

Multicenter survey of *Leishmania infantum* infection in cats from countries of the Mediterranean basin

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Background

Leishmaniosis (*Leishmania infantum*) is one of the most important zoonotic vector-borne disease transmitted by sand fly bite [1]. Cats are now recognized as competent hosts for *L. infantum* and an effective blood source for the vectors [2]. Though canine leishmaniosis (CanL) is endemic in the Mediterranean basin, large-scale epidemiological studies are lacking for feline leishmaniosis (FeL). This study aimed to assess the prevalence of *L. infantum* infections, associated risk factors and clinical-hematological abnormalities in domestic cat populations from six Mediterranean countries.

Materials and methods

From 2019 to 2022, blood and serum samples of cats ($n = 2097$) living in Italy ($n = 303$), Greece ($n = 298$), Portugal ($n = 295$), France ($n = 233$), Israel ($n = 313$) and Spain ($n = 655$), were collected along with animal data (i.e., age, sex, breed, housing conditions and geographical origin), clinical signs and laboratory blood test parameters. Cats were grouped according to their age as kittens (up to one year), adult (between one and six years), mature (between seven and ten years) and geriatric (older than ten years). Serum samples were tested by IFAT for anti-*L. infantum* total IgG. Furthermore, the blood samples of seropositive cats were molecularly screened for *L. infantum* kDNA.

Results

Out of 2,097 cats enrolled, the majority were adult (60.6%) and common European breed (95.1%), with similar ratios of gender (49.2% female vs 50.8% males) and housing condition (49.6% shelter/free roaming vs 50.4% owned) (Table 1). Overall, 13.5% (284/2,097) cats scored seropositive for *L. infantum* of which 1.3% (28/2,097) were from Italy, 2.4% (50/2,097) from Greece, 3.3% (70/2,097) from Spain, 0.8% (17/2,097) from France, 3.2% (68/2,097) from Portugal and 2.4% (51/2,097) from Israel. *Leishmania infantum* kDNA was detected in 14 seropositive animals (4.9%, 14/284). The prevalence of *L. infantum* infection by serology and/or molecular test in association with animal data are reported in Table 1.

Table 1. Prevalence of *Leishmania infantum* infections according to animal data.

Variables	Tot N° of cats	IFAT N Pos	qPCR N Pos
Age	2091		
Kittens	493	58	1
Youngs	1267	182	9
Adults	167	26	3
Seniors	164	15	1
Gender	2089		
Female	1027	130	9
Male	1062	151	5
Housing condition	2091		
Sheltered/free roaming	1038	154	9
Owned	1054	130	5
Breed	2094		
European	1992	272	14
Non-European	102	11	0
Country	2097		
Spain	655	70	7
Italy	303	28	3
Greece	298	50	0
Israel	313	51	0
Portugal	295	68	4
France	233	17	0

Conclusions

These preliminary findings highlight the circulation of *L. infantum* within domestic feline populations living in six CanL endemic countries of the Mediterranean basin, providing a large-scale epidemiological survey on its infection in cats. Male cats with outdoor lifestyle and adult age were more frequently found to be FeL seropositive, likely due to a higher chance of sand fly bite exposure [2, 3]. Considering the results of molecular test on blood, this tissue is not the ideal biological sample for *Leishmania* detection, probably due to the low parasitemia in the feline host [2]. Data on the ongoing analysis (i.e., ELISA serodiagnosis and on FIV and FeLV infections) will improve knowledge on FeL in these endemic areas.

Funding: This work was supported by Elanco Animal Health GmbH (Germany, Europe).

Conflict of interest: no competing interests.

References

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