

**COMPARISON BETWEEN IMMUNOCHROMATOGRAPHIC CARD TEST AND WIDAL TEST IN PROVISIONALLY DIAGNOSED CASES OF ENTERIC FEVER**Chaudhary Devendra¹, Umar Farooq^{2*} and Vasundhara Sharma³¹Msc. Medical, Department of Microbiology, Teerthanker Mahaveer Medical College and Research Center Moradabad (UP), 244001 India.²Professor and HOD, Department of Microbiology, Teerthanker Mahaveer Medical College and Research Center Moradabad (UP), 244001 India.³Assistant Professor, Department of Microbiology, Teerthanker Mahaveer Medical College and Research Center Moradabad (UP), 244001 India.***Corresponding Author: Dr. Umar Farooq**

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ABSTRACT

Introduction: Typhoid fever is a life threatening systemic infection occurring in less developed areas of the world and continues to be a major public health problem. It is a serious bacterial infection of the intestinal tract and sometime in the blood stream caused by bacterium *Salmonella typhi*. **Aims:** To confirm provisionally diagnosed cases of enteric fever by immunochromatographic card test (typhi-dot test) and widal test. **Materials and Methods:** 100 patients were included in his study. The comparative study of rapid card test and widal test in the diagnosis of enteric fever was conducted for a time period from January 2018 to october 2018 in the department of microbiology Teerthanker Mahaveer Medical College and Research Centre. **Results:** Among 100 patients with suspected case of Typhoid fever were studied. All patients who fulfilled the inclusion criteria immediately undergone for widal and Typhidot test. Out of 100 patients 31 (31%) were males and 69 (69%) were females. Out of 31 male cases Widal test was positive in 12 (38.70%) cases whereas 19 (61.29%) were negative, and in 69 females widal test was positive in 20 (28.98%) cases whereas 49 (71.01%) were negative. Out of total 31 male cases typhidot was positive in 19 (61.29%) cases whereas 12 (38.70%) cases were negative, and in 69 females typhidot was positive in 29 (42.02%) whereas 40 (57.97%) were negative. **Conclusion:** After analyzing the findings of the present study it was concluded that although Typhidot (rapid Diagnostic test) test is highly sensitive and specific test in diagnosing of enteric fever compare to widal test. Typhidot test is a rapid easy to perform more reliable test for enteric fever as compared to widal test and can be useful in early Institution of therapy. However in large prospective study would be required to fully evaluate the usefulness of this test in countries endemic to enteric fever.

KEYWORDS: Typhidot, widal test.**INTRODUCTION**

Typhoid fever is a life threatening infection occurring in less developing areas of the world and continues to be a major public health problem caused by *S. Typhi*. There are at least 16 million new cases of typhoid globally.^[1] The annual incidence of typhoid fever has been reported as more than 13 million cases in asia and causing more than 6 lakhs deaths worldwide annually.^[2] India is the second most popular country of the world with majority inhabiting the rural areas with little access to modern diagnostic tools.^[3]

It is transmitted through person to person contact of feces-contaminated food and water. Fatal complication of typhoid most commonly occur in the second or third week of illness. A syndrome similar to typhoid fever is caused by "paratyphoidal" strains of *Salmonella*, i.e.

salmonella serotype paratyphi: A, paratyphi: B and paratyphi:C.^[4] During the first week of fever these illnesses are not easily distinguished from each other.^[5]

Widal test has been used in the diagnosis of typhoid illness for long time in this country but has a moderate sensitivity and specificity. Typhidot is a rapid serological test for the diagnosis of typhoid fever. However, its usefulness in terms of Specificity and sensitivity as compared to Widal test has not been studied much. This study was undertaken to systematically evaluate the utility of typhidot in diagnosis of typhoid fever in terms of sensitivity and specificity.^[6]

This study was aimed to compare between immunochromatographic card test and widal test in provisionally diagnosed cases of enteric fever.

MATERIAL AND METHODS

This study was done in Microbiology Lab of TMU Hospital from January-2018 To October-2018. Total 100 samples received were tested with both immunochromatographic card test and widal test. Blood sample were collected in a plain vial under all aseptic precautions. Typhidot card test were performed as per manufacturer guidelines. If IgM antibodies to salmonella typhi are not present only one coloured band appears in the control window (C). If IgM antibodies to salmonella typhi are present two coloured bands appears (with window M) in the test and control window. Test however invalid if no band is visible at 15 minutes and the test will be repeated with other card. Widal test (tube method) will also be performed of all the samples for titre and to detect severity of the disease. In the acute stage, Antigen O were positive and titer were more than 1:180 antigen

appears early and also disappear early. H antigen rises late and disappears late. titre were more than 1:160.

