Calf Scours

Scours doesn't kill calves; dehydration does.

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Calf scours, or diarrhea, is a very costly problem for many producers. Scours is not the actual disease that plagues the calves; it is only the clinical sign. Calves suffering from scours can become critically ill in a short time. The pathogens that are the causative agents are not the actual causes of death in affected calves. Dehydration, electrolyte depletion and acid-base imbalances are the underlying causes of the animal's demise.

There are several types of causes that can lead to diarrhea in calves. The type of agent responsible for the neonatal diarrhea is usually determined by the calf's age, as well as the integrity of the calf's immune system. If the calf fails to receive the proper amount of colostrum, it will be more susceptible to the pathogens that cause neonatal diarrhea.

Bacteria

The most important bacterial cause of scours in calves is *Escherichia coli* (*E. coli*). It typically affects calves from 1 to 5 days of age. By releasing a toxin in the intestine, it precipitates what is termed a hypersecretory diarrhea. Signs include severe watery diarrhea that is generally yellow to white in color. Calves are normally nonfebrile and exhibit no blood, fibrin or mucus in their stool.

This particular *E. coli* is called the K99 strain due to a specific protein found on its outer surface. Failure to promptly treat this disease may lead to certain secondary problems such as meningitis or polyarthritis.

A pathogen that can be highly fatal in young calves is *Cl. perfringens.* It is usually seen in calves less than 7 days old. The clinical signs produced by this bacterium are due to its release of an enterotoxin. There are six types of toxins released by *Cl. perfringens*, of which types B, C and D seem to be the most important in calves.

This disease has a sudden onset, and some calves will die without showing any symptoms of disease. It is usually associated with an increased intake in the calf's diet. Therefore, if management practices (penning the cows separately from the calves) or the weather causes an increase in the interval between meals, a calf may overconsume milk and thereby establish the proper environment for the bacteria to grow.

Clinical signs include lethargy, abdominal distention, bloody diarrhea and uneasiness (straining or kicking at abdomen). Postmortem lesions normally seen are bloody, fluid-filled small intestines that give rise to the common name "purple gut."

Viruses

Primarily, two viruses can lead to diarrhea in young calves. One is a rotavirus and is very prevalent across the United States. Estimates are that 80%-90% of adult cattle are seropositive for this virus. The rotavirus survives well in the environment, affects the small intestines and leads to a decreased-consistency diarrhea. Most calves infected are from 5 to 14 days of age. It leads to a mild disease that has a low mortality rate. Affected calves may only show clinical signs of diarrhea for one to two days.

The other virus leading to neonatal diarrhea is a coronavirus. This virus also infects the small intestine and sometimes the proximal colon. It causes a more severe, prolonged disease than rotavirus. Most cases are seen in calves 1 to 3 weeks of age. Clinical signs include diarrhea and occasionally mucus or bloody discharge and increased straining if the colon becomes involved. Coronavirus leads to more intestinal damage and a longer recovery period than rotavirus.

Protozoa

Two types of protozoa cause diarrhea in calves. Cryptosporidia mainly affect calves 1 to 3 weeks of age and lead to a mild decreased-consistency diarrhea. Calves usually exhibit good appetites, but they may show weight loss and emaciation if diarrhea continues for days to weeks.

This disease has a low mortality rate and is primarily due to poor sanitation and management practices. One species of the cryptosporidia is zoonotic, so people who treat infected calves should be diligent about sanitation practices.

Coccidiosis is a protozoal disease affecting calves 3 weeks of age and older. It usually involves young, stressed animals. Stress may be related to overcrowding, sudden changes in feed or poor sanitation. These infections are usually self-limiting, and mortality rates are low.

Symptoms include mild to severe bloody diarrhea, decreased appetite, lethargy (sluggishness) and dehydration. A clinical diagnosis is made by finding significant numbers of parasites in a stool sample. Hygiene, dry conditions and isolation of infected animals are indicated for further prevention of coccidiosis.

Prevention

It is important to remember that when dealing with calf scours, the key is to prevent the disease from occurring in the first place. To decrease the incidence of disease in the herd, producers should: (1) maximize colostrum transfer; (2) increase environmental sanitation; (3) reduce stressors such as overcrowding or poor nutrition; and (4) vaccinate bred cows for *E. coli*, rotavirus, coronavirus and *Cl. perfringens* at 60 and 30 days before calving.

Treatment

Recommendations for diseased calves are:

1. Correct fluid deficits.
2. Treat electrolyte imbalances.
3. Provide nutritional support.
4. Administer a broad-spectrum antibiotic.

Once dehydration status is estimated, oral or intravenous fluids may be used. Electrolyte powders can be added to oral solutions to correct imbalances. Since young animals have little energy reserve, these will be used up quickly during a diseased state. It is important to replace energy stores with oral or IV fluids containing glucose or dextrose supplements.

A broad-spectrum antibiotic may be used in some types of infection. Antibiotics only work against bacteria, but if you have a viral infection, antibiotics will prevent a secondary bacterial infection from occurring. In the case of coccidiosis, a sulfa-antibiotic (sulfaquinoxaline, sulfamethazine) or amprolium should be used because they are effective against these parasites.

It is important to consult with your local veterinarian, since he or she will know what diseases may be prevalent in your particular area. That will allow you to be more effective at preventing or treating calf scours in your herd.

For more information about cattle diseases, contact your local county Extension office.

Editor's Note: *Tom Troxel is a professor and associate department head of the Cooperative Extension Service at the University of Arkansas.*