A CASE STUDY OF NEONATAL DIARRHOEA IN A FARROW-TO-FINISH PIG FARM

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Introduction

Enteric diseases are the most common infectious cause of mortality and economically significant disease in suckling pigs worldwide (1). Neonatal diarrhoea which occurs within the first few days of birth is primarily caused by bacterial (*E. coli* and *Clostridium*) or viral agents. Since piglets are affected through contaminated environment and faeces of the sow, environmental and management factors are important regarding disease control (1, 2). The purpose of this paper is to present a case history of neonatal diarrhoea which occurred in a 600 sow French farrow-to-finish pig farm.

Material and methods

Case history

The herd had a known history of neonatal diarrhoea which was satisfactorily kept under control with the use of medication. In 2001, pre-weaning mortality was around 6 %. The unit experienced a recrudescence of diarrhoea resulting in pre-weaning mortality of more than 11 % in 2002-2003. The disease affected piglets from 2-4 days of life with mild to profuse diarrhoea. The piglets appeared hairy and were really "poor doing" animals. Diarrhoea occurred in 50 to 100 % of the litters and more often affected gilt's litters than sow's litters.

The farm's health team attempted multiple control strategies involving the use of commercial vaccines (*E. coli* and *Clostridium perfringens*) to the sow at the end of pregnancy and piglet medication without significant positive results.

Laboratory investigations

5 piglets of 2-3 days of age and considered to properly express the problem were submitted to necropsy and laboratory investigations. In all of them, small intestines with liquid yellow contents and oedema of the mesocolon was reported as well as yellowish large intestinal content. Bacteriological examination revealed the presence of *E. coli* and *Clostridium perfringens* (1.10^8/g of digestive content). The search of rotavirus and toxin of *Clostridium difficile* type A was negative.

Clinical investigations relative to farrowing management were carried out. A focus was particularly made on the environment the pigs were offered during the farrowing phase.

- *Farrowing room* : The rapid turn around resulted in only 16 hours rest time. Water supply, cleaning and disinfection procedure, feeding routines and ventilation system were subjected to detailed examination. Only part of them was within normal limits.
- *Management and farrowing practices* : Detailed and repeated examinations of 3 batches of sows and piglets revealed that cross-fostering concerned about 70 % of litters (23 % of piglets). This practice was applied without regard to parity.

Sow's body condition was evaluated with a method regularly used in our unit. It was scored on a scale from 1 to 5 according to the sow stoutness and the skin look (1: very thin, rough hair, abscesses, to 5 : good condition). 25 % of the sows were below the target score before farrowing.

Advices given and improvements : On the basis of these investigations several changes were implemented.

- *Farrowing room* : The pits of each farrowing room were emptied and washed between batches. The disinfectant was changed for another that included a sporicidal target in its spectrum.
- *Management practices* : Dry sow feeding strategy was re-evaluated to improve sow feed intake. 4 and 3 weeks before parturition, an attempt to immunise the piglets consisted in feeding back the pregnant sows with the small intestine and its contents removed from a piglet showing typical diarrhoea. Around farrowing (1 day before until 4 days after farrowing) medication (spiramycine and oxytetracycline) was added to the diet of the sows and gilts according to the manufacturer's recommendations. It was advised to reduce cross-fostering and to take into account sow's parity.

Once the changes were implemented 3 batches of sows and their piglets were followed from farrowing to weaning. Diarrhoea and fostering were daily recorded the first two weeks after farrowing.

Results and discussion

In the 3 considered batches, diarrhoea occurred in 23 (6/30), 31 (6/32) and 20 % (5/30) of litters and mainly affected piglets from gilts and second parity. In the same time, cross-fostering was reduced to 40.28 and 26 % of the litters. Pre-weaning mortality reached 11.4%, 7.6 % and 9.6 % for the 3 batches respectively and was kept under 10 % 2 months thereafter. This mortality rate was not attributable to diarrhoea but mainly to non infectious causes (overlaying and splayleg). Sow's body condition was improved during gestating period. The results suggest that management and husbandry changes coupled, when appropriate to sow's medication around farrowing, positively contributed to the control of the neonatal diarrhoea. Sow's medication may have reduced sow's excretion of faecal pathogens including *E. coli* and *Clostridium* and subsequently might have limited the contamination of the environment. Since diarrhoea mainly occurred in the litters of gilts, we can suppose that the reduction of fostering may have limited the spread of the disease among sow's litters. The feedback of diarrhoeic piglets intestine to gilts and sows pre-farrowing is known to be an effective technique to confer a passive immunity to piglets towards digestive disorders (2). Mild diarrhoea still affected first parity litters but the piglets at weaning showed a much better aspect than before.

References

1. Cutler et *al.*, 1999. In Diseases of Swine, 8th edn, pp 985-1001. Iowa State University Press.
2. Fairbrother, 1999. In Diseases of Swine, 8th edn, pp 433-441. Iowa State University Press.