Effect of Vaccination with ECOPORC SHIGA on Overall Mortality and use of Antimicrobial Medication due to Edema Disease (ED)

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Introduction

ED caused by Shiga toxin Stx2e producing strains of E. coli occurs worldwide and is responsible for severe illness in pigs resulting in a high mortality during the nursery period and substantial economic loss. Attempts of therapy with antibiotics and/or anti-inflammatory drugs are mostly not successful because of the peracute to acute course of the disease. Furthermore, in many cases metaphylaxis with oral given antibiotics is not satisfying because of antibiotic resistances. For these reasons a new Stx2e-toxoid-vaccine (ECOPORC SHIGA) against ED was developed as a one shot injection for active immunisation of piglets from an age of 4 days on. The vaccination induces the development of neutralising antibodies against the toxic effect of Stx2e and therefore ensures protection from Edema Disease after weaning during the entire nursery period. Field trials were carried out to assess the efficacy of the vaccine on the overall mortallity in nursery and the use of antimicrobial medication.

Materials and Methods

The field trials were conducted on two different German pig farms. Both farms had a well- documented anamnesis of clinical Edema Disease. In a previous trial on Farm A in an unvaccinated and not medicated group 13 % (21 of 161 piglets) of the piglets died only due to pathologically and/or clinically verified ED.

The piglets of 9 farrowing groups (2792 piglets) on Farm A and 24 farrowing groups (12344 piglets) on Farm B were vaccinated.

Vaccination took place on the 4th day of life with ECOPORC SHIGA in addition to the routine treatments of the piglets.

On Farm A piglets were weaned at 3 weeks of age and nursery lasted for another 9 weeks. On Farm B piglets were weaned at 23 to 28 days of life and nursery lasted for another 10 weeks.

To assess the efficacy of the vaccine all cases of death in nursery period were recorded regardless the actual cause of death. The use of orally administered antibiotics was recorded on daily basis during the nursery period.

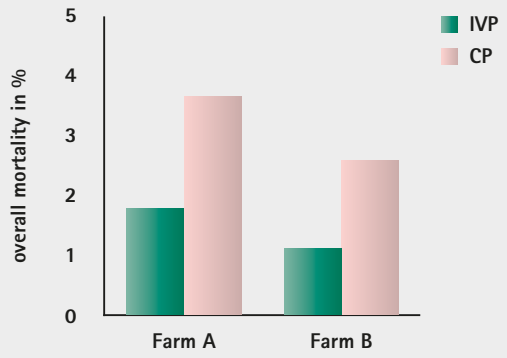
For the evaluation of the data the results of the vaccinated groups (IVP) were compared with the results of six (Farm A) resp. eight (Farm B) previous unvaccinated groups (CP). In the unvaccinated groups attempts were made to suppress Edema Disease by the oral use of E. coli-effective antibiotics (colistin sulphate). Additionally, on Farm B water was acidified for the unvaccinated control groups.

Conclusions

The vaccine ECOPORC SHIGA is a safe and effective tool to reduce the mortality and clinical signs of Edema Disease, especially regarding the aim to lower the use of antibiotics. The mortality in the vaccinated groups was significantly reduced by 2 % resp. 1.5 %. The use of E. coli-effective antibiotics was lowered to zero. The vaccination of piglets with ECOPORC SHIGA can be introduced as a useful preventive treatment in modern pig husbandry.

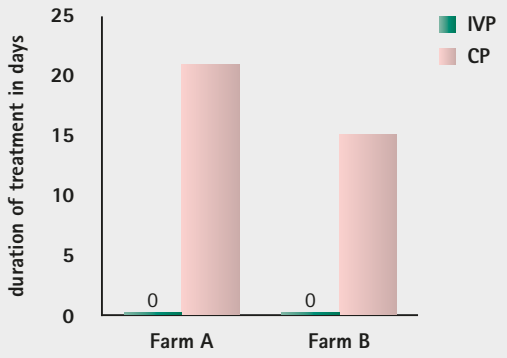
Results

Figure 1 Percentage of all-cause mortality in nursery



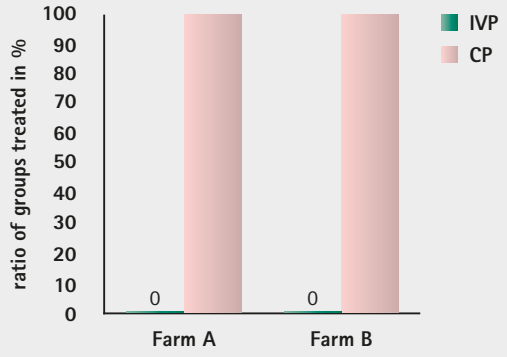
p = 0.003, Farm A: p < 0.001; Farm B: t-test, two-sided

Figure 2 Duration of treatment with E. coli-effective antibiotics



p < 0.001, t-test, two-sided

Figure 3 Percentage of groups treated with E. coli-effective antibiotics



p < 0.001, Fisher's exact test, two-sided