

SEROLOGICAL INVESTIGATIONS ON AUJESZKY'S DISEASE VIRUS IN FARM PIGS FROM IAȘI COUNTY

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Abstract

Aujeszky's disease caused by Aujeszky's disease virus (ADV) is one of the most important diseases in swine industry. The infection is almost asymptomatic in older pigs and in adults a latent infection persists lifelong. In this study, we conducted a serological survey of ADV in farm pigs in Iași County. In total, 172 pig serums collected between August and September 2016 were screened for the presence of antibodies against ADV. For the screening was used the ELISA kit Svanovir®PRV-gE-Ab, that can differentiate the vaccinated pigs from the infected ones based on the detection of antibodies against the gE antigen. In all four investigated farms positive animals for ADV antibodies were detected, the overall prevalence registered being 36,62%. Our study is a preliminary investigation underlining the possibility of ADV circulation and persistence in swine farms from Iași County.

Keywords: *Aujeszky's disease, antibody, pig farm*

Introduction

Aujeszky's disease, also known as pseudorabies, is caused by an alphaherpesvirus that infects the central nervous system and other organs, such as the respiratory tract, in a variety of mammals except humans and the tailless apes. It is associated primarily with pigs the other receptive species being considered dead-end hosts (OIE, 2016). The infection can result in fatal encephalitis in newborn pigs and is always fatal in herbivores and carnivores. Aujeszky's disease is almost asymptomatic in older pigs causing mild or subclinical infections and abortion in pregnant sows. Survivors and adults are latently infected and the infection persists lifelong. Also the virus can persist in pig meat (Durham Pjet al., 1980). Infection of swine herds with ADV can result in substantial costs to pork producers due to increased risks of abortion and preweaning mortality, and reduced rates in growing and finishing pigs (Cooke Linda, 1992).

In most countries where Aujeszky's disease is enzootic, vaccination of pigs against this herpesvirus infection is practised. Vaccination prevents neither infection nor the establishment of latency of wild-type Aujeszky's disease virus. As a consequence, vaccination programmes alone will not lead to the elimination of ADV circulation. To achieve this goal, a serological testing and culling scheme should be followed. However, extensive vaccination programmes preclude serological studies to detect infected pigs and pig herds.

ELISA kits, which are available commercially, use indirect or competitive techniques for detecting antibodies. They differ in their mode of preparation of antigen, conjugate, or substrate, in the period of incubation and in the interpretation of the results. Their general advantage is that they enable the rapid processing of large numbers of samples. Some of these kits make it possible to differentiate between vaccinated and naturally infected animals when used with a 'matching' vaccine (Eloit et al., 1989) and those represent a great aid in the detection of latent infected pigs and in the differentiation between vaccinated pigs and naturally infected ones if a paired vaccine is used in the farm (Vannier P., et al., 2007).

In Romania a passive and active surveillance and control is made in order to monitor the disease in pig farms. The active surveillance is made by ELISA once a year in 5% of the breeding animals in farms that do not vaccinate or vaccinate with a marker vaccine.

Materials and methods

In this study, we conducted a serological survey of ADV in four fattening farms from Iași County (Fig.1).



Fig. 1 Location of the four tested farms in Iasi County

The tested pigs aged 4-5 months were bought from different households and farms in the country in order to be fattened and then exploited by the farm owners. To our knowledge they weren't vaccinated and didn't present any symptomatology associated with ADV.

The aim of the study was to diagnostic the latent or subclinically AD infections giving the eterogeneous provenience of the pigs.

In total, 172 pig serums collected between August and September 2016 were screened for the presence of antibodies against ADV. For the screening the ELISA kit *Svanovir®PRV-gE-Ab*, that can differentiate the vaccinated pigs from the infected ones based on the detection of antibodies against the gE antigen, was used. The kit was used following the producers protocol.

Results and discussion

In all four investigated farms positive animals for ADV antibodies were detected, the overall prevalence registered being 36.62% (63/172). The seroprevalence varied between 13.33%(8/60) in farm one(F1) to 100% in farm four(F4). The presence of positive results in different percents raises an alarm regarding the circulation of ADV in domestic pigs population (Table 1).

Table 1

Seropositive results for specific ADV antibodies in tested farms

Farm	Samples tested (no.)	Positive samples (no.)	Seroprevalence (%)
F1	60	8	13.33
F2	20	12	60.00
F3	62	13	20.97
F4	30	30	100.00
	172	63	36.63

The most surprising result was registered in F4 with a 100% seroprevalence. The high specificity of the ELISA test used (99,6%) enables the discrimination of serological response to gE-deleted vaccinal strains from that of field virus minimising the false positive results and the only explanation was that the pigs were vaccinated with a non marked vaccine before beeing

bought for fattening. The other positive results can represent the prove of natural persistent infected pigs wich were bought in different animal markets with the owners without having a good evidence of their health status or sanitary situation.

Conclusions

Our study is a preliminary investigation underlining the possibility of ADV circulation and persistence in fattening swine in Iasi County

This study only raises an alarm regarding the impossibility of a good monitoring of the ADV situation. We cannot conclude for sure that the virus is circulating in the County or in the other parts of the country given the unclear provenience and sanitary status of the pigs.

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