

Spontaneous abortion among *Toxoplasma gondii* IgG seropositive women: Molecular detection, genotype identification, and serological assessment with conventional ELISA and avidity ELISA

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Abstract

Objectives: It has been generally believed that women who exposed to *Toxoplasma gondii* before pregnancy and have anti-*T. gondii* IgG antibody are immunized and their newborns will be protected from congenital infection. This study is aimed to investigate the role of *T. gondii* infection in spontaneous abortion through serological and molecular methods in southern Iran.

Study design: Blood samples were taken from 50 spontaneously aborted mothers and anti-*T. gondii* antibodies were assessed using conventional enzyme-linked immunosorbent assay (ELISA) and avidity ELISA methods. The placenta and blood samples of aborted women were used for detection of the parasite's DNA by polymerase chain reaction (PCR) method targeting the RE gene. The parasite genotypes were determined by PCR-restriction fragment length polymorphism (RFLP) method using SAG3 and GRA6 genes.

Results: IgG antibody was detected in 28% (14/50) of mothers, but all samples were negative for IgM antibody. In the avidity ELISA test, 26% (13/50) of the samples had a high avidity index, suggesting chronic infection, while a low avidity index was detected in one case (2%), which suggests acute infection. The parasite's DNA was detected in 18% (9/50) and 14% (7/50) of blood and placenta samples, respectively. All DNA positive samples were IgG positive. All isolates were belonged to the *T. gondii* type III genotype.

Conclusion: The results suggest that *T. gondii* seropositive women are not protected from congenital transmission. However, the results should be interpreted cautiously until further studies will be confirmed these results.

Keywords: Iran; PCR; *Toxoplasma gondii*; avidity ELISA; congenital toxoplasmosis; spontaneous abortion.