P-05

Canine Leishmaniosis in France: Epidemiological information from serological tests on 1403 dogs from endemic and non-endemic areas over 12 years

Nicolas Soetart[1]*, Fanny Alexandre[1], Cécile Roux[1], Laetitia Jaillardon[1], Patrick Bourdeau[1]

1. LabOniris, Oniris, National College of Veterinary Medicine, Food Science and Engineering, Nantes, France.*nicolas.soetart@oniris-nantes.fr

Background

The situation in France regarding canine leishmaniosis is unique, being endemic (E) in the South and non-endemic (NE) in the North. The objective of the present study was to analyze retrospectively a large number of dog sera from different areas, submitted for diagnosis over a long period.

Materials and methods

Information was collected from the database of the diagnostic laboratory (period 2011-2023). IFAT, a reference quantitative technique, was used (serial dilutions 1:20 to 1:5120 = titers (T) 20 to 5120) and considered positive for T≥80. For each dog, location, breed, age, sex, titer (T) and date of the first analysis were analyzed using RStudio software (Statistics Chi-squared and Wilcoxon tests). Dogs were grouped according to the location (E or NE) [1-3].

Results

The study included sera from 1403 dogs. Sixty-nine per cent (n=965/1403) of dogs lived in NE areas. When compared to the global diagnostic activity of the laboratory, the South-West was overrepresented and the North-East under-represented (Figure 1). Interestingly, the Spanish Greyhound (dogs imported from Spain) was the most represented breed (17% of dogs; E/NE: 5/22%).

The mean age was 5.8 years (5 months - 16.5 years). The males/females ratio was close to 1 (660 males, 658 females, 85 missing data) with 30% intact males, 28% spayed females, 22% intact females and 20% castrated males.

Overall, the diagnosis was positive for 27% of dogs (median positive T was 1/640 (1/80 to 1/5120)) and low titers (≤ 40) were detected in other 18% (n=182) with respectively, T20: 11% (n=117) (E/NE: 29/71%) and T40: 6% (n=65) (E/NE: 31/69%).

The rate of positive dogs was significantly higher for samples from endemic areas (E/NE: 40%/20%, p=0.001) and these dogs had higher titers than dogs from non-endemic areas (median 640 (E) vs 320 (NE), p=0.001). In endemic areas, intact animals (45%) were more frequently positive than neutered animals (31%) (p=0.005).

The percentage of positive dogs was higher during the period 2011-2017 (36%) when compared to 2018-2023 (23%) (p=0.001), although median titers were not significantly different (p=0.16). Comparatively, low titers (T 1/20-1/40) remained stable, representing 13% of all results.

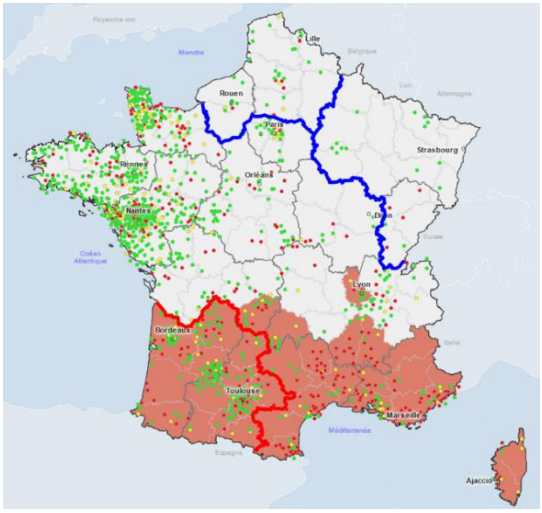

Figure 1: Origin of sera from 1403 dogs sent to the laboratory for *Leishmania* IFAT.

Location is based on the postal code of dog owners. In orange: enzootic areas in France as defined by previous works [1-2]. Red dots: positive (T≥ 1/80); Green dots: negative (T<1/20); Yellow dots: low titers (T: 1/20-1/40).

When compared to the General Activity (all samples submitted) of the laboratory (GA): the South-West (red line) is over-represented (*Leishmania* IFAT (L) = 17% vs GA=5%). In return, the East (L < 3.5% vs GA: 11%) and the North (L<2% vs GA=6%) are underrepresented (blue lines). This illustrates the different situations encountered by veterinary clinics and the dynamics of the disease in the South-West.

Conclusions

These results are in accordance with previous French epidemiological surveys. It confirms the importance of infection in the South-East and the expansion in the South-West. It also reveals the presence of a large number of infected dogs in non-endemic areas, potentially serving as a direct source of infection. The potential significance of titers 1/20 and 1/40, usually considered negative, warrant further studies.

Funding: self-funded.

Conflict of interest: none.

References

1. Bourdeau P., Doval A., Roussel V. Canine Leishmaniosis in France Results of a National Survey with 1345 clinics. European Veterinary Parasitology College (EVPC) Congress; (2011) ZAGREB CROATIA
2. Bourdeau P. Monge E., Doval A. Canine Leishmaniosis in France : A cartography model based on diagnosed cases in veterinary clinics. European Veterinary Parasitology College (EVPC) Congress ; (2014) DUBLIN IRELAND.
3. Bourdeau P., Roux C., Douine C. et al. Distribution and Dynamics of Canine Generalized Leishmaniosis in France: Results of the 4th National questionnaire based survey with veterinary clinics. 27th Conference of the World Association for the Advancement of Veterinary Parasitology ; (2019) MADISON, WI, USA