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Seroprevalence, molecular detection and risk factors of *Toxoplasma gondii* infecting sheep and goats under pastoralism system in Kajiado, Kenya.

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INTRODUCTION

- *Toxoplasma gondii* is an obligate intracellular protozoa causing toxoplasmosis, a neglected zoonotic disease.
- Infection in sheep and goats may serve as a source of human infection (Glor *et al.*, 2013).
- The objectives of this study were to determine prevalence of *Toxoplasma gondii* infection in sheep and goats using serological and molecular methods and to analyze risk factors for its occurrence and potential exposure factors for human infection.

MATERIALS AND METHODS

- A cross-sectional study was conducted from June to November 2019 in five wards in Kajiado County.
- A structured questionnaire was administered to 130 pastoralists.
- Indirect ELISA was used to detect anti-*Toxoplasma gondii* antibodies in sheep and goats.
- Conventional PCR was used to detect presence of *Toxoplasma gondii* DNA in blood.
- Generalized linear modelling was used to analyze potential risk factors for infection.

RESULTS

- The prevalence of *Toxoplasma gondii* was 9.0% in sheep and 12.5% in goats.
- *Toxoplasma gondii* DNA was detected in 89% of the seropositive animals.
- None of the studied risk factors for occurrence of *Toxoplasma gondii* in sheep and goats was significant.
- The potential exposure factors to human infection included failure to use gloves while handling aborted materials, consumption of raw blood, meat, and milk, and lack of knowledge on zoonotic diseases.

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ONE HEALTH RELEVANCE

- *Toxoplasma gondii* has the **broadest range of hosts** and **widest geographic distribution** among all animal and human parasites globally (Ahmad, 2014).
- **Toxoplasmosis is a prevalent protozoan zoonotic disease with great veterinary and public health importance** (Tonouhewa *et al.*, 2017).
- Sheep and goats **have the highest incidence of *Toxoplasma gondii* cysts** in meat and **play an important role in human infection**(Glor *et al.*, 2013).
- **Toxoplasmosis is the most important protozoal zoonotic disease** causing abortion, stillbirths and neonatal death in animals (Tilahun *et al.*, 2018) and humans worldwide (Tonouhewa *et al.*, 2017).

CONCLUSIONS

1. *Toxoplasma gondii* is prevalent in sheep and goats in the study area with a prevalence of 9.0% in sheep and 12.5% in goats.
2. The presence of *Toxoplasma gondii* in livestock presents a potential threat to the health of the pastoralist community in Kajiado County.
3. The potential exposure factors to human infection with *Toxoplasma gondii* included failure to use gloves while handling aborted materials from livestock, consumption of raw blood, meat and milk and pastoralists' lack of knowledge on zoonotic diseases.

RECOMMENDATIONS

1. There is need for public health education to raise awareness on toxoplasmosis in the study area.
2. Further research need to be focused towards determination of prevalence of this parasite in other livestock, the extent of environmental contamination and assessment of the impact of this parasite on human and animal health.
3. This study also recommends more research on neglected zoonotic diseases in Kajiado County as part of One Health approach.

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