بسم الله الرحمن الرحيم

Sudan University of Science and Technology

College of Graduate Studies and Scientific Research



Screening of Malaria Parasite in Blood Donors to the Blood Bank of Khartoum North Teaching Hospital

مسح وجود طفيل الملاريا لدى المتبرعين بالدم ببنك الدم بمستشفى الخرطوم بحرى التعليمي

A thesis submitted in partial fulfillment of the requirements for master degree of medical laboratories sciences (parasitology and medical entomology)

By:

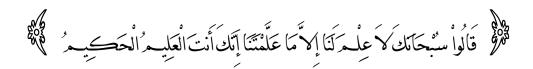
Omeer Bushra Elhag Elobead Omer
B.SC. OF medical lab sciences

Supervisor:

Dr. Mohammed Baha Eldin Ahmed Saad M. SC , Ph.D. 2012

قال تعالى:

بسم الله الرحمن الرحيم



صدق الله العظيم

سورة البقرة - الآية (32)

Dedication

To my beloved and blessed parents who did everything for me .

To my dear brother and my sister

To my teachers and my colleagues

To The people whom I love , respect and appreciate

Acknowledgment

First of all I would like to thank my god who gave me the power and patience to reach the success.

Especial thanks to my supervisor Dr/Mohammed Baha ELDin Ahmed Saad for his close supervision and guidance. Without his help this work could not have been done.

My thanks are also extended to all members of the department of medical parasitology, college of medical laboratory sciences, Sudan university of science and technology.

I am also indebted to the staff of the blood bank of Khartoum north teaching hospital for their great support and help during the study.

Abstract

This study was conducted in Khartoum North Teaching Hospital to detect malaria parasite in blood donated before being transfused to the recipients. All the donors were males.

Blood from 200 donors was examined for the presence of malaria parasites .

Out of the 200 donated blood, 4 were found positive for malaria parasite, using thick and thin blood film. This constituted 2% of the blood examined.

Applying I. C. T for 100 blood samples from the same group revealed the presence of malaria parasite in 2 cases constituting a prevalence rate of 2%.

The prevalence among the 20-30 age group was 3/140~(2.14~%), while among the 31-40 years age group, it was 1/60~(1.67%).

الخلاصة

أجريت هذه الدراسة في مستشفى الخرطوم بحري التعليمي بغرض فحص طفيل الملاريا لدى المتبرعين بالدم قبل نقله إلى المستقبلين. كل المتبرعين كانوا ذكور حيث أخذت 200 عينة دم من المتبرعين.

فحص العينات أوضح وجود 4 عينات موجبة لطفيل الملاريا وذلك بإستعمال طريقة المسح (سميك ورقيق) وتمثل هذه النسبة نسبة إصابة تقدر بـ 2% من العينات المفحوصة.

عند فحص العينات بطريقة الفحص المناعى السريع (100 عينة) تم تشخيص 2 عينة موجبة لطفيل الملاريا وهي تمثل نسبة إصابة 2%.

كانت نسبة الاصابة وسط المجموعة العمرية من 20 – 30 سنة 140/3 بنسبة (1.67%) بينما الإصابة كانت 60/1 بنسبة (1.67%) وسط الفئة العمرية من 31 – 40 سنة .

List of contents

	Торіс	Page
	Dedication	I
	Acknowledgment	II
	Abstract (English)	III
	Abstract (Arabic)	IV
	List of contents	V
	List of tables	VII
	List of figures	VII
	Chapter One	
1-1	Introduction	1
1-2	The plasmodium	2
1-3	Life cycles	3
1-4	Clinical features	5
1-4-1	Plasmodium falciparum infection	5
1-4-2	Plasmodium malariae	6
1-4-3	P.vivax and P.ovale	6
1-4-4	Pathogenesis of malaria	7
1-5	Malaria in pregnancy	7
1-6	Immunity in malaria	7
1-7	Diagnosis of malaria	8
1-7-1	Direct diagnosis	8
1-7-2	Serodiagnosis	9
1-7-3	New methods of diagnosis	10
1-8	Global epidemiology of malaria	12
1-8-1	Malaria situation in Africa at the border with Eastern	12
	Mediterranean region (EMR)	
-8-2	Malaria situation in Sudan	14
1-9	Malaria in blood donated in Sudan	15
1-10	Malaria in blood donors in a Nigeria	15
1-11	Transfusion –transmitted of malaria in the United States	15

	Chapter two: Materials and methods			
2-1	Study area	17		
2-2	Study population	17		
2-3	Type of study	17		
2-4	Sample size	17		
2-5	Methodology	17		
2-5-1	Collection of blood	17		
2-5-2	Making thin films	17		
2-5-3	Making thick films	18		
2-5-4	Preparation of Giemsa stain	18		
2-5-5	Preparation of buffer water	19		
2-5-6	Staining of blood films for malaria	19		
2-5-7	Examination of blood films for malaria	20		
2-5-8	Examination of thick blood film	20		
2-5-9	Examination of thin blood film	21		
2-5-10	I.C.T method	21		
Chapter three				
	Results	22		
Chapter four				
	Discussion	25		
	Conclusions and recommendation	27		
	References	28		

List of tables:

	Title	Page
Table 1	The overall prevalence rate of malaria parasites in blood	22
	donated to the hospital using BF	
Table 2	The prevalence rate of malaria in donated blood using	23
	ICT.	
Table 3	The prevalence rate of malaria in donated blood according to the age groups using blood film.	24

List of figures:

	Title	Page
Figure 1	The overall prevalence rate of malaria parasites in blood donated to the hospital using BF	23
Figure 2	The prevalence rate of malaria in donated blood according to age groups using blood film.	24