

	<p>International Journal of</p> <h1>Innovative Drug Discovery</h1> <p>e ISSN 2249 - 7609 Print ISSN 2249 - 7617</p> <p><a href="http://www.ijidd.com">www.ijidd.com</a></p>
---	---

## LABORATORY DIAGNOSIS OF MALARIA, ENTERIC FEVER AND DENGUE INFECTIONS IN PYREXIA OF UNKNOWN ORIGIN CASES AT TERTIARY CARE HOSPITAL

**Narayan Shrihari\***

Associate Professor, Department of Microbiology, Vijayanagar Institute of Medical Sciences (VIMS), Bellary-583104, India.

### ABSTRACT

Malaria, Enteric fever and Dengue still remain diseases of major public health importance in tropics. The individuals from endemic areas and also these three infections are classified under pyrexia of unknown origin (PUO). Laboratory diagnosis of Malaria, Enteric fever and Dengue infections by utilizing Peripheral Smear (PS), Slide agglutination test (WIDAL) and Rapid immunochromatography test (NS1R-ICT) respectively in PUO cases. Material and The laboratory records of clinically suspected PUO cases from January to August 2014 were analyzed retrospectively and tests were performed by following the manufacturer's instructions. Result: In the present study the majority of PUO cases are diagnosed as Dengue (23.33%) followed by Enteric fever (12.63%) and Malaria (0.47%). These tests should be a useful aid in confirming the clinical diagnosis of PUO. The WIDAL test has significant role in pyrexia evaluation. Both Malaria and Dengue could be controlled by vector (Mosquitoes) with good personal and environmental hygiene.

**KEY WORDS:** Pyrexia of Unknown Origin (PUO) and Rapid immunochromatography test (NS1R -ICT).

### INTRODUCTION

The Malaria caused by parasite (Plasmodium falciparum, P vivax, P ovale & P malariae) by a vector mosquito bites and causes febrile illness with complications. P falciparum causes majority of malaria related morbidity and mortality [1,2]. The Enteric fever caused by gram negative bacilli (Salmonella typhi, S paratyphi A, B & C) transmitted by faecal-oral route when contaminated food or water is consumed or from contaminated hands causes febrile illness [3]. The Dengue viruses (Serotypes DEN 1,2,3 & 4) are transmitted by blood sucking arthropods from one vertebrate host to another. The vector acquires a lifelong infection through the ingestion of blood from a viremic vertebrate host. The viruses multiply in the tissues of the arthropod without evidence of disease or damage [4]. The dengue is a flue like viral disease characterized by fever, rash, muscle and joint pain. It is spread by the bite of infected Aedes mosquitoes. However Malaria, Enteric fever and Dengue share similar symptom logy.

### MATERIAL AND METHODS

The study was conducted at a tertiary care Hospital from January to August 2014. Blood samples from suspected PUO cases were included in our study. Blood should be collected few hours after the height of the paroxysm of fever and before antimalarial treatment. Thick and thin blood smears are made at same time from capillary blood and these smears stained by Leishman's stain for malarial parasites. Aseptic precautions, two to five ml of blood samples were collected by venipuncture from PUO suspected cases and samples were transported to the Microbiology laboratory in vaccine carriers with duly filled requisition forms. The serum was separated by centrifugation of the whole blood sample and if delay in testing stored in the refrigerator at -20°C [5]. The test kits used were TYDAL (WIDAL Antigen set), Verna Industrial Estate, TULIP Diagnostics, Verna, Goa, India and Dengue Day1 rapid ICT by J Mitra Co.Pvt Ltd Okhla Ind area Ph-1, New Delhi, India. These tests were performed strictly as per the manufacturers' instructions.

**Table 1. The Results of Malaria (PS), Enteric fever (WIDAL) and Dengue (NS1R-ICT)**

Malaria			Enteric fever			Dengue		
Positive	Negative	%	Positive	Negative	%	Positive	Negative	%
18	3790	0.47	381	2636	12.63	258	848	23.33

**RESULTS**

During eight months of study period, 3808 peripheral smears (PS) screened for malarial parasites, out of these 18 were positive (0.47%) followed by 3017 serum samples for Enteric fever tested using TYDAL, out of these 381 were positive (12.63%) and next 1106 serum samples were analyzed by dengue NS1 rapid ICT, out of these 258 (23.33%) samples were positive for dengue NS1 antigen [Table No: 1].

**DISCUSSION**

The majority of PUO cases are properly diagnosed by laboratory tests. According to previous studies more common Dengue and some studies Enteric fever/ Malaria. Clinically the dengue virus infection may remain asymptomatic or become symptomatic as dengue fever, dengue hemorrhagic fever or dengue shock syndrome [6].

The relatively benign dengue fever present with high grade fever accompanied by headache, retrobulbar pain, muscle & bone pain and generalized petechial rash. Laboratory diagnosis according to some studies (concerned to Malaria & Enteric fever) [1], some discussed only Malaria [2] and some included only Enteric fever [3]. In the present study included Malaria, Enteric fever and Dengue which is similar to previous studies [1, 2, 3].

**CONCLUSION**

The vector (mosquitoes) control is important preventive measure in community. The proper sanitation, public health education and vaccination (Enteric fever) are the long term preventive measures are essential to control Malaria, Enteric fever and Dengue. The results of our study are important in diagnosing PUO cases as early as possible by mentioned tests and it clearly establishes the etiology.

**REFERENCES**

1. Uneke CJ. Concurrent Malaria and Typhoid fever in the tropics, the diagnostic challenges and public health implications. *Journal of Vector borne Diseases*, 2008, 45, 133-142.
2. Patrick Kachur S, Elda Nicolas, Vely Jean Francois. Prevalence of Malaria parasitemia and accuracy of microscopic diagnosis in Haiti, October 1995. *Rev Panam Salud Publica/ Pan Am J Public Health*, 1998, 3(1), 35-39.
3. Vallab Ganesh Bharadwaj B, Vazhavandal G, Uma A, Chitra Rajalakshmi P. Prevalence of Enteric fever in patients with pyrexia of unknown origin. *Asian Journal of Biomedical and Pharmaceutical Sciences*, 2014, 4(28), 39-42.
4. Jawetz, Melnick, Adelberg. Arthropod borne and Rodent borne viral diseases In, *Medical Microbiology*, Chapter 38, 23<sup>rd</sup> edition, Singapore, The Mc Graw Hill Companies, 2004, 514.
5. Anuradha SK, Surekha YA, Sathyanarayan MS, Suresh S, Krishna S, Satish SP, Mariraj J, Ravikumar R. Japanese Encephalitis virus, common cause of viral encephalitis in paediatric age group in Bellary, Karnataka. India. *Journal of Clinical and Diagnostic Research*, 5(3), 2011, 480-482.
6. Noshin WY, Naeem K, Roheena A, Nasir I. Comparison of diagnostic devices for Dengue virus infection-A pilot study. *Journal Ayub Med Coll Abbottabad*, 20(4), 2008, 26-28.