EVALUATION OF TWO COMMERCIAL ONE DOSE *MYCOPLASMA HYOPNEUMONIAE* BACTERINS USING NEEDLE-FREE AND CONVENTIONAL NEEDLE ADMINISTRATION.

HT Chuo[1] , BK Lim[2] and PY Choo[3]
[1]Rhone Ma Malaysia Sdn Bhd, Selangor, Malaysia, [2]Vet Food Agro Diagnostic (M) Sdn Bhd, Selangor, Malaysia,[3]Asia Pacific Special Nutrients Sdn Bhd, Selangor, Malaysia
Ban-Keong.Lim@merial.com

Introduction

Mycoplasma hyopneumoniae causes a chronic pneumonia in pigs characterized by coughing, growth reduction, and reduced feed efficiency. The effectiveness of vaccination in reducing the economic impact of mycoplasmal pneumonia has been shown in a number of studies (1,2). Both single and dual dose vaccination protocols have been used successfully to control the disease (3). Vaccination with *M. hyopneumoniae* and pseudorabies vaccines using needle free transdermal injection system has been shown to be effective and safe (4). The objectives of this trial were to compare the sero-conversion and daily weight gain of two commercial one-dose *mycoplasma hyopneumoniae* bacterins in a farrow-to-finish production farm and to evaluate the efficacy of using needle free transdermal injection system (MIT) and conventional needle administration of Sprintvac® MH.

Material And Methods

The experiment was carried out in a 1000-sow commercial farrow-to-finish pig farm in the state of Sarawak, Malaysia. A total of 60 weaner pigs were randomly divided into two groups of 30 heads each designated as Vaccine A and the Sprintvac group respectively. Both groups were subdivided into 15 each using both MIT and conventional needle. The vaccines used in the trial were Sprintvac ® MH and Vaccine A (a commercial one-shot vaccine). The vaccines were administered at 3 weeks of age.

The pigs were individually ear-tagged and housed in adjacent pens in the same house and managed in the same manner and fed with the same feed. The pens were divided by a solid partition. The pigs in the respective groups were vaccinated with Sprintvac and Vaccine A at 3 weeks of age. Serology monitoring was carried out at 3 weeks (at time of vaccination), 8 and 15 weeks. The serological tests used were the IDEXX ELISA test kit (HerdChek M hyo). Pigs were weighed at 3 and 8 weeks after vaccination. Data were compiled and analyse using SPSS 11.0

Result And Discussion

At 8-9 weeks of age (i.e. 5 weeks post vaccination), the antibody titres in the pigs vaccinated by Sprintvac were significantly higher than those vaccinated by Vaccine A ($P<0.01$) (Table 1). The antibodies present in the pigs at the time of vaccination can be regarded as maternal antibodies. The antibody response in pigs vaccinated with Sprintvac® MH detected at week 8-9, indicated that the animals responded in the presence of maternal antibodies.

There was no significant difference in titres by week 19-20. This could probably be due to the response to field infection of *Mycoplasma hyopneumoniae*.

Table 1. Antibody titres following vaccination

Week		Sprintvac	Vaccine A	P value
3-4	N*	29	30	
	Mean	3,059.69[a]	1,641.33	0.101
8-9	N	27	27	
	Mean	1,356.63	502.70	0.0000
19-20	N	22	22	
	Mean	3,148.82	2,145.45	0.917

*no. of pigs tested
[a]Indicate antibody titre expressed as OD values

The difference in delivery systems (needle-free transdermal injection system (MIT) and conventional needle administration) showed no significant differences ($P>0.05$) in the antibody titres based on serological responses, indicating that both methods are able to delivers vaccine effectively (Table 2).

Table 2. Antibody titres following needle-free and conventional needle administration of M. hyo vaccines.

		Sprintvac		Vaccine A	
		MIT	Needle	MIT	Needle
Week 3-4	N	15	14	15	15
	Mean	3567.13[a]	2516.00	1701.07	1581.60
Week 8-9	N	13	14	14	13
	Mean	1044.08	1646.86	556.29	445.00
Week 19-20	N	11	11	12	10
	Mean	2940.45	3357.18	2194.33	2086.80

[a]Indicate serology titre expressed as OD values

There is no significant difference in body weigh gains between pigs vaccinated by the needle-free transdermal route and those vaccinated by the conventional hypodermic needle. Neither were there differences in weight gains in either of the vaccine groups.

References

1. Kyriakis S. C, *et. al.* (2001) Journal Veterinary Medicine, Nov;48(9):675-84
2. Maes D, *et. al.* (1999) Vaccine. Mar 5;17(9-10):1024-34
3. Thacker e. L. *et.al.* (2006) Disease of Swine. Ames, Iowa. Blackwell Publishing. Vol 9, pp 706-707. 2006
4. Houser T. A., *et. al.* (2004), Meat Science Volume 68, Issue 2, Pp 329-332

® SPRINTVAC is a registered trademark of Merial.
® HERDCHECK is a registered trademark of IDEXX Laboratories, Inc. in the United Kingdom and elsewhere.