



BRSV

or

Bovine Respiratory Syncytial Virus

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HISTORY

BRSV stands for bovine respiratory syncytial virus. The virus is so named because of its effect on cell culture systems in which it is propagated. A syncytium is a mass of fused cells; thus the term bovine respiratory syncytial (rhymes with initial) virus.

BRSV has been known since the early 1970s. It was first recognized as causing acute respiratory disease in adult cattle in Switzerland. A very similar virus has been recognized in human respiratory disease since the late 1950s. It is likely that BRSV has been around at least that long; probably a lot longer. The virus was first recognized in the U.S. in the mid 1970s when it was isolated from calves experiencing an outbreak of "shipping fever" or bovine respiratory disease complex. Now the virus is recognized worldwide and is associated with respiratory disease in dairy as well as beef cattle and in all age groups. BRSV infections have been documented in numerous North Dakota beef and dairy herds.

Early studies with BRSV indicated that it was involved in a substantial percentage of shipping fever outbreaks. However, it has not been until fairly recently that widespread recognition of the virus has occurred. It would be safe to say that the virus has now taken its place as a major problem in bovine respiratory disease.

4.3 RESPIRATORY DISEASE CAUSED BY BRSV

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924 BRSV is capable of infecting animals without causing any signs of disease. It can also cause mild disease as well as very severe disease resulting in death. BRSV should be considered in any acute outbreak of respiratory disease. Mild or early signs of illness include a mild cough, loss of appetite, and a clear watery discharge from the

eyes and nose. Severe clinical disease may develop rapidly and is characterized by temperatures of 104-108°F or higher and very labored breathing progressing to death in a short period. In the most severe cases, death can result from moving or restraining the animal for treatment. These severe respiratory signs are similar to those seen in persons with severe asthma or emphysema.

Some outbreaks have been described as a two-stage process. These outbreaks usually occur in well-managed herds where calves are watched closely. The first stage occurs shortly before or after weaning and is usually mild, resembling mild shipping fever. Few animals require treatment and there is virtually no death loss. The second stage occurs sometime after the first and is acute and violent. The first signs of disease may be dead calves. Affected calves have severe difficulty in breathing. Foamy, frothy saliva with drooling occurs, giving the appearance that the calves' throats are too sore to swallow. Swelling may be noted under the jaw, although this is not constant. Vigorous treatment with corticosteroids, antihistamines, and antibiotics is necessary to minimize death loss. Removal from all feed except some hay also appears to be of benefit.

BRSV can cause a variety of respiratory disease symptoms, from the most mild to disease of life-threatening proportions.

DIAGNOSIS

Bovine respiratory disease is termed a "complex" because it involves the interaction of one or more of several viruses and one or more bacteria. The resulting respiratory disease usually looks about the same regardless of the viruses and bacteria that produce the disease. Therefore, it is very difficult to diagnose the specific cause(s) just by looking at a group of sick animals. However, by careful observation, by eliminating other causes such as IBR (Red Nose) and BVD, and by carefully analyzing the history of the outbreak, it is sometimes possible for a veterinarian to make a tentative diagnosis of BRSV infection.

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Laboratory studies are the only sure way of diagnosing BRSV infection, but the findings must be interpreted with caution. Isolation of the virus, or demonstration of the virus by such tests as fluorescent antibody techniques, in addition to characteristic microscopic changes in lung tissue plus appropriate clinical signs can produce a solid diagnosis. However, it is usually not this easy. The virus is very difficult to isolate and often there are no dead animals to examine. Therefore, looking at rising antibody levels to BRSV in the serum of several animals is usually the way a diagnosis is made. Even here caution must be exercised since a calf is usually infected for seven to 10 days before exhibiting signs of respiratory disease and the serum antibody level by this time is already elevated. Therefore, in order to demonstrate rising antibody levels, the first serum samples must be taken from calves very early in the infection. These calves usually are showing no signs of infection except markedly elevated temperatures. The second serum sample should be taken two to four weeks later. Serum samples from eight to 10 animals or 10 percent of the herd is the best number for establishing a diagnosis.

TREATMENT

Since a positive diagnosis of respiratory disease due to BRSV is usually made after the outbreak is over, the treatment would be the same as good treatment practices for any bovine respiratory disease. Antibiotic therapy is usually instituted early to combat secondary bacterial infections. In the severe form of the disease with emphysema, the use of corticosteroids and antihistamines has been reported of value. Caution should be exercised with any treatment using corticosteroids and should be used only with the advice of a veterinarian.

PREVENTION

It has become apparent that BRSV is widespread in cattle populations. It is also quite evident that cattle will be exposed to the virus at some point. In recent years vaccines have become available which will assist in providing protection from illness caused by BRSV. The vaccines will be only as valuable as the total management practices in a cowherd or feedlot. Vaccination against BRSV should be considered in herds with respiratory disease outbreaks, particularly in beef calves at weaning time. BRSV vaccines are part of, but not a replacement for, total herd health management.