

The Rate Of Malaria Parasites Co –infectionSalamoellaTyphO And Para-TyphiBO In Khartoum State

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Abstract

Background: .

Malaria is serious vector –borne tropical diseases that remains one of the primary reasons for death in several countries . Malaria and typhoid co-infection is a major public health problem in many developing countries. Most of the co-infections treated are based on methods of diagnosis plagued with assumptions which possibly exaggerate the situation.

Objective: This the aim of this work was to investigate the rate of co-infection with respect to the use of direct Widal test for diagnosing typhoid fever in Khartoum state .

Method: This was based descriptive cross-sectional malaria of Plasmodium falaciprum and Salamoella. A total of 100 blood samples were collected from patients with a clinical of malaria positive and examined for malaria parasites and S. typhi infection.

Results: This study was conducted in Khartoum State between 2020 to 2021 in individual form different age groups form both male and female, out of 100 samples were positive for malaria parasites(Plasmodium falciprum) by blood films (100%) and immunochormatography test 80(80%) , 52(52%) of which were positive for salmonella typhiO and 18(18%) salmonella para- typhi BO by the direct Widal test.

Keywords: Malaria, typhoid fever, co-infection

1.Introduction:

Malaria and typhoid fever often present with mimicking symptoms especially in the early stages of typhoid [1]. Thus it is very common to see patients undergoing both typhoid and malaria treatments even if their diagnosis has not been confirmed. There are more typhoid cases in areas of drug resistant malaria and a cross reaction between malaria parasites and salmonella antigens may cause false positive Widal agglutination test.[2] A reliable diagnosis of typhoid is based on culture of blood, stool and bone marrow. The treatment of malaria and typhoid co-infection is a common phenomenon in many parts of Africa.[3]

Malaria and typhoid remain a treat to many people in Sub Saharan Africa for several reasons: the increasing poverty, deterioration in public health services, compounded by HIV / AIDS and increasing resistance of malaria parasites to chloroquine;[4] the lack of portable water and widespread misuse of the Widal agglutination test for diagnosing typhoid fever, [5,6] increased requests for Widal tests as a means of making quick money by private laboratories are other factor. [7]

Materials and methods

Study Design and population:

This was a based descriptive cross-sectional study. The study was conducted in Khartoum State between 2020 to 2021 in individual form different age groups form both male and female. Study Population: The study population included 100 Sudanese patients 64 males and 36 females at different ages. The patients that attended to Omelhessin center in at Khartoum and other patients referred to the laboratory .

Sampling and Sample Size: 100 patients were asked to participate in the study. Sampling was used to select study participants, and data was collected during the period from December. 2020 to November, 2021. Samples of 3 ml venous blood were collected in plain container all individuals included in the study and then were centrifuged at 3000 rpm for 5 minutes , one drops of blood sample were examine by ICT test and (3-4) drops to make thin and thick blood films.

Parasitological examination

Giemsa-stained thick and thin blood films were prepared for each sample and parasitaemia was evaluated per microliter of blood using the thick film preparation according to standard methods [8] assuming a leukocyte count of 5400 μ l [9] of blood established for healthy Nigerians [10] Films were examined microscopically for the presence of malaria parasites within red blood cells in thin films. For thickfilms, the ring forms, trophozoites and gametocytes were looked for. A smear was considered negative for Malaria parasites if no parasites were seen after examining at least 100 microscopic fields. The number of parasites l μ L of blood was expressed as (parasite count X 5400)/No of leucocytes counted, which was 100.

Widal test

The Widal agglutination test was performed on all blood samples by the rapid slide titration method [11] using commercial antigen suspension (Cal-Test Diagnostic Inc. Chino, U.S.A.) for the somatic (O) and BOand flagella (H) antigens. The slide titration test is the prevalent method of performing the Widal test in Zaria and other parts of Nigeria. [12,13]A positive Widal test was considered for any serum sample with antibody titre ≥ 1 in 160 to the O antigen of S. typhi and para typhiBO.[14]

Data analysis

Relevant data were analyzed statically using the computer program , statically package for social sciences ,version 21 (SPSS Inc ., Chicago, IL).

Ethical Considerations

The Verbal information and a written consent form were obtained from study patients prior to the commencement of the study and Omelehessin center management

Results The results of this study are based on parasitological examination for malaria parasites and serological tests for the diagnosis of typhoid fever in 100 patients attending to Omelhessin center diagnosis positive malaria by blood films 100 positive and 80 postive by ICT . The patients comprised 36 females and 64 males, the aged 10-25 years Malaria parasites were found in 53 (53%) out of them 38 (38%) salmonella typhiO

Table 1. The prevalence Malaria Parasites Co –infectionSalamoellaTyphOAnd Para- Typhi BO in all study groups:

Examine	Positive malaria	S typhio	S para typhi BO
Blood films	100(100%)	62(62%)	18(18%)
ICT	80(80%)	49(49%)	7(7%)
Male	64(64%)	34(34%)	18(18%)
Female	36(36%)	9(9%)	3(3%)
10-25	53(53%)	38(38%)	7(7%)
25-40	17(17%)	15(15%)	2(2%)
40-55	30(30%)	22(22%)	4(4%)

Discussion

this study conducted to diagnosis malaria parasite related to co –infection with typhoid fever, showed that the rate of infection with malaria 100individual positive (100%) detected by blood films and 80% positive by ICT ,the co-relation infection showed 80% were typhoid positive (52% salmonella typhi O and 18% salmonella para typhi BO) compare with the study done by Florence A. Mbuh 2003 in (Zaria, Nigeria) Sixty samples were positive for malaria parasites, 22 of which were positive for typhoid by the Widal test showed that higher due to malaria parasite can reduce immune response which lead to increase risk to infected and reactivate of enteric Bactria,The results showed that age groups 10-25 years were highest that other age groups in our study similar(agree) the rate of infection highest in zaria and Nigeria between age groups 12-30years done by Florenc A. Mbuh 2003.The study showed the rates of co-infection was highest in male (out of 64% malaria positive by blood films and ICT) 52 % were positive widal test (34% salmonella typhi O and 18% salmonella para typhi BO) compare with female 36% were positive widal test (9% salmonella typhi O and 3% salmonella para typhi BO) male was most frequency expose to co –infection due to behavior which lead to most expose to risk of

infection In addition, a correlation analysis showed that the presence of malaria parasites had no specific ,relationship with S. typhi O and S para typhi BO levels in malaria patients and carriers of malaria parasites. it is common to find patients receiving typhoid malaria treatment simultaneously since medical practitioners usually rely on a single Widal test result for the diagnosis of typhoid fever. Moreover clinicians are often compelled by patient's behaviour to prescribe anti-typhoid drugs even when Widal test results are not suggestive of typhoid. outcome of the Widal reaction for patients with a clinical suspicion of typhoid and malaria depends on individual host immune responses, which become stimulated in febrile conditions associates with malaria fever.

Conclusion:The prevalence of typhoid and malaria co-infection will greatly reduce if the diagnosis of typhoid fever in malaria endemic areas

RECOMMENDATION

Diagnosis of co- infection malaria and enteric fever in endemic areas by use various advance methods ,combinations drug it importance for treated infection.

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