀ and 77.77% reach the maximum titer (1.8 log₁₀). The percent of positive animals to serotype SAT2 showed that 60.49% of animals had titer of 0.9 log₁₀, 20.99% had titer of 1.2 log₁₀, 7.41% had titer of 1.5 log₁₀ and 11.11% had titer of 1.8 log₁₀ before vaccination. 3 weeks of vaccination 4.94% had a titer of 0.9, 8.64% had titer of 1.2, 9.88% had titer of 1.5 log₁₀ and 76.54% reach the maximum titer (1.8 log₁₀).

Conclusions: Oil adjuvant vaccines can be used even in presence of colostrum antibodies or residual antibodies from previous vaccination or infection. Protective immunity of oil adjuvant starts after 3 weeks post vaccination and reach the maximum level after 4 weeks.