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Letter to the editor

Comment on: Animal listeriosis in Türkiye: a descriptive and comparative study of a One Health relevant disease

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Abstract

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Dear editor

Listeriosis is a serious zoonotic disease affecting ruminants and is associated with considerable economic losses in livestock production systems [1]. Despite numerous regional studies conducted in Türkiye, a comprehensive synthesis of the existing evidence is still lacking. We read with great interest the article by Akar and Sezer published in the last issue of the *One Health Microbiology & Infection* [2]. A systematic evaluation of animal listeriosis necessitates an integrated analysis of its epidemiology, clinical manifestations, diagnostic methodologies, and geographical distribution. In addition, surveillance systems combined with effective control strategies are critical for disease management. In the reviewed literature, the most frequently investigated animal species were sheep (n = 13 studies) and cattle (n = 9 studies), followed by goats, dogs, and horses. Given that Greece is a neighboring country, it is important to present a comparison of listeriosis between the two countries.

Epidemiology

Animal listeriosis is widely distributed in small ruminant and cattle production systems in Türkiye, particularly in the Central, Eastern, and Southeastern Anatolia regions [2]. The extensive use of silage during the winter months constitutes a major predisposing factor, as improperly fermented or contaminated silage facilitates the proliferation of *Listeria monocytogenes*. Recent evidence suggests that (i) listeriosis is strongly associated with the consumption of contaminated silage, and (ii) regional livestock management practices, housing conditions, and hygiene standards significantly influence its spatial distribution [2].

In Greece, listeriosis is also considered an endemic zoonotic disease affecting livestock and, indirectly, individuals engaged in animal husbandry [3, 4]. The disease exhibits a seasonal pattern, with increased incidence during winter and spring, particularly in intensively reared animals fed with silage.

In both countries, a notable increase in published studies has been observed after 2020, largely attributable to the expanded application of molecular diagnostic techniques. Furthermore, the COVID-19 pandemic has heightened scientific interest in zoonotic diseases, including listeriosis.

In Türkiye, most studies originate from Eastern and Central Anatolia, regions characterized by high ruminant density and extensive silage use [2]. In contrast, limited research in other regions does not permit safe conclusions about prevalence.

Given that *Listeria monocytogenes* is a significant foodborne pathogen with substantial implications for public health and the food industry [5], it is warranted to reference human listeriosis data from Greece. The reported incidence of human listeriosis in Greece remains relatively low; however, the number of notified cases increased in 2015 and 2023 [6, 7]. Over the period 2004–2024, the highest notification rates were observed in individuals aged ≥65 years, with more than 50% of cases occurring in immunocompromised patients [7].

Clinical forms

In Türkiye, the encephalitic and abortive forms of listeriosis predominate in small ruminants, whereas subclinical infections are frequently identified in cattle through serological surveillance. Molecular and culture-based investigations generally report low detection rates (0–7.29%), in contrast to serological studies, which demonstrate a considerably wider range (17–86.69%), indicative of prior exposure rather than active infection [2].

A small-scale outbreak investigation of encephalitis reported a high culture positivity rate (66.6%), while 100% seropositivity was observed in limited surveys of equine

and canine populations. These findings likely reflect sampling bias and specific outbreak conditions rather than true population-level prevalence.

In Greece, epidemiological studies in small-ruminant flocks (e.g., a retrospective analysis of 114 flocks) have identified listeriosis as one of the leading causes of neurological disease.

Diagnostic approaches

In Türkiye, diagnostic investigations across 26 studies have utilized abortion materials and blood samples analyzed through culture-based techniques, molecular methods (PCR and/or RT-PCR), and serological assays (ELISA). Detection rates ranged from 0–7.29% for molecular methods and 17–86.69% for serological assays [2].

In Greece, studies on bulk tank milk from dairy cattle in Northern regions have confirmed the presence of *Listeria monocytogenes*, with particular emphasis on serotype distribution, antimicrobial resistance profiles, and biofilm-forming capacity [3]. Moreover, *Listeria ivanovii* has been isolated from bulk-tank milk from sheep and goats. Isolates derived from encephalitic cases have also been subjected to molecular typing methods (e.g., pulsed-field gel electrophoresis, multilocus sequence typing) to elucidate genetic diversity and epidemiological patterns [3, 5].

Control measures

Based on the present findings and relevant studies from both countries, the following measures are recommended for the prevention and control of listeriosis in livestock:

- Careful selection and quality control of silage, avoiding mold contamination, particularly in sheep, as elevated pH levels (>5) promote bacterial growth.
- Use of appropriately harvested forage (avoiding overmature maize), early cutting of grasses, and minimization of contamination with soil and manure, while ensuring optimal anaerobic fermentation conditions to maintain low pH.
- Removal and disposal of silage layers exposed to air, as well as residual feed following feeding.
- Prompt isolation of clinically affected animals and replacement of silage, at least on a trial basis.
- Implementation of strict hygiene measures during abortion events (e.g., use of gloves, hand hygiene) to prevent transmission to animals, humans, and the environment.
- Application of autogenous vaccines at the herd level where appropriate.

Conclusions

Listeriosis remains a persistent challenge for veterinary practice in both Türkiye and Greece, with *Listeria monocytogenes* being endemic in livestock populations and requiring careful management in both animal husbandry and dairy production systems. Strengthening surveillance systems, expanding the use of molecular diagnostic tools in primary production, and integrating these efforts within a One Health framework are essential for improving disease burden estimation and mitigating zoonotic risk.

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