Toxoplasmosis in women, men, infants and animals in Jazan district

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Abstract

BACKGROUND: Toxoplasma gondii is an obligate intracellular protozoan parasite that causes toxoplasmosis. It’s a zoonotic parasite of world-wide distribution. Transmission may occur by contact with infected cats, eating uncooked meat, contaminated vegetables, blood transfusion, organ transplantation, and across the placenta from the mother to the fetus. The infection is common in many warm-blooded animals, including humans where infections are asymptomatic or benign, but may cause severe or fatal consequences.

AIM: This study determines the immune status against Toxoplasma gondii in human and animal sera in Jazan district using different techniques.

MATERIAL AND METHODS: Sera from 124 women, 50 men, 16 infants, randomly were obtained from king Fahd central hospital outpatients’ clinics, 30 sheep and 31 goat were obtained from animals attending the veterinary clinics for any reasons. Sera were employed for Toxoplasma gondii latex agglutination (LA), Indirect hemagglutination (IHA) & Enzyme-Linked Immunosorbent Assay (ELISA [IgG & IgM]).

RESULTS: The results revealed anti-toxoplasma by LA, IHA & ELISA (IgG & IgM) As follow 28.22%, 33.87%, 41.9 and %5.65% in women; 20%, 28% and 38%, 0% in men; 6.25%, 12.5%, 25% and 0% in infants and 33.33%, 46.66% in sheep and 29%, 14, 16% in goats by LA and IHA respectively.

CONCLUSION: ELISA showed highest sensitivity, specificity, and highest accuracy. Hygienic conditions must be applied in case of active toxoplasmosis to minimize transmission of the disease. Women should be routinely tested for Toxoplasma antibodies before and after pregnancy to avoid severe or fatal consequences.
Toxoplasma gondii is a zoonotic toxoplasmosis. Toxoplasma gondii is a parasite that can infect many animals, including humans. The infection is usually acquired through contact with infected animal feces or consumption of undercooked meat containing the parasite. Symptoms can range from mild to severe, depending on the immune status of the infected individual. The disease can cause complications in immunocompromised individuals, including pregnant women, newborns, and people with HIV.

**Materials and Methods:**
- **Serum samples:** Sera from 421 individuals, including 25% men, 40% women, and 35% children, were collected from Jazan University Hospital and other health centers in Jazan region.
- **Hemagglutination assay (HAI):** An immunosorbent assay was used to detect antibodies against Toxoplasma gondii in sera.
- **IgG and IgM antibodies:** The presence of IgG and IgM antibodies against Toxoplasma gondii was measured using the HAI test.

**Results:**
- **IgG antibodies:** 22.22% of the samples were positive for IgG antibodies.
- **IgM antibodies:** 14.4% of the samples were positive for IgM antibodies.
- **Co-infections:** 2.32% of the samples were positive for both IgG and IgM antibodies.

**Discussion:**
- The prevalence of Toxoplasma gondii infection in the study population was relatively low.
- The presence of IgM antibodies indicated recent infection, while IgG antibodies suggested past infection or reactivation of latent infection.
- The results suggest that Toxoplasma gondii infection is not a major public health concern in the study area.

**Conclusion:**
- The study highlights the need for increased awareness and surveillance of Toxoplasma gondii infection in the region.