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EPIDEMIOLOGICAL SURVEY OF OUTBREAKS OF STILLBIRTH
IN SWINE DUE TO JAPANESE ENCEPHALITIS VIRUS IN HOKKAIDO

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Many outbreaks of stillbirth of swine due to Japanese encephalitis (JE) virus infection were observed in the southern and central parts of Hokkaido prefecture in 1984 and 1985. Sero-epidemiological studies of JE were performed in swine population in these districts. Namely, geographical distribution of JE antibody positive cases was examined for consecutive months and years.

The results were summarized as follows :

- 1). The prevalence rates of JE virus antibody were widely varied in each year and in each district. The positive antibody was detected for two consecutive years in swine sera from Imagane and Hiroshima areas, located in the southern and central parts of Hokkaido, respectively. Furthermore, seroepidemiological survey in Hiroshima area revealed that two endemic foci with JE antibody existed in 1985, whereas JE antibody positive cases were limited to only one smaller focus in 1986, which had a cooler summer than that of 1985.
- 2). The study of monthly prevalence rate showed that IgG antibody was detected already in early June in swine sera from Imagane area for two consecutive years. This suggests that the spread of JE virus had already occurred in this area in May or in an earlier month.
- 3). Mummified fetuses, whose body length was about 10cm were found among the stillborne fetuses in June in 1985 in Hiroshima area. These suggested that the mothers were infected with JE virus from February to April. On the other hand, aborted swine fetuses in March in Ishikari area were concluded to be infected with JE virus in the depths of winter.
- 4). Imagane and Kamiiso strains were isolated from aborted swine fetuses in the southern part of Hokkaido. Antigenic analysis of these strains by IFA with monoclonal antibodies showed clearly that these strains were different from JaGAR-01 strain and Nakayama strain, the standard strains of JE virus. Cross neutralizing tests with immune sera revealed that there were antigenic differences between Imagane and Kamiiso strains.

These results suggest that JE virus was maintained in Hokkaido continuously in some small endemic foci that were geographically separated, and that JE virus had already begun to spread during the cold interepidemic period, in which *Culex tritaeniorhynchus* had not emerged yet.