



Efficacy of phenoxymethylpenicillin (Phenoxyphen[®]) for the metaphylactic treatment of an experimental *Streptococcus suis* infection in piglets

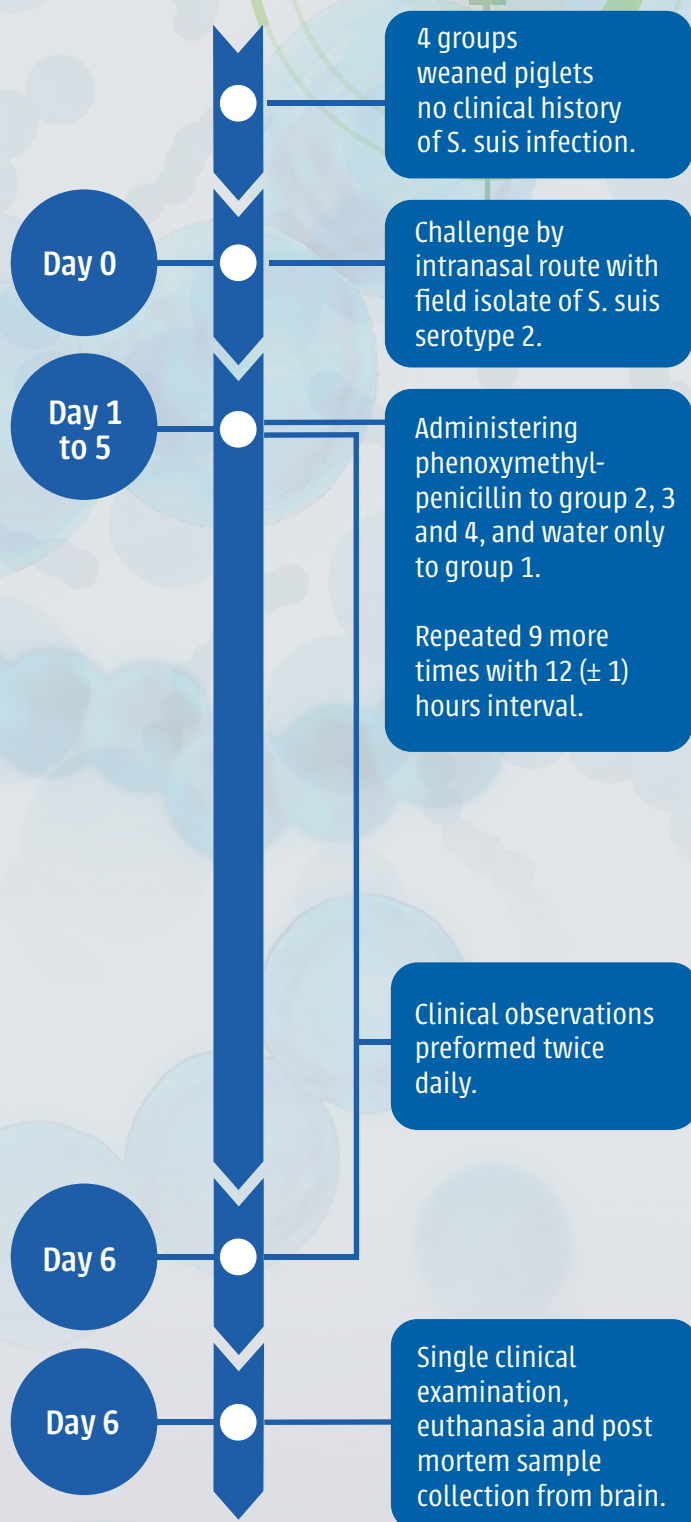
Introduction

Streptococcus suis is a major porcine pathogen worldwide and a zoonotic disease as well. It is endemic in most pig-rearing countries. The organism is a gram-positive bacterium and carried in the tonsils of pigs. It is spread between animals, mainly by nose-to-nose contact or by aerosol over short distances. *S. suis* causes meningitis, septicemia, endocarditis, arthritis, and septic shock with high mortality.

The objective of this study was to determine the most efficacious dose of a narrow-spectrum in-water antibiotic (phenoxymethylpenicillin as Phenoxyphen WSP 325 mg powder for oral solution), for the treatment of an experimental *Streptococcus suis* infection in piglets of weaning age.

Material & methods

40 weaned piglets, 4 (± 1) weeks of age, were divided into four groups and allocated to separated pens. The pens were within the same area but did not share airspace and no contact between the groups was possible.



RESULTS

Treatment group	Number of animals per group	Dose of phenoxymethylpenicillin	Clinical observations
Group 1 (control)	10 piglets	10 ml drinking water, administered twice daily, by the oral route, using a syringe.	Clinical symptoms, consistent with an infection caused by <i>S. suis</i> . 50% of mortality, due to exposure to <i>S. suis</i> , based on clinical signs and/or bacteriology and histopathology.
Group 2	10 piglets	5 mg phenoxymethylpenicillin/kg BW/day. Administered in two doses per day, added to 10 ml drinking water, using a syringe.	No clinical symptoms, apart from occasional sporadic/transient high rectal temperatures. No mortality.
Group 3	10 piglets	15 mg phenoxymethylpenicillin/kg BW/day. Administered in two doses per day, added to 10 ml drinking water, using a syringe.	No clinical symptoms, apart from occasional sporadic/transient high rectal temperatures. No mortality.
Group 4	10 piglets	30 mg phenoxymethylpenicillin/kg BW/day. Administered in two doses per day, added to 10 ml drinking water, using a syringe.	No clinical symptoms, apart from occasional sporadic/transient high rectal temperatures. No mortality.

Conclusion & Discussion

The objective of this study was to determine the most efficacious dose of an in-water antibiotic for the treatment of an experimental *Streptococcus suis* infection in piglets of weaning age. The results of the study indicated that all three concentrations of phenoxymethylpenicillin were effective in preventing development of clinical symptoms, mortality and bacterial recovery from brain tissue following experimental challenge with *S. suis*.

During this dose-determination study, the medication was administered twice daily orally, using a syringe, to ensure that the correct amount of medication was ingested. This administration differs from the situation in practice, where animals voluntarily consume medicated drinking water. Further pharmacokinetic studies and clinical trials under field conditions, with continuous availability of medicated drinking water, have demonstrated an effective dose of 15 mg phenoxymethylpenicillin per kg body weight per day, for five consecutive days.

