

An epidemiological study of toxoplasma infection among high- school girls in Jolfa

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Abstract

Introduction: Considering the remarkable prevalence of toxoplasma parasite in the world and the possibility of abortion, premature labor and congenital anomalies of the fetus in infected mothers, identification of non-immune women to toxoplasma parasite is necessary. Therefore, determining the prevalence rate and titration of anti-toxoplasma antibodies before pregnancy is a beneficial step in determining the rate of positive cases and the relation of these positive cases to a series of epidemiological variables of infection such as age, keeping cats, eating underdone or rare meat, educational status, etc enable us to decrease the incidence of congenital toxoplasmosis and its side- effects. Considering different side-effects of toxoplasmosis, such as abortion, premature labor, pathological changes of the CNS, etc, prevention of congenital infection is essential. One way for the prevention of infection in susceptible groups, especially women in their fertility years (14 to 45-year-olds) is by health education. One of the special objectives of this study was the identification of serum-negative girls in one of east Azerbaijan regions, to be used for planning in providing necessary education and taking precautions for its prevention.

Materials and Methods: Blood samples were collected by random sampling from 1000 high- school girls in Jolfa during 10 months in 2003-2004 and were examined by indirect immunofluorescence antibody test (IFAT). In this study, titers of 1:20 and higher were considered positive. Then a questionnaire was prepared and information such as previous contacts with cats, previous histories of eating raw meat and raw liver were gathered. Chi-square (χ^2) test was used for determining the relation between epidemiological findings of infection and antibody titers. SPSS statistical software was used to analyze the data.

Results: The prevalence rate of anti-toxoplasma IgG antibody by indirect immunofluorescence test was determined 21.8%. The individuals' titers by indirect immunofluorescence tests, were 1:20 to 1:100, for 198 people (91.8%) and the titers >1:100 for 20 people (2%) and the highest percentage of infection was in those who kept cats at home (37.5%) and students who had general symptoms of the disease (fever, lymphadenopathy and dermal rashes) (37.7%). Chi-square test indicated that there was a significant statistical correlation between infection and contact with cats, eating raw liver and disease symptoms ($p < 0.001$), but this correlation was not significant with age, knowledge on disease, eating raw food, keeping domestic animals at home and student's parent's jobs.

Conclusion: Results of this study indicate that 78.2% of people in this community were serum negative; this means that they had not acquired any immunity against the infection, so there is the probability for their newborns to become toxoplasmic. The researchers suggest that tests for toxoplasmosis identification be included in the compulsory tests before pregnancy and health education of mothers be emphasized to prevent birth of infants with congenital anomalies.

Key Words: Epidemiology, Toxoplasmosis, High-school Girl Students, Cat, Raw Liver, Pregnancy, Prevention, Indirect Immunofluorescence Test.

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