Authors' Response

Dear Sir,

We thank the author for his comments on the immune status in patients with tuberculous meningitis.¹ We agree that being tested negative for HIV infection does not mean that there is a perfect state of immunocompetence.² We believe that immune dysregulation in any form, primary or secondary, can alter the course of tuberculous meningitis and affect its outcome. In view of the paucity of literature in this area, we are currently studying the prevalence of primary immunodeficiencies in patients with tuberculous meningitis, after having ruled out the commoner secondary immunodeficiencies in addition to HIV infection, including hepatitis C virus and hepatitis B virus infections, diabetes mellitus, and hepatic dysfunction.^{3,4} We are evaluating humoral (antibody and complement aberrancies) as well as cellular (T-cell and B-cell disorders) immune dysfunction. We expect that these studies will add to our understanding of immunodeficiency and tuberculous meningitis.

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REFERENCES

- Zea-Vera AF, 2019. Tuberculous meningitis: immunocompetence, secondary immunodeficiency, or adult onset primary immunodeficiency? Am J Trop Med Hyg 101: 1183.
- Jaipuriar RS, Garg RK, Rizvi I, Malhotra HS, Kumar N, Jain A, Verma R, Sharma PK, Pandey S, Uniyal R, 2019. Early mortality among immunocompetent patients of tuberculous meningitis: a prospective study. *Am J Trop Med Hyg 101:* 357–361.
- Mastroianni CM, Paoletti F, Lichtner M, D'agostino C, Vullo V, Delia S, 1997. Cerebrospinal fluid cytokines in patients with tuberculous meningitis. *Clin Immunol Immunopathol 84:* 171–176.
- Kashyap RS, Deshpande PS, Ramteke SR, Panchbhai MS, Purohit HJ, Taori GM, Daginawala HF, 2010. Changes in cerebrospinal fluid cytokine expression in tuberculous meningitis patients with treatment. *Neuroimmunomodulation 17:* 333–339.