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A Review Article on Diagnostic Methods and Treatment of Co-Infection of Malaria and Typhoid

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ABSTRACT

Malaria and Typhoid both are caused by parasites. Both are most common infectious diseases in throughout the world. According to WHO researches Malaria and typhoid are affected in rural and urban areas. Malaria is caused by an obligate intercellular plasmodium parasite (*Plasmodium vivax*, *Plasmodium falciparum*, *Plasmodium malariae*). Once they entered into the host erythrocytes they change their cells and structure to create an optimal for their own needs. They damage the erythrocytes structure also. According to the recent researches to estimate the malaria is responsible for 1 to 3 million deaths and 300 to 500 million infectious are occurred. Annually typhoid fever is widely affected in tropical and rural areas or countries. Typhoid that is a systemic attenuated virus described by such an acute illness, the common manifestations like fever, headache, abdominal pain and leucopenia. An alliance between both the malaria and typhoid co infection was first invented or recognized in the medical literature in the middle of 19th century.



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INTRODUCTION

The main purpose of this overview is to provide scientific evidence from studies conducted in the tropical regions and also to give information on disease and typhoid fever co-infection, its occurrence and the reasons for their co-infection.

Salmonella typhi and the malarial are occurred in the intestinal tract of a human. That human has high pathogenicity and frequently invasive disease. They cause symptoms that vary from mild to severe and usually occur 6 to 30 days after exposure to the parasite. The main causes of severe fever occurred after several days [1].

Collected information about co-infection of Malaria and Typhoid from recent articles of 6 years of research and review articles. They include the effect of Malaria and Typhoid throughout the world and how to conduct the diagnostic test for detecting the combination of infectious Malaria and Typhoid. Number of diagnostic methods involved in the detection of Typhoid and Malaria in the single patient are observed and noted. The number of combinations of drugs used in the treatment of diseases that develop resistance to that drug, then using multiple drug therapy [2].

This drugs causes the adverse drug reactions and side effects are also caused. And also noted the contraindications also these co-infections typhoid and malaria are most affected by tropical and rural areas people in throughout the world.

Diagnostic Methods on Malaria and Typhoid Co-Infection

Liver enzymes assertion in malaria typhoid results of the presence can elevate ALP, AST, ALT, TB and CB serum stages can results in liver problems when its not provided a proper treatment. The parenchyma transaminase and gamma glutamyl transpeptidase enzymes are released out they can be find out in the circulation then leads to increase enzyme activity. The liver is enlarged during the starting stages of malaria infectious disease of typhoid therefore the infectious disease of typhoid therefore the microbes creates the inflammatory on it liver if the treatment not given to typhoid and malaria leads to damage the liver [3].

The liver function test was detected by the Abia state university teaching hospital. Those conduct the research to select the patients between the years of 22-40 years samples of blood have been gathered the patient populations these were all filtered in the existence of plasmodium species and *staphylococcus typhi* infection. Those patients can divide into alom malaria and typhoid coinfection. Those invented the coinfection of typhoid and malaria patients conduct liver function test. The levels are affected to recognize [4].

Sample Collection and Processing Method

The samples of blood have been aseptic conditions obtained from patients. The two sample was placed bottles have been used for each client, anticoagulant bottles have been used for plasmodium species test and sterilized bottles were being used for widal and liver function assay.

The samples of blood were gathered stressed with either of the arm or even the plunger of the syringe [5]. The sample were collected in anticoagulant containers have been tested immediately for plasmodium species after staining the film with field stain whilst these samples that really are present in plain tubes were supposed to allow to clot and also the coagulated sample by centrifugation to acquire the sera. The sera have been kept separate into empty sterilized containers and cached in refrigerator at 20°C Celsius till the assessment that were of course used in the widal and liver enzymes assays inside one week interval [6].

