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Evaluation of vaccination and antimicrobial protocols in nursery pigs coinfected with porcine reproductive and respiratory syndrome virus and *Streptococcus suis*

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The objective of this research was to evaluate the efficiency of commonly used antimicrobial treatment protocols, a modified live commercially available porcine reproductive and respiratory syndrome virus (PRRSV) vaccine, and a live autogenous *S.suis* vaccine for controlling disease associated with PRRSV/*S. suis* coinfection.

Fifty-six, crossbred, PRRSV-free pigs were weaned at 10-12 days of age and randomly placed into five groups. All pigs received 2 ml $10^{6.4}$ TCID/ml high virulence PRRSV isolate VR-2385 intranasally at 29-31 days of age on day 0 of the trial and 2 ml $10^{8.9}$ CFU/ml *Streptococcus suis* type 2 isolate ISU VDL #40634/94 intranasally on day 7 of the trial.

Pigs in group 1 (n=10) served as untreated positive controls. Pigs in group 2 (n=12) received 5.0 mg/kg ceftiofur hydrochloride (Excenel®, Pharmacia & UpJohn, Kalamazoo, MI) intramuscularly (IM) on days 8, 11, and 14. Pigs in group 3 (n=11) received 11.02 mg/kg ampicillin (Polyflex®, Fort Dodge Laboratories, Fort Dodge, IA) IM on days 8, 9, and 10. Pigs in group 4 (n=12) were vaccinated 14 days prior to PRRSV challenge with a modified live PRRSV vaccine (Suvaxyn® PRRS, Fort Dodge Laboratories). Pigs in group 5 (n=11) were vaccinated with an experimental live autogenous *S. suis* vaccine 19 days prior to *S. suis* challenge.

Mortality was 80%, 25%, 82%, 83%, and 36% in groups 1-5 respectively. Treatment with ceftiofur hydrochloride and vaccination with a live autogenous S. suis vaccine were the only treatments which significantly reduced mortality ($p<0.05$) associated with PRRSV/*S. suis* coinfection. Pigs treated with ceftiofur hydrochloride showed the least severe gross lung lesions. The live autogenous S. suis vaccine had some residual virulence. Pigs that received this vaccine had a higher number of chronic fibrinous adhesions present in the serosal cavities than the ceftiofur hydrochloride treated animals. The PRRSV/*S. suis* coinfection model used represents a severe challenge exposure in which clinical signs and lesions consistent with PRRSV/*S. suis* coinfection were reproduced. Ceftiofur hydrochloride treatment produced the best clinical benefit in this challenge model.