

## Prevalence of risk factors and oxidative stress associated with *Toxoplasma gondii* antibodies among asymptomatic blood donors in Egypt

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**Background:** Since existing therapies are not fully effective, and no *Toxoplasma gondii* vaccine is available, efforts to reduce toxoplasmosis transmission are crucial to reducing the impact of this disease.

**Objectives:** To evaluate the seroprevalence of, risk factors for, and oxidative stress associated with *T. gondii* antibodies in asymptomatic blood donors in northeastern Egypt in a cross-sectional study.

**Methods:** Blood donors were recruited (169 men and 61 women) from blood banks, Mansoura University Hospital, Egypt. We interviewed blood donors about sociodemographic characteristics and potential risk factors for *T. gondii* infection using a structured questionnaire. A venous blood sample was taken to document their *T. gondii* antibody status using enzyme-linked immunosorbent assay (ELISA). Also, serum level of malondialdehyde (MDA) and activity of glutathione peroxidase (GSH-Px) and tocopherol fractions ( $\alpha$ ,  $\gamma$ ,  $\delta$ ) was assessed.

**Results:** Overall, 155 (67.4%) of 230 blood donors were positive for anti-*T. gondii* IgG antibodies and 24 (10.4%) of them were also positive for anti-*T. gondii* IgG avidity antibodies, which is high compared to many countries. Univariate logistic regression analysis showed an association between *T. gondii* seropositivity and area of residence, blood type, older ages, level of education, contact with cats, professional contact with farm animals, agricultural activities, washing hands before meals, eating unwashed vegetables, drinking raw milk, eating luncheon or shawerma. In a multivariate logistic regression analysis, eating luncheon or shawerma showed a strong significant association with *T. gondii* antibodies. *T. gondii*-seropositive blood donors had significantly higher MDA level paralleled with significant decrease in the level of GSH-Px and tocopherol fractions compared with *T. gondii* negative blood donors.

**Conclusion:** This study highlights that *T. gondii* is prevalent among healthy blood donors in northeastern Egypt, and that there is a need to introduce *T. gondii* screening in the blood donation scheme.

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