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EXPERIMENTAL INFECTION OF MINK WITH INFLUENZA A VIRUSES, AND A SEROLOGICAL SURVEY OF ANTIBODIES AGAINST INFLUENZA A VIRUSES IN MINK

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Mink were inoculated intranasally with A/Kumamoto/22/76 (H3N2) (H3), A/Hokkaido/3/78 (H1N1), A/New Jersey/8/76 (Hsw 1N1), A/equine/Miami/63 (Heq2 Neq2), A/duck/Hokkaido/5/77 (Hav7 N2) and A/budgerigar/Hokkaido/1/77 (Hav4 Nav1), intravenously, and by contact with H 3, in an attempt to determine the susceptibility of mink to influenza A viruses. A serological survey was also performed in order to estimate the prevalence of influenza A viruses in Hokkaido mink.

The distribution, quantity, and replication period of the virus was essentially similar in the infected mink irrespective of the virus strains and infection routes. The viruses were recovered from the turbinate, pharynx-larynx, trachea, lung, esophagus and stomach, but not from the other tissues and the blood. The highest virus titer was found in the turbinate on the 3rd post-inoculation (p. i.) day. Virus recovery was positive in the turbinate until the 7th p. i. day ; it was positive in other tissues until the 3rd p. i. day. Clinical signs were observed in only 2 mink which were intranasally inoculated with $10^{10.2}EID_{50}$ of H 3. In the contact infection experiment, the virus was transmitted to the contact mink as early as 6 hours after contact.

The sera from 857 mink collected between 1978 and 1979 in Hokkaido were studied for the presence of antibodies against influenza A viruses. The HA antigens used were H 0–3, Hsw 1, Heq 1–2, and Hav 1–9. In total 0.4, 0.1, 2.9, and 0.7% were positive against H 0, H 1, H 3, and Hsw 1, respectively.

The results of the present study show that mink are highly susceptible to influenza A viruses, and that they possess the antibodies against influenza A viruses currently found in man and in pigs. The role of mink in the epidemiology of influenza in man and animals was discussed.