Sample Collection Process

Three milliliters (3ml) of blood samples were

obtained out of each patient into sterile conditions EDTA falcon tube by provided with training phlebotomist. Disease diagnosis utilizing antigen based effective screening test (RDT) the Paracheck-Pf test kit was separated out of its seal as well as the plasma from of the EDTA flask was essentially wiped into specimen screen present upon the testing kit 2 drops plasmodium species test kit buffer was got to add to the sample of blood in the specimen window and made to proceed through to the room clearly labeled test (t) and control windows [7]. The exam was permitted to operate regarding 10 minutes The looks of colored music group row there at control screen only, suggests a legitimate but negative results. The test was permitted to run for 10 mints the looks of coloured band line just at control screen only, suggests a legitimate but negative test. The colored band lines being seen at the exam window (T) and control screen shows a positive test. If there's no full throttle being seen just at control screen, it is therefore constructed as incorrect and the test is replicated [8].

Widal Test

The agglutination testing was done on all samples of blood even by rapid slide titration technique utilizing cal test diagnosing [Figure 1]. The widal commercial antigen suspended again for somatic and flagella antigen by going to add one drop of a widal antigen suspended to a reaction circles usually contains the clients serum. The information of the each circle had been uniformly so over a whole circle with completely separate mixing sticks [9]. The glides smoothly were gently swayed back and forth and noticed for turbidimetric for one minute. An optimistic widal test was regarded about any serum sample with antibody titre $\geq 1:160$ towards the O and H antigens of *S. typhi*.

Assessment of Packed Cell Volume (PCV) and Haemoglobin (Hb)

The concept of a PCV test is indeed the ability of various blood products to pack with according to their own rate of sedimentation now since samples were centrifuged for 5 minutes to use the haematocrit centrifuge [10]. Likewise haemoglobin also was approximated by Sahli's haemoglobinometer.

Total White Blood Cell Count

The whole WBC count was resolute by accurate measurements 0.38 ml of Turk's solution using 1ml dropper into a clean sample cell wherein 0.02 ml (20 μ L) of sampe of blood was assessed using a micropipette, mixed and cultured for 1 hour [11]. WBC count had been read microscopic examination by going to count one of the cells as shown on the

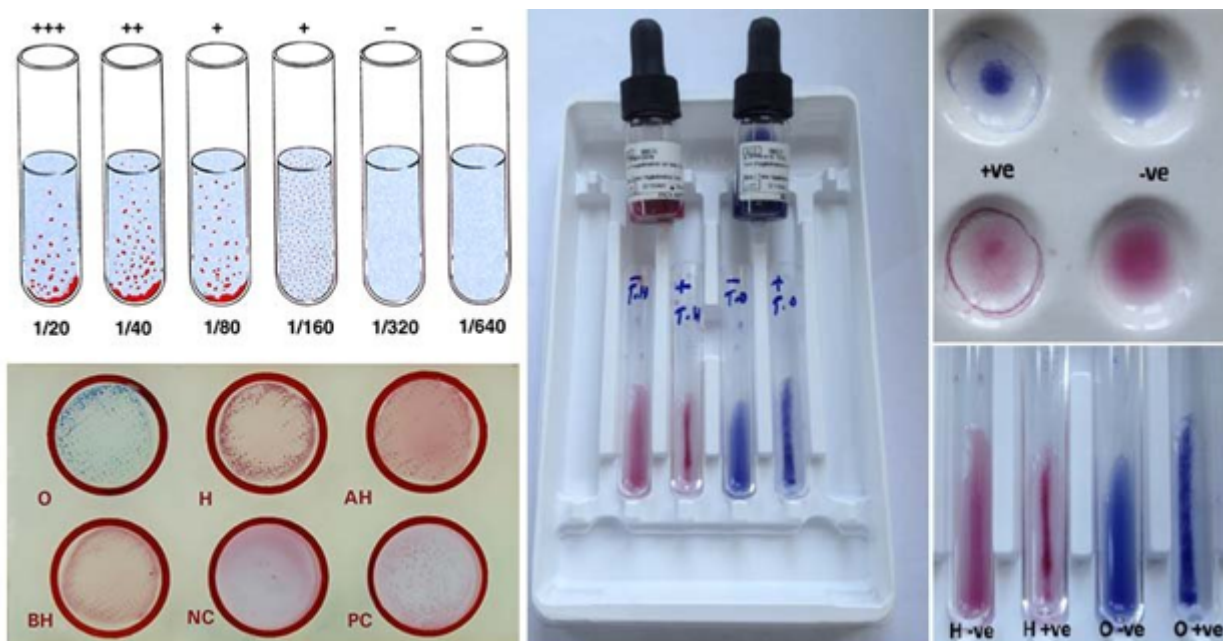


Figure 1: Widal Test Kit

hemocytometer.

