PREVALENCE OF NEOSPORA CANINUM IN DOMESTIC CATS FROM AHVAZ, IRAN

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SUMMARY

Antibodies to Neospora caninum were determined in serum samples of 100 feral cats from Ahvaz, Khouzestan province, Iran. IgG antibodies were assayed by the modified agglutination test using whole tachyzoites of T. gondii and N. caninum, incorporating 2-mercaptoethanol, NAT. Anti-N. caninum antibodies were detected in 14(14%) of 100 cats with titers of 1:80 in 6, 1:160 in 5, 1:320 in 3. There was no difference between presence of antibodies for both parasites in male and female cats, but occurrence of antibodies was increased with age.

Keywords: Prevalence; Neospora caninum; Domestic cat; Iran.

INTRODUCTION

N. caninum is an intracellular apicomplexan protozoan parasite belonging to family sarcocystidae [5]. This parasite is distributed worldwide, have a two stage life cycle including asexual stages in intermediate hosts and sexual stages producing oocysts, and can induce serious fetal mortality in cattle [2,10,11]. Canids are definitive hosts for N. caninum and oocysts of this parasite has not been demonstrated or isolated from cats [7].

N. caninum has similar morphologic and biologic characteristics to T. gondii and was first described in the 1980s [4], and now researchers showed that many warm-blooded animals including cat have antibodies against this parasite [1,10,8,9].

Little is known about N. caninum infection in Iranian cats. So, the objective of the present study was to determine the seroprevalence of N. caninum in naturally infected domestic cats in ahvaz, Iran.

MATERIAL AND METHODS

Blood samples were collected from jugular vein of 100 trapped domestic Persian cats (52 male and 48 female) of the ages ranging between 6 months to 7 years. Animals had not any clear symptom of diseases at sampling. The samples were centrifuged at 1000 ×g and the supernatants were frozen at −20°C until the examinations were performed.

Sera were tested for the presence of N. caninum antibodies using the agglutination tests based on the direct agglutination of fixed parasites with sera pre-treated with 2-mercaptoethanol to prevent non-specific IgM agglutination, as described by Romand et al. [13], NAT (Neospora agglutination test). Sera were started at 1:40 serum dilution for N. caninum. A titer of 1:80 and greater was indicative for N. caninum infection [6,8]. Sera with doubtful results were re-examined.

A complete carpet of agglutination was considered as positive result. Clear-and cut button-shaped deposit at the bottom of the well was interpreted as a negative reaction.

The results obtained for serum evaluation, were analyzed statistically by logistic regression and chi-square tests using SPSS software, version 16. Alpha was 0.05 for all the tests for the associations.

RESULTS

Antibodies to N. caninum in 100 examined cats were detected in 14 (14%) with titers of 1:80 in 6, 1:160 in 5 and 1:320 in 3. The seroprevalence of N. caninum was 3.61% in males (7 of 52) and 3.36% in females (7 of 48). There was no statistical difference between the prevalence of infection in males and females (P>0.05). Logistic regression showed that the prevalence rate of seroreactivity increased significantly with age for N. caninum (P<0.05).
DISCUSSION

This study aimed to estimate the seroprevalence of *N. caninum* in domestic cats distributed all over Ahvaz city, Iran.

In the current study, we used NAT for detecting antibodies against *N. caninum*. NAT revealed a good sensitivity and specificity compare with Indirect Fluorescent Antibody Test (IFAT) [12,13]. Furthermore, reported by Dubey et al. 2002 [6], a good correlation found between NAT and Western blotting at dilutions of 1:80 or higher for screening *N. caninum* positive cats.

To our knowledge, this is the first study to investigate the occurrence of *N. caninum* antibodies among cats in Iran. Supporting the studies of Dubey et al. 2002, (11.9%) [6] and Ferroglio et al. 2005 (24.8%) [8], our results confirmed the serological presence of specific antibodies to *N. caninum* in cats (14%) and indicate that populations of feral cats are exposed to *N. caninum* infection. Different prevalences in such studies may be based on the different methods, geographical distribution of the parasites, sampling criteria and cut-off values.

Current data suggest that occurrence of anti- *N. caninum* antibodies in domestic cats of Ahvaz city is relatively considerable, but similar to most of the studies, lower than that to *T. gondii* [14]. This suggests that *N. caninum* is less widespread in the environment. Infected dog excrete few oocysts when infected with *N. caninum* in comparison with cats that shed large amount of oocysts in environment.

In present study, there was no significant difference between genders for *N. caninum*. These finding has also reported by other authors [3].

Clinical neosporosis has not yet reported in naturally infected cats, but experimental infection in immunocompetent cats and cats given corticosteroids showed lesions those observed in dogs [8].

CONCLUSIONS

This study revealed that cats in Ahvaz are the suitable intermediate hosts for *N. caninum* and may have a role on epidemiology of this parasite in other hosts.

REFERENCES


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