بسم الله الرحمن الرحيم

قال تعالى:

(سَنُرِيهِمْ آيَاتِنَا فِي الْآفَاقِ وَفِي أَنفُسِهِمْ حَتَّىٰ يَتَبَيَّنَ لَهُمْ أَنَّهُ الْحَقُّ ۗ أَوَلَمْ يَكْفِ بِرَبِّكَ أَنَّهُ عَلَىٰ كُلِّ شَيْءٍ شَهِيدٌ)

صدق الله العظيم

سورة فصلت الآية(53)

Dedications

To who taught me to write the first letter of the alphabet,

my beloved ……. mother

To Who taught me how to feel the pain of others

my dear ……. father

To my lovely ……. sisters

To my lovely ……brothers

To all my teachers in all my educational stages

To my ……. friends

To all who love me and I love them

To ……. patients

To all those, I dedicate this work.

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Abstract

This is a case control , hospital based study was carried out to measure the levels of chromium and magnesium in Sudanese asthmatic patients attending alshaab teaching hospital, Khartoum state, during the period from May to June 2015

Fifty Sudanese asthmatic patients, including 30 males (aged 20-90years), and 20females (aged 18-80years), were enrolled in this study, also fifty apparently healthy individual to serve as control group (aged 18-90), including 30 males and 20 females.

Five ml of venous blood were collected from each participant, the serum obtained; chromium and magnesium levels were measured by Atomic absorption spectrophotometer (AAS) and Mindary BS 200respectively.

Statistical analysis of obtained results revealed that; mean of serum levels of chromium was significantly lower among asthmatic patients compared to control group (p value 0.000), and no significantdifference in serum levels ofmagnesium between asthmatics and controlgroup (p value 0.314).Also results showed that asthmatic patients serum levels of chromium and magnesium are not effected by age (p value Cr0.644, Mg 0.808) and sex (p value Cr0.135, Mg 0.102) and body mass index (p value Cr0.968, Mg 0.524) and duration of disease (p value Cr0.184, Mg 0.550) . In conclusion, this study suggests that low Cr level may have a role in bronchial asthma in Sudan; but Mg level not effect ,also age , BMI , and duration of disease there is no effect on theserum trace elements levels.

المستخلص

أجريت هذه الدراسة لقياس مستويات الكروم والمغنيسيوم في مصل الدم لدى السودانيين المصابين بمرض الربو (الأزمة) الذين يترددون على مستشفى الشعب التعليمي بولاية الخرطوم بالسودان في الفترة من مايو حتى يونيو 2015م.

إشتملت الدراسة على 50 من المرضى المصابين بمرض الربو (الأزمة), 30 منهم ذكور تتراوح أعمارهم ما بين 20 إلى 90 سنة و 20 منهم إناث تتراوح أعمارهم ما بين 18 إلى 80 سنة.أيضاً إشتملت الدراسة على 50 من الأصحاء منهم 30 من الذكور و 20 من الإناث تتراوح أعمارهم ما بين 18 إلى 90 سنة.

أخذت 5 مل من الدم الوريدي وتم إستخلاص المصل وتحليله لقياس عنصري الكروم والمغنيسيوم. وبعد التحليل الإحصائي لهذه النتائج وجد أن هنالك إنخفاض ذو دلالة احصائيةفي متوسط مستويات الكروم بالمقارنة مع مجموعة الأصحاء بمستوى معنوية (0.000) بينما لميوجد أي اختلاف ذو دلالة احصائية في متوسط مستويات المغنيسيوم بمستوى معنوية (0.314). وجدأيضا أن مستويات الكروم والمغنيسيوم لا تتأثر باختلاف العمر والجنس والوزن وطول فترة المرض. ومن نتائج هذه الدراسة تم التوصل الى أن مستوى الكروم له دور في هذا المرض وليس لمستوى المغنيسيوم تأثير فيه.

