



قال تعالى :

وَيَسْأَلُونَكَ عَنِ الرُّوحِ [فَلِ الرُّوحِ مِنْ أَمْرِ رَبِّيِّ وَمَا أَوْتَيْتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا]

صدق الله العظيم

سورة الإسراء الآية 85

Dedication

I dedicate this research to

My great father My
great mother.....

Who taught me how I could be human ate

My brothers and sisters For their
support and kindness

My friends and my colleagues.....

Acknowledgement

First, praise to almighty Allah who gave me power, patience and ability
.to complete this research

I am particularly indebted to my supervisor Dr. Mogahid Mohammed
Elhassan for his guidance, advice and encouragement during the study
.period, for them I convey my thanks and gratitude

In this respect I would like to express my appreciations and gratitude to
Mr.Muatsium Ahmed Mohammed and Miss. Nuha Yousif Ibrahim
researchers' at the National Tuberculosis Reference Lab, for their
valuable ideas and discussion in both practical and theoretical aspects of
this study.

I would like to express my deep gratitude to all staff member in National
Tuberculosis Reference Lab, Miss. Ramia Mohammed and Mr. Ahmaed
Hassn

In this moment I can only keep silent in front of the support and
continuous encouragement of my family father, mother, sisters, and
brothers.

Abstract

The spread of multidrug-resistant (MDR) strains of *Mycobacterium tuberculosis* has become a major public health concern since these bacteria often cause incurable disease, even when expensive second- and third-line drugs are available.

This study aimed to identify *M. tuberculosis* among suspected tuberculous patients in Khartoum State by using conventional methods also to identify rifampicin resistance *M. tuberculosis* by amplifying (rpo B) gene, using polymerase chain reaction (PCR).

128 sputum samples were collected from suspected tuberculosis patients. Direct smears were performed by using ZN stains, the results showed that 36 (21.7%) were positive for AFB while 92 (78.3) were negative. All sputum samples were inoculated on Lowenstein Jensen medium and incubated aerobically at 37°C, the isolates showed obvious growth in 46 (36%) whereas 82 (64%) showed no growth.

Selected biochemical tests were performed to all *Mycobacterium tuberculosis complex* (MTC) isolates, the results revealed that all isolates were sensitive to Para-nitro benzoic acid (growth was inhibited by PNB), resistant to Thiophene - 2 - Carboxylic Acid Hydrazide (TCH), positive for nitrate reduction and were Catalase negative at 68°C.

All the forty six isolates that showed typical growth of MTC on LJ medium were subjected to PCR to amplify (IS 6110) gene .The results indicate clearly that all isolates showed positive results for (IS 6110), 123bp.

Drug sensitivity tests were performed to all isolates, the results showed that 26 (56.5%) as MDR-TB, 16 (34.8%) as sensitive to rifampicin, Isoniazid, Ethambutol and streptomycin, 2 (4.4%) as resistance to streptomycin, and 2(4.4%) as triple resistance to Isoniazid, Ethambutol and streptomycin.

The thirty resistant isolates were subjected to PCR searching for rifampicin resistance gene (*rpoB*) with band equal to 193bp in size, the results showed existence of this band in (86.7%). Due to the low sensitivity of ZN technique and the long time required to conduct Drug susceptibility Test (DST) through conventional method, the results concluded the PCR is evaluable, rapid and sensitive technique which can replace conventional method.

الكلمات المفتاحية

بات انتشار المنفطرة السلية متعددة المقاومة للأدوية من الشواغل الرئيسية للصحة العامة، حيث أن هذه البكتيريا غالباً ما تسبب مرض عossal، حتى بتوفر الأدوية البديلة باهظة الثمن.

هدفت هذه الدراسة للتعرف على المنفطرة السلية بين المرضى المشتبه بإصابتهم بالسل في ولاية الخرطوم، باستخدام الطرق التقليدية، والتعرف على الجين المقاوم ريفامبيسين (rpo B) بين السل متعدد المقاومة للأدوية باستخدام تفاعل البلمرة التسلسلي.

تم جمع عدد مئة وثمان وعشرون من عينات التفاف من المرضى المشتبه بإصابتهم بالسل،

أظهرت 36 (21.7%) نتائج موجبة للعصويات المقاومة للأحماض، 46 (36%) أظهرت نتائج موجبة لترزير المنفطرة السلبية في وسط ليونيستين جنسن عند درجة حرارة 37°C و 82 (64%) أظهرت نتائج سالبة.

العينات الموجبة لترزير خضعت لاختبارات البيوكيمائية وأظهرت حساسية بنسبة (100%) لحامض البرانايتروبنزويك (تمثيل النمو واستطحاح البرانايتروبنزويك)، مقاومة للثيوفين - 2 - حمض كاربوكسيليك أسيد هيدرازيد، موجبة لاختبار اختزال النترات وكانت سلبية لاختبار الكتاليزفي درجة حرارة 68°C .

أظهرت اختبارات الحساسية للأدوية بـ 26 (56.5%) منفطرة سلية، متعددة المقاومة للأدوية، 16 (34.8%) سلالة حساسة النوع الأول من لأدوية، سلالتين (4.4%) مقاومة فقط للستريتومايسين، و سلالتين ثلاثة مقاومة للايزونيزايد، الستريتومايسين والإيثامبوتول.

ستة وأربعون (36 .%) من عزل المنفطرة السلبية اختبرت بواسطة تفاعل البلمرة التسلسلي.(100 .%) من العزلات أظهرت حزمة مطبقة في القياس(123 bp) للجين المستهدف

(IS 6110). ثلاثة من عزلات المنفطرة السلبية المقاومة للأدوية اختبرت بواسطة تفاعل البلمرة التسلسلي للجين المقاوم للرفامبسين، أظهرت حزمة مطابقة في القياس (193 bp) بنسبة (86.7 .%). نتيجة لانخفاض حساسية الصبغة المقاومة للأحماض، الفترة الطويلة المستغرقة لداء التزريع و اختبار الحساسية للأدوية ، أظهرت النتائج بوضوح أهمية ، وحساسية، وجدو تفاعل البلمرة التسلسلي كأداة سريعة لتشخيص والكشف عن المتفطرة السلبية وللجين المقاوم للرفامبسين .

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