

Antibiotic treatment as an intervention against ear necrosis in one herd



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Introduction

Ear necrosis is a significant problem in some Danish pig herds. The financial loss caused by ear necrosis can be substantial if the farmer has difficulties selling pigs with lesions.

The cause of ear necrosis is not known. Infection with *Staphylococcus hyicus* (*S. hyicus*) is mentioned as a possible cause (1).

The aim of the study

-To evaluate whether antibiotic treatment could be used as an intervention in a herd with a high prevalence of ear necrosis.

Materials and Methods

Herd and animals

The trial was carried out in one Danish herd. The pigs were a cross of Danish Landrace and Danish Yorkshire.

In total, 273 weaners were included in the study. The pigs were randomly divided into a treatment group (137 pigs) and a control group (134 pigs).

The pigs were weighed two days before weaning and 46 days after.

Treatment

- 2 ml of Borgal® vet 24% for 5 days (Sulfadoxin 200 mg/ml, Trimethoprim 40 mg/ml)
- Starting on day 12 after weaning

Bacteriological examinations

Swabs were taken from ear lesions in 34 pigs and subjected to bacteriological examination for *S. hyicus*. The swabs were taken just before the treatment was started. *S. hyicus* isolates were tested for antibiotic resistance.

Clinical registrations

All pigs in the study were clinically examined 8 times from two days before weaning to day 35 after beginning of treatment (see figures).

The result of the examinations was translated to an ear necrosis score from 0 to 4.

Statistical analysis

The clinical results was tested in Fisher exact test in SAS, proc freq (treatment group * score) and in a logistic analysis in SAS, proc genmod (score more than 1 = treatment gender week treatment*gender treatment*week gender*week). The average daily growth in the two groups was tested in a t-test.

Results

Bacteriological examinations

S. hyicus was found in 19 of 34 bacterial swabs, and 19 isolates were selected for testing of antibiotic resistance. Of these isolates, 18 were sensitive to sulfa/TMP.

Effect on growth

The average daily growth in the treatment group was 282 g and in the control group 251 g ($p=0.009$, t-test).

Ear lesions

No effect of treatment on ear lesions was found (see figures).



Score 1: 5% of ear with redness and crust.



Score 4: 10% of ear with redness, crust and tissue loss.



Score 2: 10% of ear with redness and crust.



Score 4: 10% of ear with crust and tissue loss.



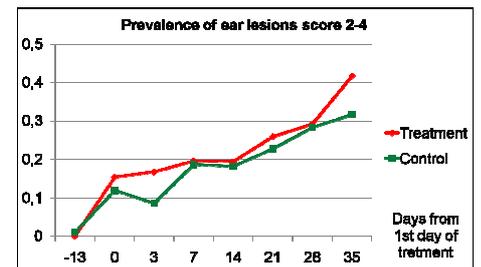
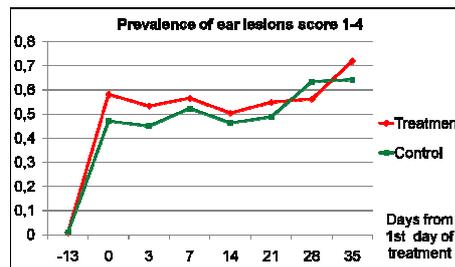
Score 3: 10% of ear with redness, crust and thickened tissue.



Score 4: 30% of ear with redness, crust, thickened tissue and tissue loss.

Ear necrosis scale

- **0:** no clinical signs of ear necrosis
- **1:** small lesion (up to 5% of the ear) with redness, crust or bleeding
- **2:** lesion with redness (up to 10% of the ear) and crust and maybe bleeding
- **3:** lesion (up to 20% of the ear) with redness, crust, thickened tissue, pus or bleeding
- **4:** lesion (more than 20% of the ear) or lesions with tissue loss.



Conclusions and discussion

In this herd, there was no clinical effect of the antibiotic treatment on the ear lesions. There were no differences in prevalence or in the degree of the ear lesions between the groups. There was no effect of the antibiotic treatment on the healing of the ear lesions.

The trial was not blinded which might have affected the results of the clinical observations. That could explain the small difference present between the groups as showed in the diagram. It cannot be excluded that treatment with a higher dose or for a longer period would have had an effect on ear necrosis. However, the chosen dose was high compared to the recommended dosage for exudative epidermitis. Possibly, a non-infectious aetiology, e.g. ear biting, could also explain the lack of effect of treatment. The higher daily growth in the treatment group could be due to an effect of treatment of a gastrointestinal infection.

References

1. Busch *et al.* 2007. Danish Pig Production, 0701
2. Richardson *et al.* (1984). Vet Pathol, 21, 152-157

