Senecavirus A continues to be present in the United States swine herd

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Key Points:

- Senecavirus A continues to present in the US at low levels.
- Sow herds are more likely to test positive than growing pig herds.
- SVA positive herds tend to have a large number of positive samples.

Senecavirus A (SVA) is a viral agent associated with vesicular disease and neonatal mortality in swine herds. The greatest concern is the clinical similarity to other important vesicular diseases such as Foot-and-Mouth Disease (FMD). In 2018, there were 2072 foreign animal disease (FAD) investigations conducted, out of which, 1729 (83%) were related to vesicular disease conditions (USDA, 2019). Interestingly, 1592 (92%) out of those vesicular disease investigations where related to pigs. This fact clearly highlights the importance of vesicular diseases to animal health authorities, producers and practitioners. This prompts the question regarding how widespread is SVA virus in the industry. At the University of Minnesota, a study was conducted to estimate the prevalence (proportion) of sites (breeding and growing pigs) in which anti-SVA antibodies are detected.

Pig producing companies and swine practitioners were invited to participate in this study to estimate a 50% herd level prevalence of SVA. A total of 30 blood samples (yielding a 95% probability of detecting at least 1 positive sample when the prevalence is at least 10%) from each farm were collected. For sow herds, blood samples were collected across parities and for finishing herds, blood samples were collected from pigs 20 weeks or older. Sera was then tested for SVA antibodies using an indirect immunofluorescent antibody test (IFA) at the University of Minnesota Veterinary Diagnostic Laboratory. Samples with a 1:40 titer or higher were classified as positive. The number of positive samples needed to classify a herd as positive was calculated through the estimation of the herd sensitivity and herd specificity.

A total of 5,762 blood samples from 192 farms in 16 states were collected and tested for SVA with 268 (4.7%) samples yielding a positive result. Herd sensitivity and specificity was highest when 1 positive sample was used as the threshold to classify herds as positive. When the number of positive samples used to classify herds was increased to 2, only 2 farms were reclassified as negative. A total of twenty-four herds (12.5%) out of 192 herds had at least one positive sample. Seventeen out of 97 and 7 out of 95 sow and finishing sites, respectively, tested positive. There was a significantly ($p < 0.05$) higher proportion of sow herds testing positive when compared to finishing sites. There were positive sow and growing pig farms located in 6 and 5 states, respectively. The average number (standard deviation) of positive samples in positive farms was 10.2 (SD 9.8) and 13.4 (SD 11.3) for sow and finishing farms, respectively.

Based on the findings of this study, SVA herd prevalence is low which may suggest that the virus may not be as transmissible as previously thought. Epidemiological factors influencing disease occurrence in swine herds are not well understood. However, this virus continues to be present in the US pig population reminding us that a proper diagnostic investigation to rule out FMD.

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USDA APHIS Veterinary Services. Summary of recent FAD investigations – Calendar year 2018 update: FAD investigation report. March 2019.
https://www.aphis.usda.gov/animal_health/emergency_management/downloads/summary_fad_investigations.pdf