

Dedication

This work is dedicated to my:

Parents

Brothers

Sisters

Sons

Daughter

&

Wife

Acknowledgment

First of all my prayers and thanks to **Allah**, the lord of worlds, most gracious most merciful.

I am deeply indebted to my great and gentle supervisor **Dr. Mohammed Baha Eldin Saad** for his valuable and appreciated help, support and guidance during this study. Without his help, patience and assistance, this work could not have been established.

My appreciation and thanks are extended to my colleague **Mohammed Abdalh**, the manager of health insurance in Kosti for his support and help. Many thanks to the **staff of kosti reference laboratory for malaria** for their help and support. My thanks are also extended to **Ustaz Ahmed Galander** who encouraged me throughout the period of the study.

I am grateful to all academic staff, technologists and other members of the **department of Parasitology and Entomology**, Sudan University of Science and Technology.

My Gratitude is also extended to all **colleagues working in Kosti laboratories.**

Abstract

This study was conducted in the medical laboratories in Kosti city. The laboratories comprised the governmental, non -governmental and private sector labs, to evaluate the result of malaria diagnosis by microscopy. 524 samples were taken by different laboratories. From each individual, a duplicate sample was taken for follow up by the investigator. From the blood sample, thick and thin smears were prepared, stained by Giemsa and examined microscopically to compare the results of each laboratory. The smears were examined by the investigator, in addition some of the slides examined by the laboratories under survey were sent to the reference laboratory of malaria administration in Kosti for further confirmation of the results. The results were as follows:

- The rate of the false positive results in all laboratories reached 63%.
- The highest false results (79%) were reported by the governmental laboratories, while the non governmental laboratories and private laboratories reported 55 % and 48 % false results respectively.
- The difference was found to be statistically significant.
- Although the collection of the samples was done properly the percentage of the false positives reached 67% and when collection of the samples was done improperly, the percentage reached 63%.
- The study showed that when blood smears were done properly, the false positives rate reached 20%, and when the blood smears were done improperly the rate reached 65%.

- When the smears were properly stained, the false positives rate was 30% and when the smears were improperly stained, the rate was 69%.
- When evaluating the effect of the general condition of the laboratory (building, electricity and water supply, space and cleanness) on the performance of the result the false positives reached 63% in both good and bad condition laboratories.
- Despite the use of good and efficient microscopes the rate of false positives results reached 67% and 50% when inefficient microscopes were used.
- The study showed that, when a good quality immersion oil, was used the false positives results was 46% and reached 83% when the quality of immersion oil is bad.
- The study showed that the false positive result reached 77% among personnel who did not receive training in malaria and 39% in those who received training in malaria.
- The result revealed that the false positive rate was 29% among those samples examined by university graduates, while it reached 69% among those holding diplomas. The rate reached 74% among the samples examined by mixed graduates.

النتائج

اجريت هذه الدراسة في مختبرات مدينة كوستي بمختلف قطاعاتها الحكومية وشبه الحكومية والخاصة بهدف تقييم و قياس نتائج التشخيص عند استخدام المجهر الضوئي لفحص عينات الملاريا.

تم اخذ 524 عينة ، لكل عينة شريحتان الاولى يتم اخذها ومعالجتها واستخرج نتيجتها بواسطة المعمل المعني والاخري يتم اخذها ومعالجتها بواسطة الباحث حيث انها تحوي علي فيلم سميک والاخر رفيع يت التقييم اولا بواسطة الباحث للمعمل المعني لمراجعة النتائج، وتسجل نتائج المراجعة مع شرائح المعمل المعني وترسل للمطابقة والمراجعة مع نفس عينات الباحث للمعمل المرجعي للملاريا بكوستي وكانت النتائج كالآتي:

معدل الخطا لكل المعامل في انتشار المرض كان بنسبة 10% في حين سجلت المعامل نسبة 28%.

معدل الخطا الايجابي لكل المعامل بلغ 63%. وفيه سجلت معمل القطاع الحكومي الخطا الايجابي الاكبر بلغ 79% بينما سجلت معمل القطاع شبه الحكومي والخاص 55% و 48% علي التوالي وهذه نسبة ذات قيمة احصائية هامة.

علي الرغم من ان جمع العينات قد تم بطريفة صحيحة الا ان نسبة الخطا الايجابي %67 بلغت اما عند الجمع بطريفة خاطئة بلغت 63%.

اوضحت الدراسة انه عندما تم فرد العينات بطريفة جيدة كانت نسبة الخطا الايجابي 20% اما عندما تم فردها بطريفة خاطئة بلغت 65%.

عندما تمت صبغة العينات بطريفة صحيحة بلغت نسبة التشخيص الخاطئ 30% اما %69 عندما تمت الصبغة بطريفة غير صحيحة بلغ التشخيص الخاطئ.

عند قياس مدي تاثير الحالة العامة للمعمل من مبني ووجود مصادر الكهرباء والمياة الي النظافة ومساحة المعمل وعلاقتهما بالتشخيص، وجد ان نسبة الخطا الايجابي بلغ 63% في حالة المعامل ذات الحالة الجيدة وغير الجيدة اي ان حالة المعمل العامة لم يكن لها تاثير . علي النتائج.

أوضحت الدراسة أنه وعلى الرغم من استخدام مجاهر ذات الكفاءة الجيدة إلا أن نسبة التشخيص في الخطأ الإيجابي بلغت 67%. بينما بلغت 50% عند استخدام المجاهر الأقل كفاءةً.

عندما تم استخدام زيت العدسة ذي المواصفات الجيدة بلغت نسبة الخطأ الإيجابي 46% بينما ارتفعت هذه النسبة إلى 83% عند استخدام زيت العدسة ذي المواصفات الغير جيدة وهى قيمة إحصائية عالية

أوضحت الدراسة عندما تم تشخيص العينات بواسطة الأفراد الذين تلقوا تدريباً في فحص الملايا بلغت نسبة الخطأ الإيجابي لديهم 39% بينما سجل الأفراد الذين لم يتلقوا تدريباً 77% في فحص الملايا نسبة خطأ إيجابي بلغت 77%.

أوضحت الدراسة أن نسبة الخطأ الإيجابي بلغت 29% في المعامل التي تم التشخيص فيها بواسطة حاملي الشهادات الجامعية بينما بلغت النسبة 69% لحاملي شهادات الدبلوم أما المعامل التي تجمع النوعين وغيرهما من المساعدين وفاحصي الملايا بلغت النسبة الأعلى.

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