

# الآية

## قال تعالى:

(اللَّهُ نُورُ السَّمَاوَاتِ وَالْأَرْضِ مِثْلُ نُورِ كَمِشْكَاةٍ فِيهَا مِصْبَاحٌ الْمِصْبَاحُ فِي زُجَاجَةٍ الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ يُوقَدُ مِنْ شَجَرَةٍ مُبَارَكَةٍ زَيْتُونَةٍ لَا شَرْقِيَّةٍ وَلَا غَرْبِيَّةٍ يَكَادُ زَيْتُهَا يُضِيءُ وَلَوْ لَمْ تَمْسَسْهُ نَارٌ نُورٌ عَلَى نُورٍ يَهْدِي اللَّهُ لِنُورِهِ مَنْ يَشَاءُ وَيَضْرِبُ اللَّهُ الْأَمْثَالَ لِلنَّاسِ وَاللَّهُ بِكُلِّ شَيْءٍ عَلِيمٌ)

سورة النور الآية 35

## **DEDICATION**

To my parents, teachers, brothers and friends.

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First of all thanks and praise to the light, my god **ALLAH**, for giving me health and strength to accomplish this work.

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## TABLE OF CONTENTS

|                       |     |
|-----------------------|-----|
| الآية.....            | i   |
| Dedication.....       | ii  |
| Acknowledgement.....  | iii |
| Abstract.....         | x   |
| المستخلص.....         | xii |
| List of tables .....  | vi  |
| List of figures ..... | vii |

## CHAPTER ONE

### INTRODUCTION AND OBJECTIVES

|                                |   |
|--------------------------------|---|
| 1.1. Introduction.....         | 2 |
| 1.2. Rationale.....            | 3 |
| 1.3. Objectives.....           | 4 |
| 1.3.1. General objective.....  | 4 |
| 1.3.2. Specific objecties..... | 4 |

## **CHAPTER TWO**

### **LITERATURE REVIEW**

|                           |   |
|---------------------------|---|
| 2. Literature review..... | 6 |
|---------------------------|---|

## **CHAPTER THREE**

### **MATERIALS AND METHODS**

|                                                      |    |
|------------------------------------------------------|----|
| 3. Materials and methods.....                        | 15 |
| 3.1. Study design.....                               | 15 |
| 3.1.1. Type of study.....                            | 15 |
| 3.1.2. Study area.....                               | 15 |
| 3.1.3. Study duration.....                           | 15 |
| 3.2. Type of sample.....                             | 15 |
| 3.3. Laboratory procedure.....                       | 15 |
| 3.3.1. Sampling technique and sample collection..... | 16 |
| 3.3.1.1. Sampling technique.....                     | 16 |
| 3.3.1.2. Sample collection.....                      | 16 |
| 3.3.2. Bacterial load.....                           | 16 |

|                                                          |    |
|----------------------------------------------------------|----|
| 3.3.3. Calculation.....                                  | 17 |
| 3.3.4. Identification of bacteria.....                   | 17 |
| 3.3.4.1. Gram stain.....                                 | 18 |
| 3.3.4.1.1. Smear preparation.....                        | 18 |
| 3.3.4.1.2. Staining procedure.....                       | 18 |
| 3.3.4.2. Biochemical tests.....                          | 18 |
| 3.3.4.2.1. Citrate utilization test.....                 | 18 |
| 3.3.4.2.2. Indole test.....                              | 19 |
| 3.3.4.2.3. Oxidase test.....                             | 19 |
| 3.3.4.2.4. Urease test.....                              | 20 |
| 3.3.4.2.5. Sugar fermentation and $H_2S$ production..... | 20 |
| 3.4. Quality control.....                                | 21 |
| 3.5. Statistical analysis.....                           | 21 |

## **CHAPTER FOUR**

### **RESULTS**

|                 |    |
|-----------------|----|
| 4. Results..... | 23 |
|-----------------|----|

## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSION AND RECOMMENDATION**

|                      |    |
|----------------------|----|
| 5.1. Discussion..... | 30 |
|----------------------|----|

|                      |    |
|----------------------|----|
| 5.2. Conclusion..... | 33 |
|----------------------|----|

|                           |    |
|---------------------------|----|
| 5.3. Recommendations..... | 33 |
|---------------------------|----|

|                 |    |
|-----------------|----|
| References..... | 34 |
|-----------------|----|

|                 |    |
|-----------------|----|
| Appendices..... | 39 |
|-----------------|----|

