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TECHNICAL NOTE

Possible Underestimation of Canine Leptospirosis Incidence in Camagüey, Cuba

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INTRODUCTION

Canines are one of the best pet choices to seek emotional support (Fine *et al.*, 2019), but this species also stands out among the domesticated animals that transmit leptospirosis to humans (Troncoso and Castrelo, 2016; Hernández Ramírez *et al.*, 2017). Besides being an excellent reservoir, they suffer the disease, creating a global problem. In the US alone, its prevalence has been reported for over a century, and it continues to grow (White *et al.*, 2017).

Research done in Villa Clara, Cuba, to characterize the epidemiological behavior of this zoonosis (1999-2008), showed the results from a health care area where rodent proximity, rather than dog contact, was the main way of contagion (Duarte *et al.*, 2011). A later study showed that this species accounted for 99% of animals carrying the disease (Castillo-Cuenca, Iannacone, Fimia-Duarte, Quiñones-Prieto, Cepero-Rodríguez, Cruz-Rodríguez, and Campos-Cardoso, 2016). Coincidentally, reports of most domesticated animal species (bovines, swine, and equines) as reactors to *Leptospira* have been published in Camagüey. (Rodríguez, Barreto, García, and Vázquez, 2017b; Barreto *et al.*, 2017a).

The aim of this study was to create awareness of a possible scenario where canines are underestimated as agents in the transmission of the disease to humans.

DEVELOPMENT

The World Health Organization (WHO) classification of this zoonosis as an unattended tropical human disease (Torres Castro *et al.*, 2018) is worth analyzing. Meanwhile, the repercussion of the disease on domesticated animal species is characterized by greater uncertainties (Barreto *et al.*, 2017b).

In Cuba, animal health laboratories use microagglutination for diagnostic, which allows for identification of the serovars involved. Unfortunately, the selection criteria respond to Associated Standard for Veterinary Diagnostic No. 673, from 1982, issued by the Ministry of Agriculture, in force since 1984. Selection has been based on the history of predominant serovars in previous decades, which in the case of canines, comprises Icterohaemorrhagiae, Canicola, Ballum, Australis, Pomona, and Tarassovi (Barreto *et al.*, 2017b).

Dogs act as maintenance hosts of *Leptospira* interrogans serovar Canicola. Along with Icterohaemorrhagiae, these were the predominant serovars before vaccination campaigns took place. Pressure on selection led to the prevalence of Grippotyphosa, Pomona, Bratislava, and others (Lunn, 2015; Miotto *et al.*, 2018). These results were reported in Colombia (Álvarez, Calderón, Rodríguez, and Arrieta, 2011) and México. The latter also refers to the presence of Shermani and Pyrogene, with 33 and 20% presence, respectively (Hernández Ramírez *et al.*, 2017).

CONCLUSIONS

Overall, the diagnostic of Leptospirosis in dogs based on inappropriate selection of currently circulating serovars is producing values below the real incidence of the disease. In addition to it, the Provincial Hy-

giene, Epidemiology, and Microbiology Centers only engage in determining whether the serum is reactive to *Leptospira*, without looking into the existing serovar types (Rodríguez, Barreto, García, and Vázquez, 2017a). The line that severs the path between humans and canines is clearly seen when the epidemiology of the disease is studied, especially if no alternative molecular techniques are used to address this issue (Raja *et al.*, 2016).

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