EPIDEMIOLOGICAL FEATURES OF INFECTION THROUGH *LEPTOSPIRA SPP.* IN DOMESTIC CATS (FELIS CATUS) APPARENTLY HEALTHY WITHIN THE METROPOLITAN AREA OF GOIANIA, BRAZIL

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ABSTRACT

Leptospirosis is rare in felines. This research has as main objective to analyze occurrence of antibodies anti-Leptospira spp serum samples taken from domestic cats in the area of Goiania and Aparecida de Goiania, Goiás, Brazil. Blood serums from 330 domestic felines apparently healthy were analyzed. The research was conducted through the microscopic serum-glutinosity test using 24 live antigens: Australis, Bratislava, Butembo, Castellonis, Bataviae, Canicola, Witcombi, Cynopteri, Grippothyphosa, Djasiman, Hebdomadis, Copenhageni, Cterohamorrhagiae, Javanica, Panama, Pomona, Pyrogens, Hadjo, Woilffi, Shermani, Tarassovi, Andamana, Patoc, Sentot. It was detected presence of glutinous antibodies in 23 animals (6,96%), rating from 1:100 to 1:800, predominating serovares Cynopteri and Djasiman.

KEYWORDS: anti-Leptospira spp antibodies, feline species, frequency.

INTRODUCTION

The geographical expansion of cities, without planning and basic sanitary infrastructure, has facilitated the appearing of favorable environmental factors growing the number of pathogenic agents harmful to the human health. Conditions such as garbage dumping, open-air sewerage and non-potable water consumption, among others, are thought to be common in peripheral urban areas. This scenario, along with the rise of animals carrying pathogenic agents, which may keep or disseminate these agents, spread risks of animal human and environment infection (QUERINO et al., 2003). Among the zoonoses, leptospirosis has been reported as one the most important antropozoonoses, having grave sanitary, economic and social impact, worldwide (VINETZ, 2001).

Nowadays, studies on this zoonosis are more relevant, mainly, due to the growing role pets have acquired in our society; recent statistics have demonstrated that half of western families have pets, either dogs or cats (PREGER, 2002).

METHODOLOGY

330 serum samples from domestic cats across areas of Goiania and Aparecida de Goiania were examined. In Goiania, 113 samples through internal jugular vein puncture were conducted, using 03 mL, 0,70x25, disposable needles, with no anticoagulative. The blood was centrifugated in order to obtain the serum. In Aparecida

de Goiânia, 217 samples got from the Zoonosis Control Center, after euthanasia of animals through heart puncture. In both, the obtained serum was transferred to tubes that were later frozen at – 20^0C transported in isothermal boxes to the Laboratory for Leptospirosis Diagnosis at the Veterinarian School of the Federal University of Goiás, and were processed from January to December 2008 through SAM testing. To check the association between the variable it was applied multivariate analysis through the method of Logistic Regression, according MONTEIRO FILHO (2004).

RESULTS AND DISCUSSION

Animals of both sex and various ages were sampled, as follows: 134 females, 80 males, 60 puppies (female and males) and 56 not identified, all non-definite breed.

From 330 samples, 23 (6,96%) were positive to at least one serovar, showing various titles as seen in table 1.

TABLE 1– frequency of serum sample positiveness in domestic cats from Goiânia and Aparecida de Goiânia area, Goiás, to the SAM testing, according to the serovar reagent and obtained title.

Serovar	Titles				Total	%
	1:100	1:200	1:400	1:800		
Australis	03	-	-	-	03	6,67
Bratislava	-	01	01	-	02	4,44
Butembo	02	03	-	-	05	11,11
Castellonis	01	01	01	01	04	8,89
Canicola	-	-	01	01	02	4,44
Cynopteri	03	02	-	02	07	15,56
Djasiman	05	01	-	-	06	13,34
Hebdomadis	01	-	-	-	01	2,22
Copenhageni	02	-	-	01	03	6,67
Icterohaemorrhagiae	02	-	-	01	03	6,67
Pomona	01	-	-	01	02	4,44
Pyrogenes	-	-	-	01	01	2,22
Hardjo	-	02	-	-	02	4,44
Patoc	02	02	-	-	04	8,89
Total	22	12	03	08	45	100

The co-agglutinations, that took place in four (8,16%) of the animals may have been related to a concomitant infection or cross-reaction (BOLIN 2003). Were considered positive all animals entitled from 1:100. Domestic cats are not shot against leptospirosis, therefore there was no need to evaluate the occurrence through vaccine. Cats do not react well to the vaccine, as stated by AMARAL (2009).

