Dedication

To ……

Memories of my father, sister and brother

To ……

Whom may God bless me because of her prayers …..

Mother !!

To ……

Sarah, my parter-in-life.for her love, support and encouragement

To ……

Yousif, my son, whom I love so much for making every day joyful and exciting

To ……

The people, whom I love, respect and appreciate

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Abstract

The present study was carried out using blood samples collected from malaria endemic area in Sinnar state, this area is characterized by seasonal but stable malaria transmission. In this study 100 blood samples were collected from malaria patients who reported to the health clinic, to compare the detection of *P.falciparum* using blood film, ICT and PCR methods, furthermore the parasitaemia were determined in all collected samples.

Using microscopic blood examination method *P.falciparum* infection was detected in on 100 blood samples then parasitaemia were counted, the gender ratio of the participants was 57 females : 43 males. Children (6 – 14 years) were the most affected age group (54 %) in both sex (26 % girls & 28 % boys) with average parasitaemia 6872 ± 11225 parasite/µL, children less than 5 years (21%) had the highest parasitaemia (average parasitaemia 18967 ± 31060 parasite/µL). Lower parasite rate (3%) were found in females of age group (41–60 years) (average parasitaemia 1319 ± 913 parasite/µL). No infection was appeared in males of age groups of (41 – 60 years) and (> 60 years).

Using P.C.R technique the presence of DNA of *P.falciparum* was detected in all collected samples. The immunological technique (ICT) was applied to detect *P.falciparum* by detection of Histidine Rich Protein – 2 (HRP-2) using I.C.T which prepared with Anti-HRP-2 antibodies, the results showed the presence of *P.falciparum* antigen in all samples.

The data presented here, has provided a strong evidence to support the reliability of these methods in diagnosis of parasite in malaria patient.

The blood smear, polymerase chain reaction and immunochromatography test had similar sensitivity in diagnosis of *P.falciparum* malaria.

الخلاصة

أجريت هذة الدراسة على مجموعة من العينات تم جمعها من مناطق ملاريا وبائية الإصابة بولاية سنار بغرض الدراسة حيث تتميز هذه المنطقة بمعدل نقل موسمى لكنه ثابت لإنتقال طفيل الملاريا , فى هذه الدراسة تم إختيار 100 عينة دم لأشخاص مصابين بالمرض بطريقه عشوائيه حسب تقارير الوحدات الصحية بالمنطقة بغرض التأكد من وجود طفيل الملاريا نوع المتصوره المنجليه بإستخدام طريقة الفحص المجهرى للمسحة الدموية و الإختبار المناعى (ICT) و من ثم الإختبرالجزيئى (PCR) و من ثم معرفة كثافة الطفيل فى كل عينة على حدة.

أستخدم الفحص المجهرى للكشف عن وجود الطفيل(المتصوره المنجلية) و منْثَمّ معرفة كثافته فى كل عينه, أظهرت النتائج إجابية كل العينات ومعدل الجنس بين المشاركين كانت 57 للإناث : 43 للذكور, أوضت البيانات أن الأطفال (6-14 سنة) هم الأكثر تردداً فى كلا الجنسين (54 %) (26% بنات و 28% أولاد) بمتوسط كثافة 11225parasite/µL±6872 أما الأطفال أقل من خمس سنوات (21%) فقد سجلوا أعلى كثافة بمتوسط كثافة parasite/ µL of blood 31060±18967 , أما أقل كثافة (3%) فكانت فى النساء ما بين 41-60 سنة بمتوسط كثافة parasite/ 31060±1319 µL of bloodبينما إختفت فى الإصابه فى مجموعتى الرجال ما بين 41 - 60 سنة و 60 سنة فأكثر.

بإستخدام تفاعل البلمره التسلسلى تم التأكد من وجود نوع الطفيل (المتصوره المنجلية) فى كل العينات , أجريت بعد ذلك عمليات الإختبار المناعى لكشف عن الطفيل و ذلك بوجود البروتين غنى الهستيدين 2 بإستخدام جهاز ICT المعد بالأجسام المضادة للبروتين أعلاه , تطابقت نتائج هذه الإختبارات فى كل من الفحص المجهرى و تفاعل البلمره التسلسلى بنسبة .

أوضحت بيانات هذه الدراسة أن هناك دلائل قويه تؤكد فعالية هذه الطرق فى الكشف عن الطفيل لدى الشخص المصاب بالمرض.

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WHO	World Health Organization
MSP-1	Merozoite Surface Protein - 1
MT	Malignant tertian
EBA	Erythrocyte-Binding Antigen
AMA-1	Apical Membrane Antigen - 1
MEF	Mosquito Exflagellation Factor
DIC	Disseminated Intravascular Coagulation
G.6.P.D	Glucose-6- Phosphate Dehydrogenase
MHC	Major Histo-compatibility Complex
TNF	Necrosis Factor
TH1	T-helper -1
TH2	T-helper -2
CQ	Chloroquine
AQ	Amodioguine
QBC	
pLDH	Plasmodium Lactate Dehydrogenase
IFAT	Immune Flourcence Antibody Test
IHA	Indirect Haemagglutination
ELISA	Enzyme-Linked Immunosorbent Assay
PCR	Polymersae Chain Reaction
L.F.T	Liver Function Test
TBE	Tris Boric EDTA
FISH	Fluorescence in situ Hybridization