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Evaluation of Efficacy of Haemophilus Parasuis Bacterin in Providing Protection Against Heterologous Challenge

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Introduction

Haemophilus parasuis is the primary etiological agent associated with porcine polyserositis (Glasser's disease). Several different serotypes have been isolated in disease outbreaks. Some serovars appear to be more prevalent than others depending on the geographic locations. In the United States, according to new survey (see reference), serotype 4 appears to be more predominant (25%) followed by serotype 12 (23%) and serotype 5 (15%). Schering Plough Animal Health has been marketing *H. parasuis* bacterin and the vaccine was prepared containing *H. parasuis* serotype 12 and the protection has been demonstrated consistently against a homologous challenge. It is not known, if serotype 12 contained in the vaccine provides protection against other *H. parasuis* serotypes. The purpose of this study was to evaluate the efficacy of *H. parasuis* bacterin in providing protection against serotype 5 challenge.

Materials and Methods

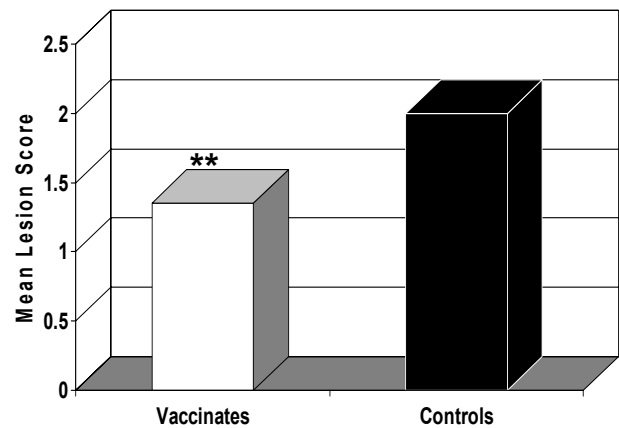
Twenty, 2-3 week old pigs were vaccinated subcutaneously with 1 mL of *H. parasuis* bacterin (ParaPac™). The pigs received a similar booster dose 21 days following initial vaccination. Ten pigs were maintained as unvaccinated controls. The pigs were challenged intraperitoneally with 5 mL of serotype 5 challenge culture containing 2.1×10^8 CFU/mL. The pigs were euthanized 13-15 days following challenge and gross fibrinous serositis lesions typical of glasser's disease were evaluated.

Results and Discussion

A total of 80% (8/10) of the unvaccinated control pigs and 65% (13/20) of vaccinated pigs showed gross clinical lesions following heterologous challenge. The incidence of disease was not significantly different between groups. The pigs in the control group had a mean gross fibrinous serositis lesion score of 2.0 and the pigs in vaccinate group had a mean score of 1.35 (Figure 1). The lesion score for pigs in vaccinate group was significantly lower ($p = 0.0431$) than the lesion score

in control group (Wilcoxon Rank Sum Test). The vaccine did not prevent the establishment of gross lesions, however, it reduced the severity of the disease. These results indicate that the vaccine containing serotype 12 provides some degree of protection against serotype 5.

Figure 1
Mean Gross Lesion Score



** Significantly Lower than Controls, $p=0.0431$

Reference:

M. Tadjine, K. R. Mittal et al. Development of a new serological test for serotyping *Haemophilus parasuis* isolates and determination of their prevalence in North America *J. Clinical Microbiology* 24: 839-840, 2004