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Journal of
Veterinary Science and Research

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Editorial

Leptospira Sp. Infection Epidemiology: Present Situation, Insights, And Prospects.

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Srgi Satos d AevedThe scientific community has faced a greater risk of zoonotic illnesses, such leptospirosis, arising or re-emerging in recent decades, primarily due to anthropogenic activities [1]. The One Health project has emerged as a powerful force in this situation. and a worldwide multidisciplinary approach to comprehending and managing illnesses with established relationships between humans, animals, and ecosystems [2].As a major public health concern and a reemerging neglected infectious disease, leptospirosis has a substantial economic impact on cattle output [3]. Commercially available vaccines do not provide adequate immunity, despite encouraging research on vaccine development in recent decades [4].

The illness is one of the most widely disseminated due to the wide variety of serovars, animal hosts, and transmission pathways (directly through contact with infected animals or indirectly through polluted water and soil). The causal agent is pathogenic Leptospira spp.

globally [5,6]. In addition to dogs, cattle, and pigs, rodents and small marsupials are the main reservoirs of infection [7]. People are more likely to become infected because they are in close proximity to habitats that are home to Leptospira spp. carriers, primarily in tropical nations [8].

In the context of One Health, efforts have been made in recent years to advance innovations primarily related to the epidemiology, diagnosis, control, and pathophysiology of leptospirosis. The first structure of the methyl-accepting chemotaxis was revealed by Santos et al. [9]. L. interrogans's CACHE protein domain showed similarities to other bacterial chemoreceptors of motility and chemotaxis. According to the findings of the work by Sooklert et al. [10], gold nanoparticles (AuNPs) have demonstrated promise in medicine. They may be used immunotherapeutically to enhance Leptospira-induced TLR2-mediated innate immunity. It has been proposed that a live attenuated mutant vaccine, based on a motility-deficient mutant that does not express the flagellar protein FcpA, can enhance defense against many pathogenic Leptospira species [11]. It is commonly known that creating vaccines that can provide protection against all harmful serovars, stop renal colonization, and produce long-lasting immune protection is the main obstacle in the fight against leptospirosis. Thus, the proteins rLIC13259 and rLIC11711 have been emphasized.as being better able to regulate leptospire colonization in the kidneys of hamsters [12].

Environmental samples have also been found to contain pathogenic Leptospira spp. Miller et al. [13] discovered pathogenic leptospires in 16.7% of soil samples in the transects, 22% of coastal soil, and 4 (3.7%) of 112 river samples. Furthermore, pathogenic Leptospira spp. isolation was enhanced by storing tainted water samples for two to four weeks at room temperature in the dark before microbiological culture. It has been suggested that bovine genital leptospirosis (BGL) represents a dissociated syndrome from renal or systemic illness [15]. Research on livestock (bovine, sheep, pigs, and goats) in semiarid regions has demonstrated that even in the harsh environmental Leptospires may endure and spread by the vaginal alternate channel of transmission under the semiarid conditions of a region [16–20]. These results are significant since the unfavorable climate conditions in these regions hinder the indirect transmission pathways for Leptospira spp. survival.

Using both conventional and contemporary techniques, this Special Issue comprises a number of studies that analyze the genotypic and phenotypic traits of Leptospira spp.

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Received: 11-Jan-2025, **; Editor Assigned:** 12-Jan-2025 **; Reviewed:** 30-Jan-2025, **; Published:** 7-Feb-2025.
Citation: Srgi Satos d Aeved. Leptospira sp. infection epidemiology: present situation, insights, and prospects. Journal of Veterinary Science and Research. 2025 February; 1(1).

strains isolated from infected individuals in Slovenia; identify Leptospira spp. and anti-leptospiral antibodies in donkeys from a zoonosis center in the semiarid region of Three review studies also address the significance of Leptospira spp. infection, pointing out features of its diagnostic neglect in comparison to dengue and malaria in Colombia, certain elements pertaining to the molecular mechanisms involved in the pathophysiology of leptospirosis, primarily the function of Na/K-ATPase, and the necessity of collaboration between many authorities on the investigation of leptospirosis using the One Health model in Nordic nations.

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