AJBS Asian Journal of Biological Sciences

OPEN ACCESS

News & Comments

A New Sampling Method for Swine Influenza a Virus Detection

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The purpose of this study was to determine the ideal sample window for swIAV detection. A cross-sectional study of 131 farms from 12 different European nations was conducted. The farms were chosen based on the following inclusion criteria: farms with acute clinical symptoms suggestive of swIAV, such as dyspnoea, coughing, sneezing, nasal discharge, anorexia, and/or lethargy (epidemiologically infected farms), or farms suspecting endemic swIAV circulation because of either sow reproductive failure and fever or recurrent respiratory distress in the nursery. 10 nasal swabs were taken as part of the sample protocol from each of the following age groups: suckling piglets (1-4 weeks old), piglets close to weaning (4-6 weeks old), and animals in the middle or end of the nursery period.

Based on the data gathered, descriptive statistics were generated. Chi-square tests were used to determine whether the size of the farm, the herd's influenza status, and the herd's vaccination status affected the herd's level of positive. A three-level mixed-effect logistic regression model was used to examine whether there was any correlation between the rRT-PCR results and the data gathered on potential risk factors. To investigate potential differences in the likelihood of occurrence of a positive rRT-PCR result between samples with and without apparent clinical signs, within samples from suckling piglets, weaners, and nursery piglets, respectively, the model was modified appropriately and rerun three times, within each piglet age group category.

SwIAV diagnosis can be extremely difficult, especially in endemically infected herds with vague clinical symptoms and low incidence. The anti-genetic diversity of swIAV, which causes cross-reactivity among subtypes, hinders the utilization of serologic tests. Finding sick swIAV-positive animals can be difficult in endemic situations with diffuse clinical symptoms and low disease prevalence. The study's findings indicate that, even though the nursery had the highest proportion of animals exhibiting clinical symptoms, weaners were significantly more likely to be swIAV-positive than nursery pigs. This suggests that the strategy of concentrating on clinically ill animals needs to be carefully examined.

The number of groups inside the nursery units, the level of mixing, and the subtypes involved all affect how quickly an infection spreads [34]. Weaners were the only group in our study where a closer examination of clinical indicators enhanced the likelihood of discovering a positive animal, as sick animals tested positive substantially more frequently than healthy ones. Subtyping was done to determine how many subtypes were present on the farm and to offer suggestions for the best sampling strategy to find every subtype present there. In 11 (10.7%) of the positive farms, several subtypes were discovered. Individual samples, however, are preferable to group samples for the purpose of

identifying the subtype or subtypes, as well as if necessary for sequencing reasons.

Source: Veterinary Sciences

KEYWORDS
Swine influenza, influenza A virus, nasal swabs, sampling, diagnosis