Research Note

Prevalence of antibodies to *Toxoplasma gondii* among farmers and cattle in Gombak District, Selangor, Malaysia - A Preliminary Report

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Abstract. A survey was carried out to determine the prevalence of *Toxoplasma gondii* antibodies among cattle farmers and cattle in the Gombak District, Selangor. A total of 79 human and 73 cattle serum samples were tested for *Toxoplasma gondii* antibodies by the immunofluorescent technique (IFAT). Results of the survey showed that anti-*Toxoplasma gondii* antibodies were found in 27.8% of the farmers, while in cattle the positive rate was only 3.8%. The prevalence rate obtained in this study did not differ much from the prevalence reported in previous studies. This suggests that the same degree of risk to this infection exists in the community. In view of the relatively low antibody prevalence in cattle, the risk of acquiring this infection from consuming undercooked beef is realtively low. Further survey on larger sample sixe is needed to validate the observation.

Toxoplasma gondii is an intracellular protozoan widely distributed in nature. Its infection is also widely prevalent in man and many species of warm blooded animals. Infections caused by this organism can be acquired through ingestion of oocysts shed by cats onto the environment, ingestion of undercooked infected meat and through transplacental transmission.

Studies in Malaysia have shown that specific antibodies to *T.gondii* are common among Malaysians. A study by Sinniah *et al.* (1984) reported a positive rate of 30.2% by the immunofluorescent technique (IFAT). Hakim *et al*. (1994) reported a prevalence of 10.6% among Aborigines in Peninsular Malaysia. The antibody prevalence rates were different between various occupational groups, thus suggesting nature of work may have determined the different risk levels to being infected. Tan & Zaman (1973) explained that the high prevalence rate of antibodies among paddy planters was due to their close association with cats and other domestic animals. Veterinarians, because of regular contact with animals, also had high positive antibody rates. A similar explanation may be true for the high prevalence rate among zoo workers (Zahedi *et al*., 1985).

Serological studies of toxoplasmosis among Malaysian domestic animals (Singh *et al.*, 1967) had shown a positive rate of 12.5% in pigs, 11.2% in buffaloes, 9.5% in goats and 4.1% in cattle. Chooi (1989) showed a prevalence of 1.2% in pigs slaughtered for human consumption in Selangor. Consumption of undercooked infected meat is one of the possible sources of infection in man.

A total of 79 serum samples from farmers of the Gombak District, Selangor were collected and tested for *T. gondii* antibody by the IFAT, following the technique described by Hakim *et al*. (1994). The farmers were of various ethnic groups, namely, Malays, Chinese, Indians and others (Bangladesh). Taking the IgG antibody titre of 1:64 and above as positive, 22 (27.8%) sera were tested positive. The seroprevalence by ethnic groups showed that the highest rate was observed among the Indians (32.1%), followed by the Malays (20.0%) and Chinese (16.6%). Seventy three serum

samples from the cattle population taken randomly from the same area were also tested for *T.gondii* antibodies by the IFAT. Only 3(4.1%) serum samples were found to be positive for IgM antibodies while all of the samples were negative for IgG antibodies.

This survey demonstrates that toxoplasmosis is prevalent among local cattle farmers. The positive rate obtained in this study (27.8%) did not differ much from the figures of the previous studies (Sinniah *et al*., 1984; Nissapatorn *et al*., 2002). Previous studies reported that the prevalence was highest among the Malays followed by the Indians and Chinese (Thomas *et al*., 1980; Sinniah *et al*, 1984; Nissapatorn et al., 2003). The present study showed that the highest rate was detected among the Indians followed by the Malays and Chinese. Majority of the farmers enrolled in the study were of Indian ethnic group. Higher percentage of positive cases among them was likely attributed to this factor. This study revealed that the prevalence of *T.gondii* antibody among cattle was low (4.1%). The present finding was similar with the results of Singh *et al*. (1967) which reported the prevalence of 4.1% in cattle.

The difference between prevalence rates in the farmers and cattle indicates the different degree of exposure to the souece of infection. The low prwvalence of T.gondii among cattle suggests the risk of acquiring the infection from consuming undercooked beef is fairly low. The farmers probably acquired the infection from their association with cats that may have frequented their premises. In view of the comparable positive antibody rates as established in this study and in other previous reports, the risk of infection probably remains unchanged in the malaysian epidemiology. The role of infective oocysts in the environment as the source of

infection needs to be assessed continuously so that effective control strategies against toxoplasmosis can be developed and implemented.

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