Efficacy of gamithromycin injectable solution (ZACTRAN®) against Actinobacillus pleuropneumoniae using an experimental challenge model in piglets

A. Richard-Mazet1, A. Pfefferkorn1, D. Reddick2, C. Ramage2, P. Dumont1, P. Jeannin1
1Merial S.A.S., Lyon, France, 2MOREDUN Scientific Ltd, Penicuik, United Kingdom

**INTRODUCTION**

Actinobacillus pleuropneumoniae (App) is the primary agent of pleuropneumonia and is involved in PRDC. It can critically affect economic productivity of pig farms. ZACTRAN is an azalide antibiotic (gamithromycin) recently licensed for the treatment of swine respiratory disease. This abstract refers to the efficacy of ZACTRAN against App in an experimental challenge model.

**MATERIAL and METHODS**

On Day 0 (D0), healthy 5 week-old pigs that had never been treated with antibiotics or anti-inflammatory products and were seronegative to App were intranasally challenged with 8.8 log10 CFU of a virulent App strain qualified for consistent respiratory disease induction.

Pigs met clinical criteria for eligibility 4h-8h post-challenge and were then injected either with a single dose of ZACTRAN (1mL/25kg IM, n=20), or with saline (1mL/25kg IM, n=20).

Clinical observations were conducted 4 hours post-treatment then once daily up to 4 days post-treatment (D4pt) and scored for rectal temperature (0-3), demeanor (0-3), type of respiration (0-3), coughing (0-3) and body condition (0-2). Bodyweights were recorded on D-7, D0 (prior to challenge) and D4pt or prior to any unscheduled necropsy (in case of death). Blood sample was collected on D-7 from each animal for detection of App serotypes 1 to 12 antibody levels using a commercial kit (ID Vet Innovative diagnostics). Necropsies were performed on D4pt.

The percentage pulmonary consolidation (gross involvement of lesions) was estimated. Lung tissue samples were collected from specific sites and the numbers of colony forming units per gram of lung tissue were determined. Clinicians were blinded to treatment.

**RESULTS**

All pigs were serologically negative to App prior to challenge. Four pigs in the Saline group died or were euthanized on ethical grounds prior to scheduled necropsy with advanced challenge-related respiratory disease. In contrast, no mortality occurred in gamithromycin-treated pigs.

Lung lesions were typical of acute pleuropneumonia with widespread consolidated lesions, pleural adhesions, excessive pleural fluid and fibrin present. App was recovered from every lung sample from all pigs in the Saline group, compared with only 24% in the treated group.

**CONCLUSION**

This study showed that a single treatment with gamithromycin injectable solution was efficacious for the treatment of clinical Swine Respiratory Disease associated with Actinobacillus pleuropneumoniae.