SEROPREVALENCE OF *TOXOPLASMA* ANTIBODIES IN CATS IN CHENNAI

M.Vijaya Bharathi, C. Sreekumar, R. Thanhadurai
Department of Veterinary Epidemiology and Preventive Medicine
Madras Veterinary College, Chennai-7
Corresponding author : mvijaybharati74@gmail.com
Received 29-06-2012 Accepted 22-10-2012

ABSTRACT

Sera samples collected from 100 cats in and around Chennai, India were analysed for antibodies to *Toxoplasma* gondii by modified direct agglutination test (MDAT). 39 per cent seroprevalence was recorded in cats, which had, titre values of 1:64 and above. Clinical feline toxoplasmosis was analyzed. Statistically the sex-wise and age-wise seroprevalence were found to be significant.

KEYWORDS : *Toxoplasma gondii*, Modified direct agglutination test, age and sex-wise seroprevalence, Cats.

INTRODUCTION

Toxoplasma gondii is an obligate intracellar apicomplexan parasite with a broad host range of most warm-blooded animals from mammals to birds. Cats are the final host of this protozoan because they are the unique species that excretes infectious oocyst. The objective of the present study was to know the seroprevalence in Chennai.

MATERIALS AND METHODS

Blood samples (2ml) were aseptically collected from 100 (57 male and 43 female) cats of different age groups of less than 2 years (26), 2 – 5 years (52) and more than 5 years (52) that were brought for treatment to the Madras Veterinary College Teaching Hospital, Government Veterinary Hospital, Saidapet and from private veterinary hospitals in and around Chennai. Serum samples were separated and preserved in sterile 2 ml storage vials at -20^{oc} until further use. Positive and negative control serum samples were procured from Dr. David Buxton, Moredun Research Institute, (International Research Centre) U. K and stored at -20^{oc} until use. The modified direct agglutination test antigen was prepared as per the procedure of Vijaya Bharathi *et al*. (2003). Modified direct agglutination test was done as per the procedure described by Desmonts and Remington (1980). Double fold dilutions of serum samples from 1:2 to 1: 4,096 were tested. To avoid interpreting non-specific reactions as positive results, only titres of 1: 64 or high were considered as positive for MDAT.

RESULTS AND DISCUSSION

Out of 100 sera samples tested, 39 were positive for *T. gondii* antibodies. Among these, 7 (17.94 per cent) had a titre of 1 in 64, 5 (12.82) had a titre of 1 in 128, 8 (20.51 per cent) had a titre of 1 in 256, 10 (25.64 per cent) had a titre of 1 in 512, 4 (10.25 per cent) had a titre of 1 in 1024, 4(10.25 per cent) had a titre of 1 in 2048 and 1(2.56 per cent) had a titre of 1 in 4096.This results coincide with Chhabra *et al*, (1985) who reported a seroprevalence of 33.7 per cent in North India. Similarly in Spain, Gauss *et al.* (2003) reported 45 per cent of cats were showed seropositivity for toxoplasmosis.

In the present investigation, sex-wise prevalence of *T. gondii* antibodies in cats were analyzed and revealed that significant ($P<0.05$) higher per cent (56.41%) of male cats were found positive for toxoplasmosis as compared to female cats (43.58%). Similar reports were made by Fernandz *et al* (1995) and De Feo *et al.* (2002), Miro *et al.* (2004) in cats. Percentage of seroprevalence decreased with increase in age. The high seropositivity in cats with less than two years of age

(65.38%) followed by cats of 2-5 years of age (40.90%) and 25% per cent in cats of more than 5 years of age. The high seropositivety in cats with less than two years of age in this study differed from Novinskaya (1965b) and Miro *et al.* (2004), who recorded that the seropositivity was higher in cats of more than 5 years (33.33 per cent). Present fiindings concurred with Dubey (1973) who observed that 37.50 per cent adult cats were positive for *T. gondii* antibodies. Seropositivity was noticed in 12.82 per cent with skin disorders, 12.82 per cent with ocular problems, 17.94 per cent with neurological disorders and 17.94 per cent of cats with emaciation and enteritis. The 25.64 per cent of cats had symptoms of skin disorders, ocular problems and enteritis and 12.82 per cent had symptoms of both dermatological and neurological disorders . Dubey and Beattie (1988) concluded that pneumonia was the most common clinical manifestation of toxoplasmosis in cats. In this study, pneumonia was not recorded. Dubey and Johnstone (1982) observed fever, uveitis, retinitis and encephalitis in their study.

REFERENCES

Chhabra, M.B., Gupta. S.L. and Gautam, O. P. (1985). *Toxoplasma* seroprevalence in animals in Northern India. *Int. J. Zoon*., **12**: 136-142.

DeFeo, M. L., Dubey, J. P., Mather, T. N and Rhodes, R. C. (2002). Epidemiologic investigation of seroprevalence of antibodies of *Toxoplasma gondii* in cats and rodents. *Am. J. Vet. Res.* **63**: 1714-1717. Abstr. *Vet. Bull.* (2003). 73: 2998.

Desmonts, G. and .Remington, J. S. (1980). Direct agglutination test for diagnosis of *Toxoplasma* infection: method for increasing sensitivity and specificity. *J. Clin. Microbiol.,* **11**: 562-568.

Dubey, J. P. (1973). Feline toxoplasmosis and Coccidiosis: A survey of domiciled and stray cats. *J. Am. Vet. Med. Assoc.,* **162**: 873 - 877.

Dubey, J. P. and Beattie, C. P. (1988). Toxoplasmosis of animals and man. CRC Press, Boca Raton, Fl. pp.117-141.

Dubey, J. P and Johnstone, I. (1982). Fatal neonatal toxoplasmosis in cats. *J. Am. anim. hosp. Assoc.,* **18**: 461-467.

Fernandez, F., Ouvina, G., Clot, E., Guido, R. F. and Codoni, C. (1995). Prevalence of *Toxoplasma gondii* antibodies in cats in the western part of Great Buenos Aires Argentina. *Vet. Parasitol.,* **59** : 75-79.

Gauss, C. B. L., Almeria, S., Ortuno, A., Garcia, F and Dubey, J. P. (2003). Seroprevalence of *Toxoplasma gondii* antibodies in domestic cats from Barcelona, Spain. *J. Parasitol.*, **89**: 1067-1068.

Miro,G.A., Montoya, A., Jimenez, S., Frisuelos, E., Mateo, M. and Fuentes, L. (2004). Prevalence of antibodies to *Toxoplasma gondii* and intestinal parasites in stray, farm and households cats in Spain. *Vet. Paratistol.* 126: 249-55.

Novinskaya, V.F. 1965. Toxoplasmosis of cats. *Alma Ata,* pp. 161-176. (Cited *Vet. Parasitol.,* 1986. **19:** 225-243).

Vijaya Bharathi, M., Mohamed Basheer, A., Nedunchelliyan, S., Sarman Singh and. Menachi Selvan, M. S. 2003. Comparison of modified direct agglutination and indirect haemagglutination tests for detection of *Toxoplasma gondii* antibodies in goats in Chennai. *J. Vet. Parasitol.,* **17**: 49-51.

❑