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EFFICIENCY OF ORAL DOXYCYCLINE MEDICATION IN WEANER PIG HOLDINGS WITH RECURRING RESPIRATORY DISEASE OUTBREAKS

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Introduction

Antibiotic resistance has become a major public concern and reducing antibiotic usage is important. Nevertheless it is crucial to treat diseased pigs due to welfare reasons and to prevent spreading of diseases. For the treatment of larger groups of pigs often oral medication is applied. In this study a respiratory health score and plasma levels of doxycycline reached through different oral medication systems were compared and used to measure the efficiency of treatment.

Material/Methods

11 pig producing farms were visited during acute respiratory outbreaks. Before treatment 10 clinically sick weaners were selected. From these animals the respiratory health was scored and plasma samples were taken before and on the last day of antibiotic treatment. The pigs were treated orally with doxycycline via water or feed, depending on the on-site situation. Doxycycline concentration in plasma of the animals was measured by high performance liquid chromatography (HPLC). Concentrations of $>1.0\mu\text{g/ml}$ doxycycline (CLSI breakpoint) were considered as effective.

Results

Of 11 farms, 9 administered antibiotics via feed, 1 via water and 1 via both. Preliminary results show that 2/10 farms reached a median concentration of $\geq 1.0\mu\text{g/ml}$ during treatment. In plasma samples $\geq 1.0\mu\text{g/ml}$ was measured in 27%, $>0 < 1.0\mu\text{g/ml}$ in 40%, and no doxycycline in 33%. The median concentration of plasma samples measured up to now was $0.29\mu\text{g/ml}$ and the maximum measured was $4.33\mu\text{g/ml}$. Respiratory health of about 80% of these weaners improved during treatment.

Discussion/Conclusion

The results show a large variation of reached plasma levels by different oral medication systems. Sufficient concentrations were measured only on 2 of 10 farms, though fluctuations of measurements dependent on time lags between antibiotic uptake and sampling should be taken into account. As the overall health of the pigs improved despite these low levels the influence of treatment on recovery needs further investigation.