Seroprevalence and significant titres of typhoid antibodies in a teaching hospital in Medchal

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ABSTRACT

Typhoid is a common illness in developing countries like India. The significant titres of antityphoid antibodies vary with time. Hence the present study was conducted to know the seroprevalence of typhoid fever antibodies in clinically suspected cases and to know the most common significant titres of TO and TH antibodies in our hospital. Prospective study of 250 serum samples from clinically suspected cases of typhoid were collected over a period of 6 months from June 2012 to November 2012. The samples were screened for anti typhoid antibodies by Rapid slide test. All these samples were then subjected to the Tube agglutination test. Among 250 clinically suspected cases analysed, 91 (36.4%) were seropositive by Widal slide agglutination test and 40 (16%) were seropositive by Widal tube agglutination test. Among the seropositives, 22 (55%) were Males and 18 (45%) were Females and most of them belonged to 10–20 yrs of age. Among the seropositives, majority had a TO titre of 1:80 (70.6%) and TH titre of 1:160 (80%). Seroprevalence of antityphoid antibodies was slightly less in our hospital area when compared to other areas of our country. The age and sex preponderance was same as in other areas. Most common significant titres of TO and TH correlated with local significant titres.

INTRODUCTION

Typhoid is a common illness in developing countries like India [1]. Though definitive diagnosis of Typhoid is by isolation of Salmonella typhi, widal test remains relevant as diagnostic tool for Typhoid fever because it is easily accessible, cheap, and convenient. Most often for practical purposes treatment decision must be made on the basis of widal test results obtained with a single acute phase sample [2]. The significant titres of antityphoid antibodies vary with time [3]. Hence the present study was conducted to know the seroprevalence of typhoid fever antibodies in clinically suspected cases and to know the most common significant titres of TO and TH antibodies in our hospital.

MATERIALS AND METHODS

Serum samples of 250 clinically suspected cases of Typhoid fever were studied for a period of 6 months from June 2012 to November 2012 in Central laboratory, MEDICITI INSTITUTE OF MEDICAL SCIENCES, Ghanpur. The samples were first screened for typhoid antibodies by Rapid slide test, which is done by adding equal amount of undiluted patient serum and typhoid O & H antigens on a plastic slide and observing for agglutination after rocking the slide for 1 minute. All these samples were then subjected to the Tube agglutination test. 0.4 ml of 2 fold serially diluted patients sera [ dilutions from 1:20 to 1:640 ] in 0.9 % normal saline are tested by adding equal amount of antigens. The highest dilutions of the test sera showing evidence of agglutination are taken as significant titres for these antibodies.
RESULTS

Seroprevalence of Typhoid Antibodies

- **Seropositives**: 16%
- **Seronegatives**: 84%

AGE DISTRIBUTION OF SEROPOSITIVES
Percentage of Seropositives showing significant antityphoid antibody titres

<table>
<thead>
<tr>
<th>Total no. of Seropositives</th>
<th>Anti Typhoid Antibodies</th>
<th>Percentage of Seropositives showing significant antibodies titres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T O</td>
<td>1:80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70.6%</td>
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<tr>
<td></td>
<td>T H</td>
<td>0%</td>
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</table>

Seropositives showing significant TO & TH titres

<table>
<thead>
<tr>
<th>Total no. of Seropositives</th>
<th>No. of Seropositives Showing significant T O titres</th>
<th>No. of Seropositives Showing significant T H titre</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>34 (85%)</td>
<td>15 (37.5%)</td>
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DISCUSSION

In the clinically suspected typhoid cases analysed, seroprevalence of antityphoid antibodies was 16% . In the studies conducted in Rajasthan [4] and West Bengal [5], the seroprevalence of these antibodies was 61.4% and 63.1% respectively suggesting a decreased prevalence of antityphoid antibodies in our hospital area. This also explains the varied seropositivity of these antibodies in different parts of our country. But in a similar study conducted in the same district [6] seropositivity of these antibodies was 8.57% suggesting an increased prevalence of antityphoid antibodies in our area when compared to other areas of R.R district of A.P.

The predominant age group in the seropositives was 10 -- 20 yrs in our study group which correlated with the study [7]. Less number of seropositives in older age groups i.e 20 – 30 yrs, 30 – 40 yrs, more than 40 yrs age groups were observed which could be attributed to developing immunity from recurrent infections and subclinical cases.

Among the seropositives in our study, 55% were males and 45% were females. This was in accordance with the male seropositivity of 57.4% and female seropositivity of 42.6% in study [8]. The male preponderance in typhoid cases could be due to exposure to typhoid fever resulting from spending longer time and consuming more food outdoors that may lead to frequent contact with causative bacteria.
Significant titres of anti typhoid O antibody (TO) were seen in 85% of seropositives and significant anti typhoid H antibody (TH) titres were seen in 37.5% of seropositives in our study. The percentage of significant titres of TO and TH was 76.6% and 30% respectively in the study [2] which correlated with the results of our study. The high percentage of significant TO titres when compared to significant TH titres in our seropositives signifies that acute infection is more common in our hospital area.

The cut off values for the local significant titres of antityphoid antibodies in our area are 1:80 for TO antibody and 1:160 for TH antibody [9]. The common significant titres of TO and TH in our study correlated with the cut off values of local significant titres. This suggests that the bacterial load of typhoid infections in our hospital area is not very high thereby necessitating no prolonged treatment to patients.

CONCLUSION

Seroprevalence of typhoid antibodies was less in our hospital area compared to other areas in our country. The age & sex preponderance was same as in other areas. Acute typhoid infection is more common in our area.

Most common significant titres of TO & TH correlated with cut off values of local significant titres.

REFERENCES