

Prevalence of Malaria and Typhoid Co-infection in North India

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Background: Both typhoid and malaria are diseases of epidemiological importance globally. Co-infection of malaria and typhoid poses a serious problem leading to misdiagnosis and mismanagement resulting in either under-treatment or over-treatment. Hence it is important to correctly determine the prevalence of typhoid and malaria co-infection.

Methods: The objective of this study was to estimate the burden of malaria and typhoid co-infections in our settings. The study was done from July 2014 to July 2016. A total of 3,010 samples were analysed in the microbiology laboratory for the diagnosis of typhoid fever and malaria co-infection. Peripheral blood smear examination, rapid diagnostic test (RDT), blood culture and Widal test were done for the diagnosis of malaria and typhoid infections respectively.

Results: Out of 60 blood culture positive samples, 48 (1.6%) were positive for malaria by both peripheral smear examination and RDT. Amongst malaria positive cases, 12 were positive for *Plasmodium falciparum*, 36 for *Plasmodium vivax* and one had mixed infection. Seroprevalence of typhoid infection by Widal was found to be 10% (300/3010). Gold standard tests for both the infections revealed that true co-infection was present only in 1.6% (48/3010) cases, while co-infection rate using Widal test and RDT was found to be 3.4% (105/3010). 100 Widal positive and RDT negative samples were randomly selected and subjected to PCR. 15 such cases were found to be positive by PCR.

Conclusion: The prevalence of malaria typhoid co-infection was low as compared to other studies. Molecular tests like PCR should be explored to find out asymptomatic malaria co-infection in patients with enteric fever. Further studies are imperative to determine the true rate of co infection and factors leading to development of co-infection.