Passive Immunity in Calf Diarrhea: Vaccination with K99 Antigen of Enterotoxigenic Escherichia coli and Rotavirus

Submitted by Dan Van Arsdall on Thu, Jul 21 @ 11am

Twenty-four pregnant cows were vaccinated intramuscularly with K99 extract from enterotoxigenic Escherichia coli and inactivated rotavirus as follows: six cows were injected with 2 ml of oil-adjuvanted vaccine; six cows were injected with 0.5 ml of oil-adjuvanted vaccine; six cows were injected with 4 ml of aluminum hydroxide-adjuvanted vaccine twice with a four-week interval; and six cows were unvaccinated as controls. Calves born to these cows were challenged with enterotoxigenic E. coli at 6 to 18 h after birth. Serum and milk antibodies to K99 and rotavirus in cows vaccinated with either dose of oil vaccine were significantly increased until at least 28 days after calving. In cows vaccinated with alhydrogel vaccine, there was a significant K99 antibody increase in serum and in colostrum but not in milk and a significant rotavirus antibody increase only in colostrum. Five of six calves born to unvaccinated cows developed enterotoxigenic colibacillosis after challenge, and all excreted the challenge strain of enterotoxigenic E. coli. None of the 18 calves in the three vaccinated groups developed clinical colibacillosis, and fecal excretion of the challenge organism was reduced. A combined enterotoxigenic E. coli-rotavirus vaccine may prove useful in preventing some outbreaks of calf diarrhea.

Sources: