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220 and 0 whereas 12,310 and 2,804 in control group.

Finally, two beagle dogs were infected with *E. multilocularis*, and their sera and fecal samples were collected until 21 DPI for the detection of copro IgA and serum IgA against adult and protoscolex antigens. Serum IgA against adult antigens were detected at 21 DPI, but copro IgA against adult or protoscolex antigens were not detected. Immune complex consisted with both copro IgA and antigen were not detected.

Those results showed that the definitive hosts recognized worm excretory/secretory product or worm somatic material and produced specific IgG and IgA. The rapid and strong antibody response was not clearly observed at reinfection, but worm expulsion was promoted in reinfection group.

Improvement of the alternative definitive host model for *Echinococcus multilocularis* in adrenocorticosteroid treatment for Mongolian gerbil, *Meriones unguiculatus*

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The effect of the different treatment of adrenocorticosteroids on the alternative definitive host model for *Echinococcus multilocularis* was evaluated using Mongolian gerbil (*Meriones unguiculatus*).

First, the effect of injection route of prednisolone tertiary-butylacetate (PTBA), one is subcutaneous (s.c.) and the other intraperitoneal (i.p.), was compared. More parasites were recovered from s.c. group than i.p. group.

Secondly, the effect of oral administration of prednisolone and betamethasone was compared to s.c. of PTBA. Most parasites were recovered from PTBA s.c. group. Scarce effects of oral administration of prednisolone and betamethasone were observed not only in the number of parasite recovered but also in the plasma biochemical parameters and the number of peripheral WBC and lymphocytes.

Thirdly, the effect of intervals of PTBA s.c. injection was evaluated by comparing once per 1 day, once per 2 days and once per 3 days. More parasites were recovered from groups of once per 1 day and once per 2 days than that of once per 3 days.

Lastly, the effect of period of PTBA s.c. injection schedule was evaluated by comparing the injection period from 6 days pre-inoculation to the day of inoculation (−6~0), from 6 days pre-inoculation to 6 days post-inoculation (−6~6), from 6 days pre-inoculation to 12 days post-inoculation (−6~12) and from 6 days pre-inoculation to 18 days post-inoculation (−6~18). Less parasites were recovered from −6~0 group than other 3 groups (−6~6 group, −6~12 group and −6~18 group), indicating that PTBA administration until 6 days post-inoculation was important for the parasite initial establishment. Analysis of change in the coproantigen excretion during the experimental infection and analysis of the parasite size recovered at necropsy indicated that −6~18 administration was most efficient for the parasite growth.

To evaluate the specific effect of PTBA on

the recovery of parasites, the relationship of plasma biochemical parameters (TP, CHOL, TG and NEFA) and the number of WBC and lymphocyte with the number of parasites recovered was investigated, however, close relationship could not be obtained.

Histopathological examinations on these experiments revealed atrophy of spleen and disappearance of Peyer's patch in the PTBA treated gerbils, however, no other significant pathological changes were observed.

The results suggested that the most efficient treatment was; adrenocorticosteroid: PTBA, injection route: s.c., interval of injection: once per 2 days and injection period: throughout experimental infection (−6~end).

The distribution of chironomidis (Diptera: Chironomidae) on the foot of Mt. Yotei, Hokkaido, Japan.

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Distribution of chironomids was studied during October 7 to 13 in 1997 on the foot of Mt. Yotei in Hokkaido, Japan. Adult chironomids were collected from all 6 points of research near springs and streams. As results of the survey, 30 genera of 4 subfamilies (Orthocladiinae, Diamesinae, Chironominae, Tanypodinae) were identified. Of those, 19 genera belong to the subfamily Orthocladiinae, 6 to Diamesinae, 4 to Chironominae and 1 to Tanypodinae. A total of 14 genera, 8 (genus *Rheocricotopus, Drantnalia, Hydrobaenus, Bryophaenocladius, Chaetocladius, Etchuyusurika, Trissocladius, Thienemanniella*) belonging to Orthocladiinae, 5 (genus *Diamesa, Pseudodiamesa, Sasayusurika, Syndiamesa, Prodiamesa*) to Diamesinae and 1 (genus *Zavrelimyia*) to Tanypodinae were recorded for the first time in Hokkaido.

The fauna of the chironomids varied according to the points of study. In the analysis of water sample, values of pH, chemical oxygen demand (COD) and electric conductivity which were 6.30–6.97, −1.47–+1.21 (mg/L) and 79.9–111.3 (μS/cm), respectively, showed little difference among the respective research points. Thus, it is suggested that the local differences in the fauna of chironomids are more related to the nature of the substrata than to the water conditions.

The finding of many genera of the cold-adaptive subfamily Diamesinae suggests similarity of the chironomid fauna between Hokkaido and Siberia. Further study is necessary for better understading of both the biogeography and the genesis of the chironomids in Hokkaido.