

# **TUBEX TF Test Compared to Widal Test in Diagnostic of Typhoid Fever**

**Surya H. \*, Setiawan B. \*, Shatri H. \*\*, Sudoyo A.W. \*\*\*, Loho T, \*\*\*\***

\*Tropic Infection Division; \*\*Division of Psychosomatic,

\*\*\*Division of Hematology-Medical Oncology, Department of Internal Medicine,

\*\*\*\*Department of Clinical Pathology Faculty of Medicine University of Indonesia

## **BACKGROUNDS:**

Diagnosis of typhoid fever is still a health problem in Indonesia. Blood culture of *S. typhi* which was regarded as gold standard only positive in 40-70% of cases suspected as typhoid fever. PCR as another diagnostic tool can not be widely used because of its expensive and limited facilities. Widal test which is widely used because of cheap and easy to perform is influenced by many factors, so it has only 60-80% sensitivity and influenced by many factors, so it has only 60-80% sensitivity and specificity. So we need another serologic test which can give rapid and accurate results but is also high sensitivity and specificity. TUBEX<sup>®</sup>TF is one of several new serologic test that has been studied in several countries and proved to have high sensitivity and specificity result but it is not yet studied in Indonesia.

## **OBJECTIVES:**

To study sensitivity and specificity TUBEX<sup>®</sup>TF test compared to Widal test in diagnosis of typhoid fever which are already confirmed by PCR and or blood culture.

## **METHODS:**

We collected inpatients with suspected typhoid fever (according to Nelwan's typhoid score  $\geq 8$ ) from Dr. Cipto Mangunkusumo Hospital, Persahabatan Hospital and Tangerang Hospital. Patients were interviewed, physically examined, taken blood sample for Widal, *S. typhi* culture, PCR *S. typhi* and TUBEX<sup>®</sup>TF test. Data were processed with SPSS13 statistical programme and plotted in frequency table and cross table.

## **RESULT:**

From May - October 2006, we collected 54 samples that fulfilled the requirement criteria, but 2 samples were excluded because of icteric samples. The 52 samples consisted of 27 (52%)

males and 25 (48%) females with the highest frequency of age is 20-30 years old (53.8%). Result of TUBEX®TF compared to Widal test in diagnosing typhoid fever i.e: sensitivity 100% and 53.1%, specificity 90% and 65%, Positive Predictive Value (PPV) 94.11% and 70.8%, Negative Predictive Value (NPV) 100% and 46.4%, positive likelihood ratio 10 and 1.51, negative likelihood ratio 0 and 0.72. Area below ROC curve 0.950 for TUBEX®TF and 0.591 for Widal Test. Compared to Widal test, the TUBEX®TF test was found to be significant ( $p < 0.05$ ) using Chi square statistical test.

### **CONCLUSION:**

TUBEX®TF test is more sensitive and specific than Widal test in diagnosing typhoid fever.