WBC Differential Count

The identify of a several types of white blood cells had been done. In trying to identify the number of various WBC a thin blood smear was decided to make, stained with leishman stain, noticed microscopic examination to use the x100 goal or a significant number of WBC had been recorded [Figure 2].

This tried to give share of cell lines which are of each type by doubling the share by the maximum number of WBC, absolutely the number of each sort of WBC was acquired. Five different types of WBC were experienced lymphocytes, monocytes, neutrophils, eosinophils and basophils. The *Salmonella typhi* / *salmonella para typhi* A and B microbes were selected on the basis of normal based on culture microscopic and biochemical categorization [12].

The widal agglutination testing was done on any and all samples of blood by pipe agglutination technique using commercial antigen suspended (Thypocheck). For the somatic O and flagellar H antigen.

Treatment

The recent emergence of a particularly resistant typhoid strain in India, and subsequent international spread, adds urgency to this problem and Salmonella is now listed as a high (Priority 2) pathogen by world health organization. Treatment with combinations of antimicrobials may be more effective for treating typhoid fever and mitigate the problems of resistance [13].

Amodiaquine, Lumefantrine, Mefloquine, Sulfa-

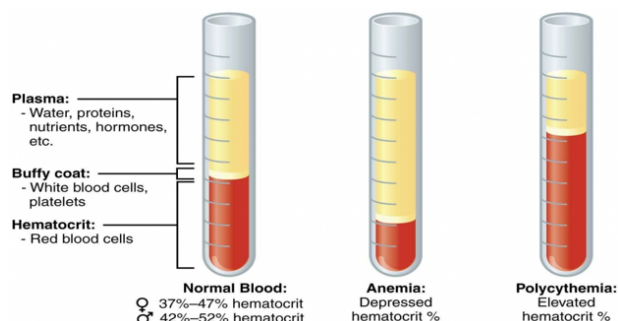


Figure 2: Normal Blood, Anemia and Polycythemia

doxine/pyrimethamine, Azithromycin, Zithromax, Ampicillin, Cipro I.V, Cipro XR

Prevention

Clean your hands with common palm in hot cleaning solution is the ideal way to regulate infection. Refrain from drinking unclean water. Contaminated drinking the water is a specific issue in area in which typhoid fever is inherent [11]. Safety on that mosquitos include using mosquito nets the going to wear of garments that encompass almost all of the body and the use of insect repellent on bare flesh.

Signs and Symptoms

The experiment design inspection the many malaria increases rapidly and self assured elevated amount in clinical characteristics. The typhoid fever rises slowly at the third week. Similar symptoms are headache and fever [14]. Rose spots are also observed in this co-infection on the skin. Splenomegaly is abdomen in both infections.

Malaria begins with shaking chills. When compared to typhoid begins a single morning shaking chill. Wbc cell counts are decreased. Ldh (lactate dehydrogenase) are the differentiated malaria and typhoid. Increasing the body temperature.

CONCLUSION

Malaria and thyroid co-infection was the major public health problem in the world. Major in rural and subtropical countries. This co-infection occurred mainly in young peoples. This malaria and typhoid co-infections diagnostic test is hematological and liver and serum clinical terms are used to detect the co-infection. This co-infection of malaria and typhoid combination of drugs are used. These drugs are developing the resistance by using long time. Then using multidrug therapy of drug to treat the infections. Thus co-infection spreads from one person to other by using vectors. Thus added the drugs combinations.

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Conflict of Interest

The authors declare that they have no conflict of interest in this study.

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