

الآيـة

قال تعالى:

(لَا يُكَلِّفُ اللَّهُ نَفْسًا إِلَّا وُسْعَهَا أَنْ لَهَا مَا كُسَبَتْ وَعَلَيْهَا مَا اكْنَسَبَثْ أَنْ رَبَّنَا وَلَا يُحْمِلُ عَلَيْنَا إِصْرًا كَمَا حَمَلْنَهُ لَا يُؤَاخِذُنَا إِنْ نَسِينَا أَنْ أَخْطَأُنَّا أَنْ رَبَّنَا وَلَا يَحْمِلُ عَلَيْنَا إِصْرًا كَمَا حَمَلْنَهُ عَلَيْنَا إِصْرًا كَمَا حَمَلْنَهُ عَلَيْنَا إِلَى الْفَوْمِ الْكَافِرِينَ عِنْ قَبْلِنَكَ أَنْ رَبَّنَا وَلَا يُحَمِّلُنَا مَا لَا طَاقَةَ لَنَا بِشَ أَنْ وَاعْفُ عَنَا عَلَى النَّا فِي الْعَوْمِ الْكَافِرِينَ) وَاغْفُ لَنَا فَانْصُرُنَا عَلَى الْقَوْمِ الْكَافِرِينَ)

صدق الله العظيم سورة البقرة الآية (286)

Dedication

To my family \dots

To my sweet daughter and son(\mathbb{N} 0hammed & \mathbb{S} Iwa)...

To all my teachers....

Acknowledgment

First of all thanks for Allah, giving me the power and willing to complete this research .After that I would like to thanks my supervisor Prof. Babiker Mohammed Ahmed for his support and instructions that helped me in finishing this work.

I wish to thank also the laboratory staff of (Antalya medical center) for their greatly help to continue study.

Special thanks should be awarded for my respected family members. For their kind assistance during my study.

Finally I would like to thanks everyone who support and stand up behind me in every step of this research.

| No. | Subject | Page No. |
|------------------------------------|-------------------------------------|-------------|
| | Verse | I |
| | Dedication | II |
| | Acknowledgment | III |
| | List of contents | IV |
| | List of table | VIII |
| | Abstract English | IX |
| | Abstract Arabic | X |
| Chapter One | | |
| Introduction and literature Review | | |
| 1. | Introduction and Literature review | 1 |
| 1.1 | Iron | 3 |
| 1.1.1 | Biochemistry and physiology of iron | 3 |
| 1.1.2 | Human requirements | 4 |
| 1.1.3 | Metabolism | 5 |
| 1.1.4 | Bioavailability | 5 |
| 1.1.5 | Absorption | 5 |
| 1.1.5.1 | Factors enhancing iron absorption | 7 |
| 1.1.5.2 | Factors inhibiting iron absorption | 8 |
| 1.1.6 | Storage | 9 |
| 1.1.7 | Excretion | 10 |
| | IV | |

| 1.1.8 | Anemia | 10 |
|-----------|--|----|
| 1.1.9 | Iron Deficiency | 11 |
| 1.1.9.1 | Consequences and causes of iron deficiency | 11 |
| 1.1.9.1.1 | Consequences of iron deficiency | 11 |
| 1.1.9.1.2 | Causes of iron deficiency | 12 |
| 1.1.10 | Group at high risk | 13 |
| 1.1.11 | Evaluation of iron status | 13 |
| 1.2 | Helicobacter | 15 |
| 1.2.1 | Description | 15 |
| 1.2.2 | Antigens and strain typing | 15 |
| 1.2.3 | Pathogenesis | 16 |
| 1.2.3.1 | Site of infection | 16 |
| 1.2.3.2 | Manifestations | 16 |
| 1.2.3.3 | Factor stimulate inflammation | 17 |
| 1.2.3.4 | Associated disease | 18 |
| 1.2.3.4.1 | Peptic ulceration | 18 |
| 1.2.3.4.2 | Non-ulcer dyspepsia | 19 |
| 1.2.3.4.3 | Gastric cancer | 19 |
| 1.2.3.4.4 | Other disease | 19 |
| 1.2.3.5 | Epidemiology | 19 |
| 1.2.3.6 | Laboratory diagnosis | 20 |
| 1.2.3.6.1 | Non- invasive tests | 20 |
| 1.2.3.6.2 | Serology | 20 |