In this current study, it was observed that the serovar Cynopteri is more frequent in Aparecida de Goiânia samples, whereas in Goiânia Djasiman serovar dominated.

There was an alternate frequency of serovars, which did not allow determining that domestic cats are preferable hosts of a certain serovar.

It was also assumed by SHOPHER (1979) e ANGULOYE & NASH (1996), and here detected reaction to serovar Hardjo in samples from Goiânia and Aparecida de Goiânia, unusual condition for pets, since such leptospira, as cited by OLIVEIRA (2006) is adapted to bovines, it can be found in rural areas in big animals. On the other hand serovar Pomona, to which two animals were reagents from Aparecida de Goiânia, is more related, according DELBEM et al. (2004), to the swine. This considerations are necessary, once leptospira around the world have unique characteristics, according to the ambient and hosts usually acting as their reservoir and this is expresses in the virulence at infecting animals or people (RECUERO et at., 2007).

In Goiânia and Aparecida de Goiânia, is still common people buy raw milk from small farmers. Despite this being forbidden, also fought, by sanitary watch departments, part of population insist in getting the product. It is known that raw milk may contain various pathogenic agents, among which leptospira (JULIANO et al.,2000), and consuming it without proper pasteurization might as well cause infection. The contamination in domestic felines through serovar Hardjo may happen through it.

It has not been considered symptomathology on the tested animals, as it is unusual the clinic symptoms in cats. Besides the already mentioned, other reasons can be related to cats possible resistance to Leptospira spp. Throughout its biological evolution, these animals might have acquired a higher resistance to pathogens in their prays, resilience, which is able to fight difficulties and adversities faced by the predator-carnivore animal, known to be on the top of the food chain. The resilience, as shown by LABRUNA et al. (2006), is an excellent tool in order to guarantee survival, which means how capable a host is able to live with its parasites, without causing large damage to the host.

On the other hand, at the conclusion of SAM testing as well as the results seen, it is considered, in incoming studies, adding other serovars, besides the number already studied, as it may potentially be detected antibodies for not yet registered serovars on the species or area studied, as stated by HOMEM et al. (2001), large analyses over the zoonosis may reveal its likely territorial differences.

The lowest occurrence of infection or illness in cats, seen in this, and other researches, indicates its lower risk as pets regarding this zoonosis. Despite this condition, evaluations focused on this species have been considered more meaningful for the fact that cats have become more common as families pets, living closer than dogs to humans, owing to the fact that cats may be easier to raise indoors or in apartments for instance.

There has to be considered in this context that the domestic cats role on leptospirosis epidemiology is not quite relevant, seen that these animals are very resistant to the infection, they may not contribute to disseminate the pathogen considering their hygienic habits as well as their urinary system physiological characteristics, not to mention the benefits carried out by domestic felines at predating various rodent species. Cats, even though they are well-fed or submitted to hemiovarysalpingohysterectomy or orchiectomy, are still hunters.

It is also important to consider how these domestic animals are raised, as food habits have been changed with introduction of industrialized food, lowering natural hunting and, consequently, minimizing risks of contamination through infected prays with

different leptospira serovars. This condition has been established by not detecting expected serovars such as Icterohaemorrhagiae and Canicola, established in rodents.

CONCLUSIONS

It has been detected 6,96% of frequency in reagent samples to different Leptospira spp serovars. The majority of positive reactions were agglutinations, following response to Cynopteri and Djasiman serovars. Serum positive samples did not indicate prevalence of Icterohaemorrhagiae and Canicola serovars. The serovars diversity found indicates that the felines may have contact with different Leptospira spp serotypes, not defining a specificity on these animals.

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