

Misleading Results of Typhi Dot Test in COVID-19 Pandemic

Guest Editorial

Muna Malik,¹ Muhammad Irfan Malik.²

1. Assistant Professor of Pathology, PGMI/AMC/LGH.

2. Associate Professor of Pulmonology, PGMI/AMC/LGH,



A lot is being published on the co-epidemics and co-infections related to COVID-19 and other infectious diseases. These conditions have overburdened the whole health system.[1]

During the COVID-19 pandemic, near 20000 typhoid patients were reported in June 2020.[2] Typhoid has always been a health problem in developing countries. It is endemic in Pakistan. It is an infectious fever caused by "Salmonella typhi", transmitted by contaminated food or water and, presents with fever, malaise, headache, abdominal discomfort, diarrhea, and sometimes as intestinal perforation in complicated cases.[3] Blood culture is one of the standard tests for establishing the diagnosis of "Salmonella typhi" infection as per World Health Organization (WHO). Ideally, it should be done before the start of the antibiotics. Stool culture and bone marrow culture can also be used for the diagnosis of chronic illness. However various serological tests are being used in developing countries for their rapid results and time effectiveness. Among them, Typhi dot, Widal test, and TUBEX® TF are routinely used. Unfortunately, none of these are accurate enough in sensitivity and reliability in the diagnosis of typhoid in the endemic area and this leads to depletion of resources.[4] Serological testing is based on antigen-antibody reactions generated as a part of the immune response to infection. These tests can be misleading at times owing to their potential of cross-reaction with other antibodies.[5] Diagnosis of pyrexia of unknown origin (PUO) in Asian countries is always a challenge as these countries are more prevalent to typhoid fever, dengue fever, and malaria. Owing to the overlapping symptomatology, it is problematic to recognize the actual underlying reason without the appropriate diagnostic tests.[6]

Patients of COVID-19 are also presenting with gastrointestinal (GI) signs and symptoms in the health care institutions. They mimic Typhoid fever and are usually not investigated for COVID-19.[1] GI manifestations of COVID-19 should be thoroughly investigated in these troubled times. Clinicians should have a high

suspicion. Performing a typhi-dot test misleads the diagnosis of COVID-19 by cross-reactivity of antibodies and comes up as IgM positive for "Salmonella typhi".[7] The false positive of COVID-19 serological testing kits is raising false alarms.[7]

In conclusion, we would like to advise as microbiologists and clinicians, that prescribing the correct test is an art and the latest guidelines should be followed by all registered medical and dental practitioners. Antibodies testing is flawed and presently no antibody testing is properly valid for COVID-19 and results of serology testing

for typhoid fever could not be reliable. There is the utmost need to design an effective, affordable, and appropriate diagnostic tests for typhoid and COVID-19, for intensely exposed population, and to make extensive changes in society regarding vaccination, quarantining the patient and proper treatment of both diseases. RT-PCR should be done for confirmation of SARS-CoV-2 in the acute phase of the disease and blood culture should be done in the acute phase of typhoid illness. A stool culture could be done in chronic carriers of typhoid.

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CORRESPONDING AUTHOR

Muna Malik

Department of Pathology,
Postgraduate Medical
Institute, Lahore

Author Email:

mmkamboh@hotmail.com

ORCID:

<https://orcid.org/0000-0001-7610-0882>

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AUTHOR CRediT

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CONFLICT OF INTEREST

The author declared no conflict of interest

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