

Japanese Encephalitis Virus Infection in Pregnant Swine

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OBJECTIVE: To establish a relationship between Japanese Encephalitis Virus (JEV) infection and problems with swine production in Thailand.

BACKGROUND: Evidence from Japan indicates that JEV infection of swine causes problems of infertility, abortion, and the birth of dead or weak piglets. It has become economically advantageous to suspend the breeding of gilts in Japan during the encephalitis season so that economic losses resulting from these problems are reduced.

Work reported in the 1972-73 annual report suggested a reduced reproductive efficiency in a small group of susceptible sows in Thailand as a result of natural infection with JEV. Infection shortly before breeding reduced the rate of conception, while infection during pregnancy increased the incidence of complications during gestation and parturition.

DESCRIPTION: The Kasetsart University pig farm located in Saraburi Province is being used as the study site. One hundred forty virgin gilts were selected, and serum antibody titers to JEV measured by the hemagglutination inhibition (HI) method initially and every two weeks thereafter until the titers converted

Table 1. Antibody Titers to JEV

Age	Negative Titer (< 1:10)	Intermediate Titer (1:10-1:40)	Positive Titer (≥ 1:80)
7-8 months (63)	55 (87.3 %)	4 (6.3 %)	4 (6.3 %)
10-10 1/2 months (62)	4 (6.5 %)	12 (19.4 %)	46 (74.2 %)
17-18 months (14)	0	7 (50 %)	7 (50 %)
Total (139)	59 (42.4 %)	23 (16.5 %)	57 (41.0 %)

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to positive. A positive titer is interpreted as an initial titer of 1:80 or greater; conversion is an eight-fold increase in titer over a two week period. The study began before the JE season on 1 Dec. 1973 and will continue until all animals have farrowed. The final JEV antibody titer will be determined on all animals at the conclusion of the study. Titers are run as collected, and will also be run in parallel as a group at the conclusion of the study.

Complete breeding records are being kept, and the number, health, and appearance of the piglets is being recorded.

PROGRESS: The titers of the animals to date are summarized in Table 1. Only 14 animals are 18 months of age, and all of this group show positive or increasing titers. The remainder of the animals are divided equally into a 10 1/2 month old and a 7 month old group. Over 90% of the 10 1/2 month old group show positive or increasing titers, while only 12% of the 7 month old animals show any measureable titer. About 50% of the animals have already been bred, and the remainder will be bred during the next two months.

DISCUSSION: From the distribution of positive JEV antibody titers among the age groups, it appears that JEV was epizootic in the area less than 10 1/2 but more than 7 months ago. This corresponds to the last encephalitis season in the area. The relatively large number of animals under study and the even distribution between positive and negative titers should give a good indication about the role of JEV infection and resulting reproductive problems in susceptible sows. This study will terminate when all animals have farrowed, in about September 1974.

REFERENCES:

1. Rozmiarek, H., et al: SEATO Medical Research Laboratory Annual Report, April 1973:44-46.