## LIST OF TABLES

|                                                                                                 |    |
|-------------------------------------------------------------------------------------------------|----|
| Table 1. Average of contamination in Khartoum state hospitals.....                              | 24 |
| Table 2. Number and percentage of growth.....                                                   | 25 |
| Table 3. Number and percentage of sample with positive growth from each<br>hospital .....       | 26 |
| Table 4. Number and percentage of sample with no growth from each hospital...                   | 26 |
| Table 5. Number and percentage of Gram-negative bacteria in samples from each<br>hospital ..... | 27 |
| Table 6. Percentage of isolated bacteria.....                                                   | 28 |

## LIST OF FIGURES

|                                                                                                                                        |    |
|----------------------------------------------------------------------------------------------------------------------------------------|----|
| Fig 1. Shows the number of samples from each hospital.....                                                                             | 24 |
| Fig 2. Shows the percentage the percentage of sample with positive growth.....                                                         | 25 |
| Fig 3. Shows percentage of Gram-negative bacteria, and samples with negative<br>and positive growth percentage from each hospital..... | 27 |

## ABSTRACT

This is a descriptive cross-sectional study conducted to assess Gram-negative bacteria on stethoscopes in Sudanese hospitals, Khartoum State. The study was conducted in the period from April to June 2014.

Stethoscopes swabs were collected randomly by swabbing the interior and exterior parts of each stethoscope diaphragm with sterile cotton swabs moistened in sterile normal saline before sampling. The samples were processed for bacterial load by Pour Plate Technique. Isolated Gram-negative bacteria were identified by their colonial morphology, Gram-stain and conventional biochemical tests.

One hundred seventy nine (89.5%) of 200 stethoscopes tested were contaminated with bacteria. The average of bacterial load in stethoscopes was  $126 \times 10^4$  CFU/diaphragm. The results revealed that the mean CFU/diaphragm were as follows; Omdurman Military Hospital  $56 \times 10^4$ , Khartoum North Teaching Hospital  $132 \times 10^4$ , Omdurman Teaching Hospital was  $150 \times 10^4$ , and Ibrahim Malik Teaching Hospital was  $166 \times 10^4$ .

Thirty eight Gram-negative bacteria were identified. These were *Klebsiella pneumoniae* 11 (5.5%), *Pseudomonas aeruginosa* 12 (6%), *Escherichia coli* 10 (5%), and *Proteus* spp. 5 (2.5%).

The study concluded that the contamination rate of stethoscopes was very high (89.5%). Systematic disinfection of stethoscopes with 70% alcohol is highly

recommended to minimize the chance of spreading infectious agents between hospitalized patients. Further studies are required to validate the results of the present study.

## المستخلص

هذه دراسة وصفية مقطعية أجريت لتقييم البكتيريا السالبة للجرام على السماعات الطبية في المستشفيات السودانية، ولاية الخرطوم. في الفترة من ابريل الي يونيو 2014.

تم جمع مسحات من غشاء السماعات الطبية بشكل عشوائي عن طريق مسح الجزء الداخلي والخارجي للأغشية باستخدام مسحات معقمة مبللة في محلول ملحي معقم قبل جمع العينات.

جهزت العينات لحساب البكتيريا باستخدام تقنية الصحن المصبوب. تم التعرف علي البكتيريا السالبة للجرام المعزولة عن طريق شكل المستعمرات، صبغة جرام والتفاعلات الكيميائية الحيوية التقليدية.

مائة وتسع وسبعون عينة (89.5%) من أصل المائتين عينة التي أجريت لها الاختبارات كانت ملوثة. متوسط حساب البكتيريا في السماعات الطبية كان  $126 \times 10^4$  وحدة تكوين مستعمرة للغشاء. ظهرت النتائج بوحدة تكوين مستعمرة للغشاء كالاتي: مستشفى السلاح الطبي العسكري  $56 \times 10^4$ , مستشفى بحري التعليمي  $133 \times 10^4$ , مستشفى امدرمان التعليمي  $150 \times 10^4$  ومستشفى إبراهيم مالك التعليمي كانت  $166 \times 10^4$ .

ثمانى وثلاثون باكتيريا سالبة الصبغة تم عزلها والتعرف علي نوعها, وهي كالاتي الكلبسية الرئوية 11 (5.5%), الزائفة الزنجارية 12 (6%), الاشريكية الكولونية 10 (5%) و بروتيوس 5 (2.5%).

خلصت الدراسة الي ان نسبة تلوث السماعات الطبية كانت عالية جدا (89.5%). تطهير السماعات الطبية باستخدام الكحول يوصي به لتقليل فرصة انتشار العوامل المعدية بين المرضى في المستشفيات واجراء المزيد من الدراسات مطلوب لتأكيد صحة نتائج الدراسة.