LSDV

Recent Status and Diagnostic Methods of Lumpy Skin Disease

LINK

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LSD is categorized on the list of notifiable diseases by the World Organization for Animal Health (WOAH) due to its ability of rapid transboundary spread and because of important cattle production losses. LSD is endemic in most African countries. Since 2012 it has spread rapidly through the Middle East, southeast Europe, the Balkans, Caucasus, Russia and Kazakhstan.
In 2017, there was the emergence of new strains in Russia. Vaccine-like strains of LSDV were found in outbreaks close to the border with Kazakhstan. However no homologues vaccination was used is Russia. But Kevevapi, a homologous vaccine was used in Kazakhstan. Although marketed as a Neethling (clade 1.1) vaccine, different LSD vaccine strains and even a GTPV strain were found in this vaccine during a first analysis. Whole genome sequencing in 2022 revealed that the vaccine contained indeed the three earlier mentioned strains, as well as several recombinant strains, containing LSDV Neethling and KSGP vaccine sequences.

In the meantime, different outbreaks were seen in South-East Asian with strains similar to the strain detected in Russia. The main difference between these new strains and the older strains is the mode of transmission. While direct and indirect transmission plays only a minor role in the "classical" strains, it seems to play a way more important role with the new strains.

For the most recent, detailed information on the occurrence of this disease worldwide, see the World Animal Health Information System (WAHIS) Interface.

Laboratory confirmation of LSD is most rapid using a real-time or conventional polymerase chain reaction (PCR) method specific for capripoxviruses in combination with a clinical history of a generalised nodular skin disease and enlarged superficial lymph nodes in cattle. LSDV will grow in tissue culture of bovine, ovine or caprine origin, particularly using lamb testis or bovine dermis cells. Capripoxvirus antigens can be demonstrated in tissue culture using immunoperoxidase or immunofluorescent staining.The virus neutralisation test (VNT) is the only validated serological test available. Western blotting using the reaction between the P32 antigen of LSDV with test sera is both sensitive and specific, but is difficult and expensive to carry out. Some antibody-detecting enzyme-linked immunosorbent assays (ELISAs) have been described and have been released on to the market.