Table of contents

	Contents	Page No.
	Holy Quran verse	I
	Dedication	II
	Acknowledgment	III
	Abstract (English)	IV
	Abstract (Arabic)	V
	List of Contents	VI,VII,VIII
	List of Tables	IX
	List of Figures	IX
	List of Abbreviations	X, X I
Chapter one: Introduction and Literature review		
1.1	Introduction	1
1.2	Literature review	2
1.2.1	Bronchi	2
1.2.2	Anatomy	2
1.2.3.1	Bronchial Asthma	3
1.2.3.2	Signs and Symptoms	3
1.2.3.3	Causes and risk factors	3
1.2.3.4	Complications	13
1.2.3.5	Pathophysiology	14
1.2.3.6	DiagnosisofBronchialAsthma	17
1.2.3.7	Classification	19
1.2.3.8	Medications	20

1.2.4	Trace element	21
1.2.4.1	Chromium	21
A	Dietary sources	21
B	Health Effects	22
C	Absorption, Transport, and Excretion	22
D	Deficiency	23
E	Toxicity	23
F	Reference Intervals	23
1.2.4.2	Magnesium	24
A	Dietary sources	24
B	Physiology	24
C	Absorption,Transport,and Excretion	25
D	Hypomagnesemia	26
E	Symptoms of hypomagnesemia	28
F	Hypermagnesemia	29
G	Symptoms of hypermagnesaemia	30
1.2.5	Trace elements and bronchial asthma	30
1.3	Rationale	32
1.4	Objectives	33
Chapter two: Materials and Methods		
2.1	Materials	34
2.1.1	Study design	34
2.1.2	Study area	34
2.1.3	Sample size	34
2.1.4	Study duration	34

2.1.5	Sample type	34
2.1.6	Sample collection	34
2.1.7	Study population	35
2.1.8	Exclusion criteria	35
2.1.9	Inclusion criteria	35
2.1.10	Ethical consideration	35
2.2	Methods	35
2.2.1	Chromiummeasurement	35
2.2.1.2	Principle of AAS	35
2.2.2	Magnesiummeasurement	36
2.2.2.2	Principle	36
2.2.3	Calculation of BMI	36
2.2.4	Qualitycontrol	37
2.2.5	Statistical analysis	37
Chapter three: Results		
3	Results	38
Chapter four: Discussion & Recommendations & Conclusion		
4.1	Discussion	47
4.2	Conclusion	49
4.3	Recommendations	50
References &Appendices		
	The References	51-61
	Appendices	62-65

List of tables

Table No.	Legend	Page No.
3.1	Comparison of trace elements levels between asthmatic patients and control group	39
3.2	Comparison of trace elements levels between male and female	40

List of figures

Figure No.	Legend	Page No.
3.3	Correlation between age and chromium levels	41
3.4	Correlation between age and magnesium levels	42
3.5	Correlation between duration of disease and chromium levels	43
3.6	Correlation between duration of disease and magnesium levels	44
3.7	Correlation between BMI and chromium levels	45
3.8	Correlation between BMI and magnesium levels	46

Abbreviations

AAS: Atomic absorption spectrophotometer

BA: Bronchial asthma

BMI: Body Mass Index

CNS: Central Nervous System

COPD: Chronic obstructive pulmonary disease

CT: computerized tomography

DNA: Deoxyribonucleic acid

EGTA:Ethylene glycol tetra acetic acid

EIA: exercise-induced asthma

EIB: exercise-induced bronchospasm

GFR:Glomerular Filtration Rate

GI: Gastro Intestinal

GSH-Px: glutathione peroxidase

ICSs: inhaled corticosteroids

IFN: Interferon

IL: Interleukin

IV: Intravenous

LABAs: Long-acting beta agonists

$PaCO_2$: partial pressure of carbon dioxide.

PCT: Proximal Convoluted tubule

PTH: Parathyroid hormone

RMP: Resting Membrane Potential

ROS: Reactive oxygen species

SABAs :short-acting beta agonists

SODs: Superoxide dismutases

Th:T helper cells

U.S: United States