Calf Diarrhea

TVMDL Texas A&M Veterinary Medical Diagnostic Laboratory

Diarrhea is the most prevalent illness in calves during the first 28 days of life. Although diarrheas are discussed as being caused by a single disease entity, most cases of diarrhea are a result of mixed infections. Organisms involved in calf diarrhea include bacteria such as *E. coli, Salmonella, Clostridium perfringens*, and *Campylobacter*; viruses such as Rotavirus, Coronavirus, and Bovine Virus Diarrhea Virus; and parasitic organisms such as *Eimeria* and *Cryptosporidium*. Factors involved in the development of diarrhea include lack of adequate immunoglobulin transfer from the colostrum of the dam, environmental stress, an overwhelming exposure to enteric pathogens, or a combination of these factors.

Disease Mechanisms

The diarrhea produced in this condition involves different mechanisms that depend on the causative organism. Some bacteria such as *E. coli* and *Salmonella* produce toxins that cause the intestines to secrete fluid and electrolytes while viral and parasitic organisms can interfere with the absorption of fluids by the intestinal tract. Finally, another mechanism involved can be disturbance of enzyme and digestive activity in the intestinal tract. The loss of electrolytes and/or normal gastrointestinal function leads to secondary disease that causes many of the clinical signs recognized in calf diarrhea.

Signs

The severity of the diarrhea is dependent on the virulence of the organisms involved as well as host factors. The characteristics of the diarrhea are not usually diagnostic, and most of the signs observed are due to dehydration, low blood sugar, and loss of electrolyte balance. Calves affected by toxin producing bacteria may show more severe signs involving multiple body systems. In a herd situation, the number of cases increases with the duration of the calving season as the pathogen load builds in the environment.

Treatment

Supportive care and replacement of fluid and electrolyte loss is essential in the treatment of calf diarrhea cases. In addition, alterations in the acid-base balance and glucose levels can occur and require correction. Affected animals should be removed from healthy animals to prevent transmission of disease, and caretakers should keep in mind that some of the organisms involved in calf diarrhea can infect humans. Proper precautions should be taken in handling affected animals. Diagnostic testing is useful in determining which organisms are present to assist in control and treatment.

Control

Control measures for calf diarrhea include:

- Ensure adequate colostrum quality and intake
- Clean birthing areas
- Remove dam and calf from birthing area to a cleaner environment
- Dip navels in an antiseptic
- Eliminate areas of fecal buildup
- Vaccination or immune stimulation when appropriate

Reference:

Pelzer, Kevin D., Neonatal Diarrhea, Blackwell's Five-Minute Veterinary Consult: Ruminant; Scott R.R. Haskell, DVM, editor. 2008 pgs. 598-601.