Serologic evidence of *Toxoplasma gondii* infection among cancer patients. *A prospective study from Qassim region, Saudi Arabia*

To the Editor

I have read with interest the study by Imam et al on the serologic evidence of *Toxoplasma gondii (T. gondii)* infection among cancer patients.[1] Based solely on enzyme-linked immunosorbent assay (ELIZA) test for anti-Toxoplasma IgG+IgM measurement, the authors found that the frequency of seropositivity for *T. gondii* infection in the studied cohort was 30.6%.[1] Apart from 2 study limitations addressed by the authors, I presume that the following 4 points might be additionally contributory and could cast suspicions on the study results. First, the classical serologic diagnosis of *T. gondii* infection is often inconclusive in immuno-compromised individuals, including cancer patients. The altered immune response renders them unable to produce significant titers of anti-Toxoplasma antibodies.[2] Second, there are many serologic tests for the diagnosis of *T. gondii* infection and variations in their performance do present. Hence, different estimations of seropositivity for *T. gondii* infection in a given population will be expected on employing different serologic tests. For instance, the pooled odds ratios (OR) of *T. gondii* infection in Chinese population with cancer were estimated to be 5.50 (95% CI 3.98-7.62) by using indirect hemagglutination assay method compared to 3.15 (95% CI 2.67-3.72) by using ELIZA method.[3] Third, in the clinical practice, no single serologic test could precisely determine the estimate and time of *T. gondii* infection. The development of IgG avidity assays has noticeably facilitated timing and differentiation of primary and secondary *T. gondii* infections. Sequential (or combinatorial) use of high quality IgG, IgM, IgA, and IgG-avidity assays has been advocated.[4] Finally, based on the noticeable inhibitory effect of *T. gondii* parasite on tumor cell proliferation, the frequency of low titer anti-Toxoplasma antibodies in cancer patients was noticed to be significantly higher than the frequency of low titer anti-Toxoplasma antibodies in normal people.[5] In the light of the aforementioned points, DNA-based molecular techniques, particularly quantitative polymerase chain reaction (PCR) method with specific probes could be a better alternative than serologic tests in the surveillance, prevention, and control of *T. gondii* infection, particularly in immunocompromised patients.[6]

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Reply from the Author

Thank you for your interest in our study. Paragraph 3 in the introduction of our paper states the following regarding the objective of our study (the purpose of the present study was to determine the frequency of serologic evidence of *T. gondii* infection).[1] Our objective was not meant to establish a (serologic diagnosis) of *T. gondii* clinical disease. Our objective was to determine the frequency of exposure to *T. gondii* infection, as evidenced by serology (antibody detection tests).

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