Toxoplasma Gondii In Shepherds and Cheesemakers - A Case-Control Study on Sheep-Associated Occupational Exposure in Central Portugal

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Abstract

Objectives: The primary objective of this study was to determine if workers occupationally exposed (WOE) to sheep, specifically shepherds and cheesemakers in central Portugal, are more likely to be seropositive for anti-*Toxoplasma gondii* IgG compared to the general population. Additionally, the study aimed to explore potential differences in seropositivity between shepherds and cheesemakers, while evaluating age, gender, and activity as possible risk factors for *T. gondii* infection.

Methods: A total of 96 WOE, including 21 shepherds and 75 cheesemakers, were tested for anti-*T. gondii* IgG using a commercial enzyme-linked immunosorbent assay (ELISA). The control group consisted of 192 sera samples from blood donors matched by age, gender, and residence. Chi-square tests with Yates correction were used to compare seroprevalence between WOE and the general population, and between shepherds and cheesemakers. Univariate and multivariable logistic regression analyses were performed to evaluate potential associations between *T. gondii* seropositivity and factors such as activity, gender, and age.

Results: The overall seroprevalence was 63.5% in the WOE and 52.6% in the general population, with no statistically significant difference (p = .101). Among WOE, 52.4% of shepherds and 66.7% of cheesemakers were seropositive, with no significant difference between the two groups (p = .344). Univariate and multivariable analyses indicated neither activity, age, nor gender were significant risk factors for seropositivity in the case population.

Conclusion: The study did not find a significant increased risk of *T. gondii* seropositivity among shepherds and cheesemakers compared to the general population. While high seroprevalence was observed in both groups, other factors unrelated to occupational exposure may be influencing the risk of *T. gondii* infection. More research is needed, particularly focusing on cheesemakers, to further explore potential occupational health risks related to *T. gondii*.

Keywords: Cheesemakers; *T. gondii*; Toxoplasmosis; seroprevalence; shepherds; zoonoses.