TITLE: VETERINARY LEPTOSPIROSE EXAMINATION BASED ON MICROSCOPIC SEROAGLUTINATION: A PROCESS IMPROVEMENT.

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ABSTRACT:

Leptospirosis is a disease caused by a bacterium of the genus Leptospira that affects animals and humans. In Brazil, leptospirosis is an endemic disease, that becomes epidemic in rainy periods, mainly in the capitals and metropolitan areas, due to the floods associated with overpopulated areas in low income regions, inadequate sanitation services, furthermore high infestation of infected rodents. It is a zoonosis that leads to great economic impact, besides having an average lethality of 12% reaching up to 40% depending on the case.

The objective of this work was to improve the microscopic smear agglutination (SAM) procedure of veterinary Leptospirosis by optimizing the number of serovars tested. For this, a survey of the most incident serovars in Brazil's regions was carried out in comparison with the results obtained in the routine of the Hermes Pardini Laboratory.

The microscopic agglutination test (MAT) is considered the "gold standard" and method recommended by the World Health Organization due to its high specificity. This study evaluated the results of 865 veterinary samples (dogs, cats, steers, horses and others) carried out at the Hermes Pardini Microbiology Laboratory from January to March 2016. It was based on the addition of the suspected serum to cultures of several *Leptospira sp.* serovars and examined in darkfield microscopy. 22 cultures of Leptospira strains were used, and were maintained by weekly subcultures in Ellinghausen liquid medium (EMJH). Serums that agglutinated in the presence of Leptospiras were titrated (serial dilution and testing repeat).

Of the 865 veterinary samples evaluated, 114 (13.17%) were positive with a reaction equal to or greater than 1:800. Animals with the highest positive reaction for microscopic serum agglutination were horses (49), followed by dogs (47) and steers (18). The most prevalent serovars in horses were Pyrogenes, Hebdomalis and Pomona; in canines, was Ichterhaemorrahagiae, Cynopteri and Pyrogenes; in steers was Hardjo, Icterohaemorrahagiae and Hebdomadis.

Based on the prevalence of serovars found in this study, and in literature review, the veterinary routine of this test was optimized decreasing from 22 to 10 serovars tested. The delay rate decreased from 13.33% on average to less than 0.1% after the implementation of this improvement.

Keywords: Leptospirosis, veterinary, microscopic agglutination test (MAT), serovars.

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