Correspondence

Evaluation of Typhoid Assay for Rapid Diagnosis of Typhoid Fever

Sir,

Typhoid fever remains a major public health risk with more than 13 million cases occurring annually in Asia alone. Delay in diagnosis and institution of appropriate therapy especially with emergence of multi-drug resistant strains of Salmonella typhi, can be associated with significant morbidity and mortality and may significantly increase the risk of adverse outcome. Traditionally, the isolation of S. typhi remains the gold standard for diagnosis but, the Widal test continues to be the most asked for test, despite numerous problems in the standardization and interpretation.\(^1\) The dot enzyme immunoassay for detection of serum antibodies to S. typhi is rapid, simple and can be interpreted visually.\(^2\) The present study was carried out to evaluate the typhidot test in comparison with blood culture and the Widal test in patients admitted in PGIMER, Chandigarh with a clinical diagnosis of enteric fever. In 50 consecutive patients with S. typhi isolated in blood culture, Widal test and dot EIA were performed. A control group of 50 patients with unrelated complaints were included. The Widal test using in-house S. typhi antigens was considered positive in a single serum sample when the S. typhi H antibody titre was ≥ 320 and O antibody titer was ≥160. The Typhidot test (Malaysian Biodiagnostic Research SDN BHD, Kuala Lumpur, Malaysia) which detects IgM and IgG antibodies against S. typhi by using a specific antigen was performed according to manufacturer’s instructions. The Widal test in single serum sample was positive in 30 (60%) blood culture positive patients and was negative in all 50 cases in the control group. IgG and/or IgM was detected by the typhidot test in 48 (96%) blood culture positive patients and 7 controls. Both IgG and IgM could be detected in 15 patients whereas only IgM could be detected in 30 and only IgG in three. Neither IgG nor IgM could be detected in two patients with S. typhi isolation in blood culture. Presence of IgM was a more sensitive indicator, with 45 (90%) being positive for IgM and 18 of 50 (36%) being positive for IgG. Widal test was found to be 60% sensitive and 100% specific whereas Typhidot was 96% sensitive and 86% specific when compared to blood culture. Typhidot had a very high negative predictive value of 95.5% and positive predictive value of 87.27%. The diagnostic value of Widal in single serum samples remains a contentious issue. The sensitivity of the typhidot test is much higher than the Widal test and is sensitive even in fevers of short duration.\(^3\) The high NPV (95.5%) of the test even in a highly endemic area is an advantage and can be successfully used even in low-incidence populations. The Typhidot offers advantages of increased sensitivity, rapidity, early diagnosis and simplicity over the Widal test. Culture isolation remains essential especially for antibiotic susceptibility testing and serological tests for the diagnosis of typhoid fever can be used in conjunction with culture.

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Spectrum of Hemoglobinopathies in the State of Orissa: A Ten Years Cohort Study

Sir,

I read the paper ‘Spectrum of Hemoglobinopathies in the state of Orissa: a ten year cohort study’. The Regional Medical Research Center at Bhubaneswar though meant to cater facilities for population screening and provide diagnosis to referred cases from all over the state of Orissa, in reality gets cases only from adjoining districts. In the mentioned study too the author has got only a handful of cases from the hot bed of Hemoglobinopathies i.e. Western Orissa comprising of Sambalpur, Jharsuguda, Sundergarh, Bargarh, Bolangir Deogarh, and Baudh districts. The Departments of Medicine and Pathology at VSS Medical College Burla, a few private clinics and most notably the Rotary Sickle Cell Project at Sambalpur is doing exemplary service in the diagnosis and counseling of patients suffering from the disease which is unfortunately rife in this region. The Rotary Project which is in operation for the last six years has tested in excess of 14,000 samples of blood and has detected the disease in 4800 of them. Readers should not carry home the false impression that Sickle Cell disease is mostly seen in coastal and central districts of Orissa and seen predominantly in the Khandayat caste. The disease is in fact endemic in the Western belt of this state with Chasas and Agharias the most affected.
The Regional Medical Research Center is free to come over here to verify our facts and should reopen their center in Western Orissa if they actually want cater to the people of Orissa.

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Reply from the Author

Sir,

I appreciate Dr. AK Singh’s interest in the above article, who has raised his concerns about the hemoglobinopathies especially the sickle cell disease in Western Orissa.

The primary objective of the present study was to find the pattern of hemoglobinopathies in the suspected referred cases from all over the state of Orissa, which revealed that the sickle cell hemoglobinopathy is the major genetic burden and health problem in comparison to other hemoglobinopathies in the state. This finding is not at variance from our earlier study1 carried out at the hub, i.e. Field Station of Regional Medical Research Centre (ICMR) located at that time at VSS Medical College Hospital, Burla in Sambalpur district of Orissa, the so called “the hot bed of hemoglobinopathies, i.e. Western Orissa comprising of Sambalpur, Jharsuguda, Sundargarh, Bargarh, Bolangir, Deogarh, and Baudh districts”. Therefore, the present study does not give any wrong impression so far sickle cell disease is concerned in the Orissa state; whether you have handful of cases or much larger sample, depends upon the interpretation of the results. However, the author does agree that the larger the sample size, the better it is. Further, the hemoglobinopathies are common in Orissa.

The present study as well as our previous studies2-8 has already shown the high occurrence of sickle cell disease in Central, Western and Southern Orissa. Kar9 has also drawn similar conclusions. The study gives new information that the sickle cell disease is not confined to Western Orissa only but it has penetrated the central as well as coastal region of Orissa, contrary to what Dr. AK Singh and many other workers believed. Again, the sickle cell disease is not confined only to Agharias and Chasa communities of Western Orissa. It may be noted, however, there are several other communities9,10 in Western Orissa, which are at much higher risk and are afflicted with the sickle cell disease. The Khandayat caste of coastal Orissa, which is either an offshoot of Chasa or Kshatriya community of Western Orissa, is at high risk of sickle cell disease as well as for beta-thalassemia syndrome. It has been noted that, in fact, Chasa is not a name of the community or ethnic group rather it is a farming or agricultural community (occupational name), and at different regions or places the people practicing the same occupation are known by different names in Orissa. The author does not believe that readers would get the false impression.

The author is aware that there are several government institutions including the VSS Medical College at Burla/ District Headquarters Hospitals/State Units/Non Governmental Organisations (NGOs)/Private Diagnostic Centres/Rotary Club/Private Clinics, etc. which are providing services for diagnosis, treatment and counseling to patients suffering from sickle cell disease in Western Orissa.

The Regional Medical Research Center (RMRC) at Bhubaneswar is not meant for only catering facilities for population screening and providing diagnosis for referred cases from all over the state of Orissa, but has much wider mandate than has been pointed out by Dr. Singh and is beyond the scope of this paper.

The treatment of the sickle cell disease patients is a matter for the State. The research mandate and responsibilities of the RMRC, therefore, should not be misunderstood. Moreover, this article does not necessarily reflect the policy aspects of RMRC.

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