

## Seroepidemiology of toxoplasmosis among people having close contact with animals

### ABSTRACT

A cross-sectional study was conducted to determine the seroepidemiology of *Toxoplasma* infection and its risk association among people having close contact with animals. A total of 312 blood samples were collected from veterinary personnel (veterinarian, technicians, and students) and pet owners from veterinary clinics and hospitals in the area of Klang Valley, Malaysia. About 4 cc of blood samples drawn from agreed participants were processed for measurement of anti-*Toxoplasma* IgG and IgM antibodies as well as avidity test of *Toxoplasma* IgG by ELISA I, II, and III kits. Meanwhile, the demographic profiles and possible risk factors of these participants were also recorded in the standardized data collection sheets. Overall seroprevalence of toxoplasmosis was observed in 62 (19.9%) participants being 7 (18.4%) in veterinarians, 15 (33.3%) in veterinary technicians, 29 (14.9%) in veterinary students, and 11 (31.4%) in pet owners. Of 19.9% *Toxoplasma* seropositive samples, 18.3% was positive for IgG antibody, 1.0% for IgM antibody, and 0.6% for both IgG and IgM antibodies. Of three different IgG avidity ELISA kits, ELISA III showed high avidity in all five seropositive samples (IgM and IgG/IgM antibodies) indicating chronic *Toxoplasma* infection which is consistent with no evidence of clinical toxoplasmosis diagnosed during the time of this study. Univariate analysis showed that age group, gender, study population, gardening, task performance, and working duration were significantly associated with *Toxoplasma* seropositivity. Further analysis by multivariate analysis using logistic regression showed that age group of  $\geq 30$  years old (OR = 0.34, 95% CI = 0.18–0.63,  $p = 0.001$ ) and working or study duration of  $> 10$  years having close contact with animals (OR = 5.07, 95% CI = 1.80–14.24,  $p = 0.002$ ) were identified as significant risks for *Toxoplasma* infection. Based on the results obtained, a comprehensive *Toxoplasma* screening and health surveillance program on toxoplasmosis should be implemented among people having close contact with animals in general and confirmed *Toxoplasma* seronegative individuals in particular to prevent seroconversion.

**Keyword:** Anti-*Toxoplasma* antibodies; IgG avidity; Prevalence; Risk factors; Toxoplasmosis; People with animal-contact