

THE PREVALENCE OF PCV-2 ANTIBODIES IN PIGS ALLOCATED TO A PROGENY TEST STATION AFFECTED BY PMWS AT WEANING

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Introduction

In December 2003, the index case of PMWS in Sweden was diagnosed at a progeny test station with 6 units, receiving piglets from 18 pure breed nucleus herds (1). The piglets arrived to the station one day after weaning at an approximate age of five weeks. The piglets were repeatedly mixed and moved during the testing period. When PMWS was officially diagnosed the recruitment of piglets to the station was stopped. However, remaining animals were reared to market weight. An intensified health control of the last batch of pigs that had arrived to the test station was made.

Materials and Methods

On the 26th of November, 40 pigs emanating from 11 nucleus herds arrived to the test station. Age and weight of each pig was recorded, as well as any medical treatment. Blood without additives was collected at day 9, 17, 23, 34, 43 and 55 after arrival. The PCV-2 antibody titers in serum were measured in two-fold dilutions in 12 steps from 1:10 to 1:20,480 using an IPMA-analyse previously described (2).

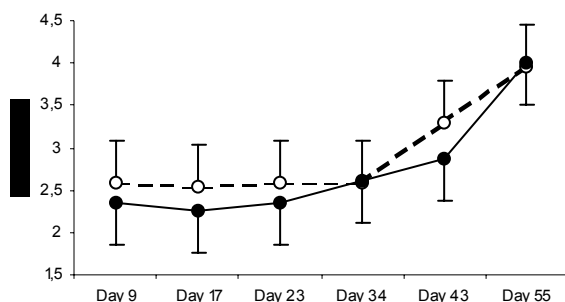


Figure 1 Log₁₀-titres of antibodies to PCV2 in healthy pigs (○; n = 8) and TW-pigs (●; n = 6 except day 43 [n= 5] and day 57 [n=2]). Day 17: p = 0.08.

Results

At arrival to the test station one day after weaning the piglets were aged 37.5 ± 4.0 days and weight 11.4 ± 1.6 kg.

Between day 12 and day 46, 6 out of the 40 pigs (15%) were denoted as thin-to wasting pigs (TW-pigs). The mean weight of the TW-pigs on arrival was 11.1 ± 1.7 kg. Eight of the 34 pigs that had remained healthy during the first 55 days at the station were randomly selected as controls (mean arrival weight = 11.7 ± 1.1 kg). The mean titres of serum antibodies to PCV2 in these groups are shown in Figure 1.

The lowest antibody titer of healthy pigs was observed between 9-17 days after arrival at an age of 46-54 days. They ranged from 1:160 (n=2) to 1:640 (n=4), with a Log₁₀-mean of 2.58 ± 0.27 compared to 2.15 ± 0.12 in TW-pigs (p<0.01, t-test).

The lowest (1:160, n = 5; 1:80, n = 1) antibody titers in the TW-pigs were seen at an age ranging from 46 to 83 days. Figure 2 shows the individual titres of all pigs denoted as TW-pigs. Four of the six TW-pigs were sacrificed before day 55, all diagnosed as PMWS-pigs at necropsy.

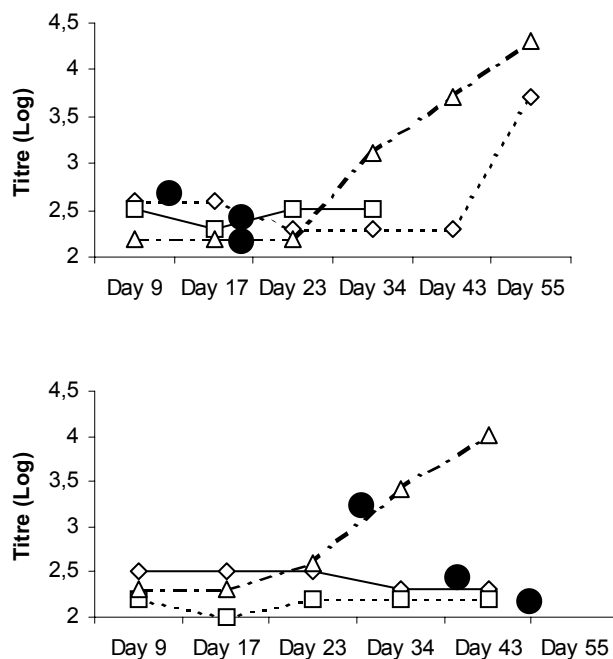


Figure 2 Antibody titres to PCV2 in pigs denoted as TW-pigs day 12-20 and day 32-46 after arrival, respectively (●). Four of these pigs were sacrificed prior to day 55.

Discussion

One of the delivering nucleus herds was deemed for PMWS in March 2004 (1). No piglets from this nucleus were delivered at this time, but PMWS was present in the other units of the test station.

The titres of serum antibodies to PCV2 varied from 1:160 to 1,280 at arrival. Healthy pigs generally seroconverted to PCV2 from day 34 after arrival. Six pigs were diagnosed as TW-pigs, out of which four were sacrificed and diagnosed for PMWS at necropsy. In these four pigs low levels of antibodies to PCV2 (1:160) were seen prior to the onset of disease. Whether a high concentration of serum antibodies to PCV2 protects from development of PMWS remains however to be validated.

References

- Wallgren et al., (2004), *VetQ.* 26:170-187
- Allan et al., (2000), *J Vet Med B*, 47, 81-94.