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A systematic review and meta-analysis of *Toxoplasma gondii* seroprevalence among tuberculosis patients

Ali TAGHIPOUR[1], Narges MALIH[2], Fatih KÖKSAL[3,4], Pikka JOKELAINEN[5], Fatemeh GHAFFARIFAR[1]

1 Department of Parasitology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2 Social Determinants of Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3 Department of Clinical Bacteriology, Faculty of Medicine, Çukurova university, Adana, Turkey
4 TR Ministry of Health Regional Tuberculosis Laboratories and the Director of the Tropical Diseases Research and Application Center, Turkey
5 Department of Bacteria, Parasites & Fungi, Infectious Disease Preparedness, Statens Serum Institut, Copenhagen, Denmark

Background. *Toxoplasma gondii* and *Mycobacterium tuberculosis* are intracellular pathogens that are able to cause chronic infections as well as severe disease in humans.

Material and Methods. We conducted a systematic review and meta-analysis to estimate pooled *T. gondii* seroprevalence among tuberculosis patients.

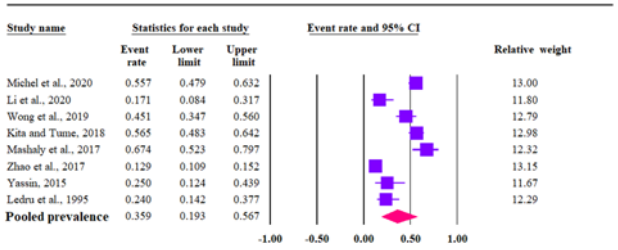

Fig 1. Forest plot of seroprevalence of *Toxoplasma gondii* (proportion anti- *T. gondii* IgG antibody positive) in tuberculosis patients, estimated with random effects model.

Results. From altogether 1389 documents identified from three international databases, eight papers were included in the systematic review and meta-analysis. Overall, few studies have been conducted on *T. gondii* among tuberculosis patients, and geographical data gaps were clear. The pooled *T. gondii* seroprevalence (proportion anti- *T. gondii* IgG antibody positive) among tuberculosis patients was 35.9% (95% confidence interval 19.3–56.7%) (Fig. 1). In the case-control studies, the pooled *T. gondii* seroprevalence (proportion anti- *T. gondii* IgG antibody positive) was 29.5% among tuberculosis patients and 17.2% among controls, and the odds ratio by random effects model was 1.6 (95% confidence interval 1.3–2.1) (Fig. 2).

The pooled *T. gondii* seroprevalence among tuberculosis patients was 35.9%

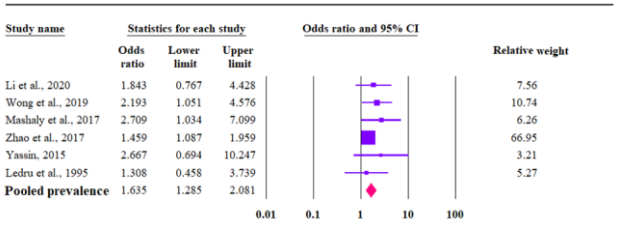

Fig 2. Forest plot of the association between *Toxoplasma gondii* seropositivity (anti- *T. gondii* IgG antibody positivity) and being a tuberculosis patient, estimated with random effects model, showing the odds ratio (OR) and 95% confidence interval (CI).

In the case-control studies, the pooled *T. gondii* seroprevalence was 29.5% among tuberculosis patients and 17.2% among controls, and the odds ratio by random effects model was 1.6

Conclusion. The results suggest an association between *T. gondii* seropositivity (anti- *T. gondii* IgG antibody positivity) and being a tuberculosis patient, but this should be interpreted with caution because the approach did not account for the timeline of the infections and the disease.
The results showed that *T. gondii* seropositivity (anti- *T. gondii* IgG antibody positivity) was relatively common among tuberculosis patients.

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Contact: pijo@ssi.dk (P. Jokelainen), ghafarif@modares.ac.ir (F. Ghaffarifar)