| 1.2.3.6.3 | Urea breath test | 21 | | |
|----------------------|--|----|--|--|
| 1.2.3.6.4 | Faecal antigen test | 21 | | |
| 1.2.3.6.5 | Polymerase chain reaction (PCR) | 21 | | |
| 1.2.3.6.6 | Invasive tests | 22 | | |
| 1.2.3.6.7 | Collection of specimens | 22 | | |
| 1.2.3.6.8 | Biopsy urease test | 22 | | |
| 1.2.3.6.9 | Histopathology and microscopy | 22 | | |
| 1.2.3.6.10 | Culture | 23 | | |
| 1.2.3.7 | Treatment | 23 | | |
| 1.3 | Previous studies | 24 | | |
| 1.4 | Rational | 25 | | |
| 1.5 | Objectives | 26 | | |
| 1.5.1 | General objectives | 26 | | |
| 1.5.2 | Specific objectives | 26 | | |
| Chapter Two | | | | |
| Material and Methods | | | | |
| 2.1 | Study designs | 27 | | |
| 2.2 | Study population | 27 | | |
| 2.3 | Inclusion criteria | 27 | | |
| 2.4 | Exclusion criteria | 27 | | |
| 2.5 | Study area | 27 | | |
| 2.6 | Sample size | 27 | | |
| 2.7 | Collection and processing of blood samples | 28 | | |
| 1 | | | | |

| 2.8 | Methodology | 28 | |
|--------------------------|---|----|--|
| 2.8.1 | Cobas C111 | 28 | |
| 2.8.2 | Features | 28 | |
| 2.8.3 | Principle | 30 | |
| 2.8.4 | Reagents | 30 | |
| 2.8.5 | Normal value | 30 | |
| 2.9 | Ethical consideration | 31 | |
| 2.10 | Data analysis | 31 | |
| | Chapter Three | | |
| Results | | | |
| | Result | 32 | |
| Chapter Four | | | |
| | Discussion ,conclusion ,and Recommendations | | |
| | Discussion | 35 | |
| | Conclusion | 37 | |
| | Recommendation | 38 | |
| Chapter Five | | | |
| Reference and Appendices | | | |
| Reference | | 39 | |
| Appendices | | 44 | |

List of tables

| No. | Table | Page No. |
|-----|--|-------------|
| 3.1 | Frequency of gender | 32 |
| 3.2 | Frequency of age | 33 |
| 3.3 | Frequency of antibiotic. | 33 |
| 3.4 | variation of serum iron among case and control | 34 |
| 3.5 | variation of serum iron according to gender ,age ,antibiotic | 34 |

Abstract

This is a case control study which was carried out in Khartoum state in Antalya medical center ,in period from may 2015 to September 2015 to assess the effect of Helicobacter infection in the amount of iron in the serum of patients .50 diagnosed seropositive H.pylori infection patients were selected and 20 healthy individuals were selected as control group (male 28% to 72% female) and the age is between 15-70 years old 72% of patients take a treatment and 28% did not take a treatment .4 ml of venous blood was drawn from each patients , placed in plane container , then centrifuge to get serum to estimate s. iron by cobas c111 the result were analyzed by use SPSS vesion15.0 were averaged ±SD and p.value are obtained .

The result show no significant difference in S.iron among H.pylori patients compare to normal control group (p=.0310). The study indicated there was no effect of H.pylori infection on serum iron.

مستخلص الدراسة

هذه دراسه وصفيه تحليليه اجريت في ولايه الخرطوم في مركز انطاليا الطبي في الفتره من مايو 2015 الي سبتمبر 2015 لقياس نسبه الحديد في دم المصابين ببكتريا المعده لتقييم تاثير تلك البكتريا علي كميه الحديد في دم المصابين. تم اختيار 50 شخص مشخصين كمرضي و20 اصحاء كمجموعه ضبط وكان نسبه الذكور 28% ونسبه الاناث 72% وكانت اعمار المرضي المشاركين تتراوح بين 15 الي 70 سنه وكان عدد منهم أخذ علاج بكتريا المعده بنسبه 72% واللذين تم تشخيصهم لاول مره كانوا بنسبه 28%. تم اخذ 4 مليلتر من الدم الوريدي من كل مريض وتم وضعه في حاويه لاتحتوي علي مانع تجلط وتم فصله بجهاز الطرد المركزي (Cobas C111)

وتم تحليل النتائج بواسطه برنامج الحزم الاحصائيه للعلوم الاجتماعيه اصداره 15 وتم حساب المتوسط وكانت النتائج كالاتي: ليس هناك اختلاف في كميه الحديد عند المصابين ببكتريا المعده مقارنه بالاصحاء (p=.0310) واوضحت الدراسه ان ليس هناك تاثير لبكتريا المعده علي كميه الحديد في الدم .