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Short Communication

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Microbial Pathogenesis2018-Seroprevalence and haematological investigation of toxoplasmosis in female population of Lahore

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Toxoplasmosis is a wide spread zoonotic infection of warm blooded animals including humans all over the world. This infection caused by a Protozoon parasite Toxoplasma gondii. The parasite completes its life cycle in both humans and cats. It causes severe congenital abnormalities such as hydrocephalus and mental retardation in infants. Keeping in view the importance of this parasite, the present study was designed to study the seroprevalence of toxoplasmosis and to investigate the hematological changes in female population in Lahore. Fresh blood of females were used for analysis of hematological changes, while serum was analyzed to estimate the seroprevalence of toxoplasmosis by using ELISA technique and all the information was collected with the help of questionnaire and analyzed to find out the risk factors. Overall prevalence in female population in Lahore was found 27%. Among pregnant and non-pregnant females prevalence rate was 31% and 24% respectively. Prevalence rate was higher in housewives as they are usually in direct contact with vegetables during food preparation T. gondii infection was found more in those who had contact with cats or any pet animal. Hematological parameters of samples were analyzed Hb and PCV level decreased and lymphocyte and neutrophil count was significantly increased in infected females. Health education and public awareness is needed to reduce the infection rate in local population of Lahore. Infections with Toxoplasma gondii in humans are usually asymptomatic or in the form of mild febrile illness. Primary infection in pregnant women may result in congenital toxoplasmosis while infection in immuno compromised subjects like AIDS patients may cause potentially fatal toxoplasma encephalitis. In India, only a few studies in hospital based patients have shown prevalence of toxoplasmosis to be between 1.5 and 21%. No field study involving general population is available. The present study investigates the prevalence of toxoplasmosis in subjects from rural, urban and urban slum populations of Union Territory, Chandigarh. Serum samples from 500 subjects from each group were collected and antitoxoplasma IgM and IgG was detected by conventional micro ELISA technique using soluble Toxoplasma gondii tachyzoite antigen. Overall 5.4% subjects were positive for IgM while 4.66% showed IgG antitoxoplasma antibodies.

Material and methods: In this cross-sectional examination, 380 samples were gathered from donated bloods. Anti- Toxoplasma IgG and IgM antibodies were analyzed using enzyme linked immunosorbent test (ELISA). Additionally, all IgG positive samples were examined by IgG devotion test. Eventually, to detection of active infection, DNA was separated from IgM positive and low IgG avidity tests and tested using settled polymerase chain reaction (PCR). The data were collected through random testing based on the request for appearance to the medical clinic or nonhospital care administrations (network). We considered ladies with positive pregnancy affirmation test results (positive BHCG and first echography). To gather information with respect to the associated risk factors, a semi-structured questionnaire was administered to every member. This instrument was re-examined and approved by the authors of this study and by three experts (two in gynecology and one in infectology). It was partitioned into four sections eight inquiries concerning socio-segment data, eight inquiries regarding clinical data, six inquiries regarding dietary patterns and condition, and four inquiries regarding the member's research center qualities. The last segment was finished by the physician and biologist. A pilot study was not led because of logistical and funding issues. To determine positive serology, we assessed the presence of serum anti-T. gondii gondii antibodies in the sera collected from the patients and stored at -70°C. The serological tests used were standardized using an ELISA, following the manufacturer's recommendations (Virion-Serion, Germany). We quantitatively evaluated the anti-T.gondii IgM and IgG antibodies and the avidity of IgG. A positive interpretation occurred at values higher than 30 IU/mL of IgM and 350 IU/mL of IgG. The sensitivity and specificity of the kits were 97.8% and 95.7% for IgM, and 98.2% and 99.4% for IgG, respectively. Samples that tested positive for anti-T. gondii IgG antibodies qualified for the IgG avidity test; this was used to determine the time of seroconversion, suggesting that there was a recent infection if avidity was lower than 45%. Seropositivity for toxoplasmosis was presumed when the tests were positive for one or more of the markers (IgM or IgG). Patients with a positive result were referred to infectology and gynecology for proper management of the infection.

Haematological analysis:

Utilizing sterile needles and syringes, qualified phlebotomists acquired 3 mL of venous blood from every member. The blood tests were apportioned into named EDTA cylinders to forestall coagulating and were later utilized for hematological investigations. Complete blood checks were run on the blood utilizing the Sysmex XP-300 Automated Haematology Analyser. The analyser gave cell check information on red platelets (RBC), white platelets (WBC), lymphocytes, neutrophils and platelets. Different boundaries estimated included haemoglobin (Hb), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean platelet volume (MPV), plateletcrit and red platelet appropriation width (RDW).

Serological analysis:

The blood samples were tested for the presence of against T. gondii IgG/IgM utilizing the monetarily accessible Onsite Toxo IgG/IgM quick combo test unit made by CTK Biotech, USA. This test unit works with

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either entire blood or serum. Following the maker's convention, a 10 µL test of blood was dropped into the example/cradle well on the pack. Two drops of support were then added and permitted to represent 10–15 min. Results were recorded as certain if both the test control line and M and additionally G line(s) created. Test outcomes were seropositive for IgG if the G line developed in addition to the control (C) while blood tests were seropositive for IgM if the M line showed up notwithstanding the control. Seropositive outcomes to IgG and IgM were acquired when both the M and G lines developed in addition to the control (C) band.

Conclusion:

The seroprevalence of T. gondii contamination was high among our examination populace, including among pregnant members. Furthermore, feline possession, contact with feline litter and age were recognized as significant danger factors for disease. Besides, extra examination is expected to completely explain the connections between inert toxoplasmosis and pallor. Taking everything into account, we suggest that testing for contamination by the parasite be included in routine screening of pregnant women seeking antenatal care and further studies should investigate the impact of infection on blood parameters of human.

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