RESULTS

Among 100 patients with suspected case of Typhoid fever, 31 (31%) were males and 69 (69%) were female.

Table 1: Widal test result in suspected cases of typhoid cases.

SEX	POSITIVE	NEGATIVE	TOTAL
MALE	12(38.70%)	19(61.29%)	31
FEMALE	20(28.98%)	49(71.01%)	69

Out of 31 male cases Widal test was positive in 12 (38.70%) cases whereas 19 (61.29%) were negative, and in 69 females widal test was positive in 20 (28.98%) cases whereas 49 (71.01%) were negative. As shown in Table 1.

Table 2: Typhidot test result in suspected cases of typhoid fever.

SEX	POSITIVE	NEGATIVE	TOTAL
MALE	19(61.29%)	12(38.70%)	31(31%)
FEMALE	29(42.02%)	40(57.97%)	69(69%)

Out of total 31 male cases typhidot was positive in 19 (61.29%) cases whereas 12 (38.70%) cases were negative, and in 69 females typhidot was positive in 29

(42.02%) whereas 40 (57.97%) were negative. As shown in Table 2.

Table 3: showing comparison between widal and typhidot test.

TOTAL	TYPHIDOT POSITIVE	TYPHIDOT NEGATIVE	WIDAL POSITIVE	WIDAL NEGATIVE
100	47(47%)	53(53%)	32(32%)	68(68%)

Out of 100 samples 47(47%) were typhidot positive and 32(32%) were typhidot negative whereas 47(47%) were positive in widal test and 53(53%) were negative. As shown in Table 3.

the other studies like Zulfiqar ahmed et al 1999. In their study they reported sensitivity of Widal test 63% and specificity 81%.^[7]

DISCUSSION

Enteric fever still remains a major public health problem in many countries. In our study 100 patient serum sample of suspected enteric fever were collected. Out of which 31(31%) were males and 69(69%) were females. Among 31 males, 19(61.29%) were positive in typhidot test and 12(38.70%) were positive in widal test. Among, 69 females 29(42.02%) were positive in typhidot test and 20(28.98 %) were positive in widal test.

A similar study carried out in the southern part of India like Gopalakrishnan R et al 2002 reported, sensitivity of typhi-dot 100% and specificity 80% and was recommended for its utility in conjunction of widal test for an early diagnosis of enteric fever.^[8] In another study, Kalhan R et al 1999 group of Typhoid patient in Pakistan, the sensitivity and specificity of Typhi-dot test is 94% and 77%, and the sensitivity and specificity of Widal test is 63% and 83%.^[9]

Out of 100 patients, 47 were positive and 53 were negative in typhidot test and 32 were positive and 68 were negative in widal test. Among 31 male patients, maximum number of male patient 11(35.48%) belonged to 0-10 age group.

Another study which is similar to our study, BL Sherwal et al 2004 evaluated sensitivity and specificity of typhidot was 100% and 80%. BL Sherwal et al. evaluated in their study the sensitivity and specificity of widal test was 74% and 83% while sensitivity and specificity of typhidot test was 92% and 87.5% respectively.

Among 69 females, maximum number of females patients 34(49.27%) were belonged to 21-30 age group.

P value of ages -- 0.1711412

P value of both tests -- .012142

In our study, we assumed that typhidot test is a gold standard test and the sensitivity of widal test is 69.41% and specificity is 93.65% which is comparable to most of

In age- p value <.05- there is a significant difference due to difference in ages.

In both test -p value $<.05$ - there is a significant differences widal test positive and typhidot test positive.

CONCLUSION

After analyzing the findings of the present study it was concluded that Typhidot (rapid Diagnostic test) test is highly sensitive and specific test in diagnosing of enteric fever compared to widal test.

Typhidot test is a rapid easy to perform more reliable test for enteric fever as compared to widal test and can be useful in early institution of therapy. However large prospective study would be required to fully evaluate the usefulness of this test in countries endemic for enteric fever.

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