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Clinical Safety and Efficacy of Enrofloxacin for the Treatment of Naturally-Occurring Bacterial and Mycoplasmal Respiratory Disease in Pigs

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Introduction Enrofloxacin, a flurorquinolone, has demonstrated *in vitro* antimicrobial activity and *in vivo* clinical efficacy for several bacterial pathogens of the swine respiratory tract (*Actinobacillus pleuropneumoniae, Haemophilus parasuis, Pasteurella multocida*) as well as *Mycoplasma hyopneumoniae.*

Objective The objective of this controlled study was to confirm the efficacy and safety of enrofloxacin, administered subcutaneously once daily for three consecutive days at a dose rate of 2.5 mg/kg, for the treatment of naturally-occuring respiratory disease in pigs.

Design One hundred sixty-two 17- week old, crossbred swine visibly affected with acute respiratory disease were selected from a population of 3000 swine and delivered to the test facility and identified uniquely by eartag. The first 125 pigs meeting entrance criteria of rectal temperature >104 degrees F, increased respiration rate, and loss of normal condition, were weighed and randomly allocated to 20 pens of 6 pigs each for the controlled study as well as to one pen of five pigs for immediate necropsy to confirm diagnosis. Two treatments (2.5 mg/kg enrofloxacin subcutaneously for three successive days or placebo) were randomly and blindly applied to ten pens each. All pigs were evaluated (general condition day one to day 15, rectal temperature day one and day 15, body weights day one and day 15, and days when relapse was suspected) for 15 days and the study terminated.

Confirmation of Respiratory Disease Necropsy and appropriate laboratory tests performed on the group of five pigs revealed lesions typical of enzootic pneumonia in which *M. hyopneumoniae* was confirmed by specific fluorescent antibody testing and *Pasteurella multocida, Haemophilus parasuis,* and *Streptococcus suis* were confirmed to be present by isolation from the lung tissue. Evidence for viral involvement (SIV, PRRSV) by histopathology and immunohistochemistry tests was lacking.

Results The response of pigs treated with enrofloxacin was signficantly ($p < .05$) better than the response of those treated with placebo in all categories measured, including: body temperature drop between day one and day 15; percentage of animals with successfully treatment outcome; perfect mortality; number of pigs with relapses during the observation period; and body weight change from day one to day 15.

No drug-induced adverse reactions, either local or systemic, were observed during this study.

Conclusion Enrofloxacin injected subcutaneously for three days is safe and effecatious for the treatment of naturally-occuring bacterial and mycoplasmal pneumonia in swine.