Seroprevalence of *Lawsonia intracellularis* Infection in Swine Breeding Herds in Thailand

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Introduction

Proliferative enteropathy in pigs is manifested as bloody diarrhea/sudden death in adults and chronic diarrhea/slow growth in younger pigs (1). The disease is caused by infection with *Lawsonia intracellularis* (LI), an obligate intracellular organism. The economic impact of this disease is most severe in grower and finisher pigs. In the field, the earliest reports of natural LI fecal shedding were in piglets 3 weeks old (2). Therefore, it is possible that the infection initially occurred during the lactation period in which the sow may be a source of horizontal transmission. Therefore, it is important to know the infectious status of LI in breeding herds. To date, little information is available on the infection dynamic of LI in breeding herds in Thailand. The objective of this study was to determine the prevalence of LI infection in sows and gilts in breeding herds in Thailand using an immunoperoxidase monolayer assay (IPMA).

Materials and methods

From August through December, 2010, nine breeding herds from Central and Northeast regions of Thailand were chosen according to the following criteria: Each herd had a minimum of 500 gilts/sows on production and gilts/sows had a previous history some degree of diarrhea or bloody diarrhea. Gilts/sows at parity of 0, 1, 3, 5, and ≥6 were randomly selected and fifteen sera samples were collected from each parity in a cross-sectional study design. All sera samples were submitted to the Diagnostic Laboratory at the Large Animal Hospital, Faculty of Veterinary Science, Chulalongkorn University. Antibodies against LI infection were determined using IPMA as previously described (3). The diagnostic performance of IPMA was validated and published in a scientific peer reviewed journal (3). The assay shows the qualitative result with 88.9% sensitivity and 100% specificity and no cross reaction with other swine enteric pathogens.

Results

In total, 645 serum samples were collected and tested. From these nine herds, six herds were located in Ratchaburi province, two herds were located in Kanchanaburi province, and one herd was located in Nakhon Ratchasima province. The prevalence of LI infection in the breeding herds in Thailand is summarized in Table 1. The results show that all of the selected herds were positive with antibody against LI infection. The prevalence of LI infection in gilts ranged from 0 to 100% while the prevalence of LI infection in sow parity 1 to ≥6 ranged from 40 to 100%.

![Table 1](image-url)

Discussion

The results of this study showed that the prevalence of LI infection in swine breeding herds in Thailand is relatively high. Since the modified live vaccine against LI infection is not widely used in Thailand, it is more likely that the positive antibody against LI is due to natural exposure to the bacteria. There is no significant difference in the prevalence of disease among the parities. Bronsvoort et al. (2001) reported that a seropositive status in the the breeding unit was an important risk factor for a PE outbreak in a growing-finishing herd. Other risk factors reported to be associated with PE outbreaks in breeding herds include seropositivity to LI during the growing-finishing phase, a continuous flow system for farrowing, and younger sow parity (4). This study is the first report on using IPMA for determining the serum response against LI infection in swine in Thailand. Although the serum antibodies do not play an important role in protection against this intracellular organism, it is a useful indicator for estimating the time of LI infection.

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References

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