

EPIDEMIOLOGY OF VESICULAR STOMATITIS IN COLORADO, USA : SURVIVAL AND PERSISTENCE OF THE DISEASE

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Vesicular stomatitis (VS) causes disease epidemics in the Western United States, affecting primarily horses and cattle. In the 1995 outbreak, 367 premises were VS-positive. Because VS is classified by the OIE as a list "A" disease, outbreaks result in local, national, and international livestock travel restrictions and in revenue losses. A case-control study to identify potential risk factors for VS, determine the persistence of the disease in livestock, and suggest inter-epidemic hosts is being conducted in Colorado, and will be completed in July of 1997. Data and biological samples are to be collected on 75 premises positive for VS in 1995, 75 premises negative for VS in 1995, and 75 premises neighboring those positive in 1995. As of April 1, 1997, data has been collected on 93 premises and biological samples on 53 of these premises. Serum from the Colorado Market Cattle Investigation program and routine equine infectious anemia testing of horses is also being tested for VS antibodies.

BACKGROUND

Vesicular stomatitis (VS) is a disease primarily of cattle, horses and swine. During the 1995 VS outbreak, 367 premises in 6 western states had confirmed-positive cases of VS. Horses were affected on 78% and cattle on 22% of these premises. One llama was confirmed VS-positive. The epidemic progressed northward from New Mexico through Colorado from May through October of 1995. Because of the list "A" status of VS with the Office Internationale des Epizooties (OIE), strict local, national, and international travel restrictions were put in place during the epidemic. These restrictions resulted in significant economic losses for the livestock industry. A case-control study was initiated in 1996 in the State of Colorado. Goals of this study were to 1) identify risk factors among premises that were positive, negative and neighboring for VS in 1995, 2) determine the persistence of VS in livestock via serology and virus isolation (VI), and 3) suggest inter-epidemic reservoirs for the VS virus.

MATERIALS AND METHODS

Comprehensive premises management, layout, and individual animal data were to be collected during site visits to 75 Colorado premises in each of the following categories: 1) positive VS premises in 1995, 2) negative VS premises in 1995, and 3) premises neighboring a positive VS premises in 1995. The National Veterinary Services Laboratory is performing serology and VI on serum and oral swabs, respectively, collected from livestock on each premises. Serology is also being performed on bovine serum collected through the Colorado Market Cattle Investigation program and on equine serum from routine equine infectious anemia testing of Colorado horses. Data will be analyzed using the path analysis method.

RESULTS TO DATE

As of April 1, 1997, 93 premises visits have been made; 52 premises that were VS- positive during the outbreak in 1995, 33 that were negative in 1995, and 8 neighboring premises. Animals were sampled on 53 of 93 premises (57%); 49 premises had horses sampled, 6 had cattle sampled, and 2 had sheep sampled. Of these 53 premises, 35 (66%) had at least one sero-positive animal in 1996 (based on serum- neutralization/SN titre). A total of 170 horses, 54 cattle, and 4 sheep were sampled. Of these 228 animals, 72 (32%) were sero-positive in 1996 (based on SN titre). Oral swabs were collected from animals on 41 premises; 38 premises with horses, 4 premises with cattle, and 2 premises with sheep (125 horses, 47 cattle, and 4 sheep). VI is pending.

CONCLUSIONS

Data and samples continue to be collected. Data will be statistically analyzed to achieve the study goals. Results from this study, as well as from several other epidemiological and experimental studies ongoing at Colorado State University and elsewhere, will allow a better understanding of the epidemiology of this disease.

BIBLIOGRAPHY

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