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A cross-sectional survey about influenza in pigs in France

F. Madec⁽¹⁾, E. Eveno⁽¹⁾, L. Mieli⁽²⁾, J. Cl. Manuguerra⁽³⁾

(1): AFSSA, Zoopole, Les Croix, BP 53, 22 440 Ploufragan, France (2) : LDA 22, Zoopole, Le sabot, BP 54, 22 440 Ploufragan, France (3): Institut Pasteur, Unité de Génétique Moléculaire des virus respiratoires, 75 724 Paris

Introduction

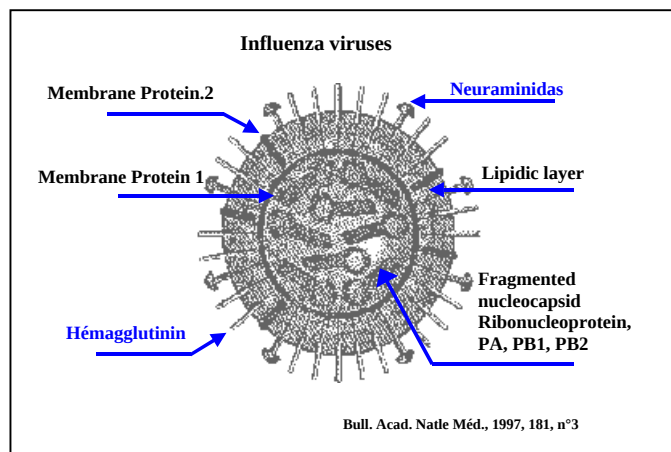
Since many decades, influenza is a main health issue as well in humans as in farm animals. In Western Europe, during the eighties, typical outbreaks occurred in pigs and different subtypes of influenza A viruses were found to be involved. Isolates of subtype A/H1N1 widely spread in the herds, followed by A/H3N2 viruses. Then new strains supposed to be reassortants (A/H1N2) came up (Brown et al 1998, Van Reeth et al 2000) and in turn they widely spread. In the mean time, other viruses capable to give clinical signs in pigs close to influenza came in. In the mid eighties, the Porcine Respiratory Coronavirus (PRCV) could be isolated from influenza-like syndromes whereas in 1990-91 PRRS suddenly stroke. Since that time the infections tend to remain endemic in several pig-producing areas. A cross-sectional study was performed with the aim of getting an updated insight into the current situation in Brittany, France.

Material and Methods

- The farms. The study took place in 2002 and 2003. Outbreaks of acute respiratory problems in growing-finishing pigs were reported by field veterinarians. 15 out of these were selected on criteria like geographical location of the farm within the province, availability to react immediately and visit the farm, and others like willingness of the farmers to cooperate. The sows were vaccinated against Influenza in 8 herds. The finishing pigs were vaccinated in 2 herds. No PRRS vaccine was in place in the 15 herds and they were all free of Aujeszky's disease.
- Field Protocol : As soon as we got information of the outbreak, different compartments of the farm were visited. The only considered room (compartment) for the study was where the pigs expressed typically the problem. A scale was used to score the severity of the syndrome. It was based on rectal temperature, cough, dyspnoea, prostration, death and reduced appetite. The latter point was assessed by looking at feed consumption during the outbreak compared to the normal curve. Twelve pigs whose rectal temperature was

recorded and showing typical signs were sampled (nasal swabs and blood) and eartagged. 21-23 days later, those pigs were bled again whilst the clinical recordings made by the farmer were retrieved. 2203 pigs were considered for the whole 15 herds and among these 180 were sampled.

- Laboratory Protocol : The nasal swabs were submitted to both an ELISA test for a quick detection of influenza viruses and to culture on monolayer MDCK cells. A RT-PCR was also performed.
- The blood samples were tested (HI test) against 3 different strains of influenza viruses A/Sw/Finistère: H1N1 strain ; A/Port-Chalmers : H3N2 ; A/Johannesburg : H1N2
- In addition to influenza antibodies detection, sera were tested regarding PRRS (IDEXX kit), PRCV and also PCV2, porcine Circovirus Type 2 (Blanchard et al 2003).



Results and Discussion

- A first observation concerned the age of the pigs. In eleven farms finishing pigs were concerned. In 4 herds the pigs were still at the post-weaning stage when they were affected. Despite being an uncommon situation in the field, on some farrow-to-finish farms, the subsequent batches of pigs showed the symptoms during post-weaning phase. 39% of the piglets sampled at this stage in the considered farms showed a rectal temperature of 41°C or above. Cough was common and often intense. For the whole sample of 15 groups of pigs, mortality remained moderate (n = 42 out of the 2203 pigs, 1.8%).
- In total 45 A/H1 viruses were isolated from 9 farms.
- Seroconversion clearly occurred in 3 and 7 farms against A/H1N1 and H1N2 respectively. In two farms simultaneous seconversions occurred. None of the pigs reacted against A/H3N2. One group of pigs seroconverted against PRRS, two against PRCV and one against PCV2.
- Some discrepancies were found between virus isolation and seroconversion.
- On two farms where we did not observe any seroconversion and where no influenza virus could be isolated, the outbreak could not be explained through the results of the performed tests. Pigs still at the postweaning stage were here concerned. They expressed moderate clinical signs.
- In the same EU project a sero-survey was performed in a random sample of farms in the country. (Madec et al 2004). The sera were collected on finishing pigs just before slaughter. They were tested against A/H1N1, A/H1N2 and A/H3N2 viruses. The results were in line with those reported here *ie* absence of antibodies regarding A/H3N2 and a high prevalence of sera simultaneously positive to both A/H1N1 and A/H1N2 SIV strains, suggesting several cross-reactions.
- There is no doubt that respiratory disorders in the growing-finishing pigs are of major importance in densely pig producing areas. The role of influenza viruses in acute outbreaks has been pointed out on several occasions (Rimmelzaan et al 2001, Loeffen et al 1999). The present study corroborates the previous findings and shows that in addition to influenza viruses other pneumotropic viruses like PRRSV and PRCV can be involved and they must not be forgotten. It also shows some discrepancies

in the results obtained and the inability of our protocol to properly detect the involved pathogens in two herds. The study draws attention on the usefulness of epidemiological surveys and on the need to adapt the detection tools to the current field situation.

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