

Dedication

To my parents

To my sisters and brothers

To my teachers and friends

To the gentle Readers

To all whom I love in Allah

I dedicate this effort

Rawia

Acknowledgments

All my praise and thanks to **Allah** who help me and give me confidence to complete this study.

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Abstract

C-reactive protein (CRP) was the first acute-phase protein to be described and is an exquisitely sensitive systemic marker of inflammation and tissue damage especially in cardiovascular disease (CVD). Hypertension is a common health problem throughout the world and one of the major risk factors for CVD. Vitamin D may reduce hypertension prevalence through its action on Renin-Angiotensin System (RAS), intracellular calcium homeostasis and regulation of vascular smooth muscle contractility.

A descriptive cross-sectional study was carried out to evaluate CRP as a predictor marker for cardiovascular disease among hypertensive vitamin D deficient patients in Khartoum State, and to correlate serum vitamin D and CRP to the study variables (gender, body mass index, age and duration).

Eighty eight hypertensive patients were enrolled in this study, serum vitamin D level was estimated using ELISA competitive assay, and serum CRP level was estimated by Cobas C311 automated chemistry analyzer, data analyzed using (SPSS) computer program.

The results of frequencies showed that the gender variation are approximately equal 1: 1 fold (57.5% males and 46.5% females). Females, overweight subjects and more than 5 years patients showed decrease in vitamin D level, with *P*-values (0.000, 0.033 and 0.041) respectively. The mean serum level of CRP was significantly increased in overweight group (*P*-value 0.014). No significant differences were found in the mean of vitamin D and CRP level in different age groups. The mean serum levels of CRP were showed insignificant differences in study group classified based on (gender and duration), *P*-values (0.374 and 0.330) respectively. The mean serum level of CRP was significantly increased in vitamin D deficient group (*P*-value 0.049). Pearson's correlation showed, there was weak negative correlation between vitamin D and CRP (Pearson's *r*: -0.137, *P*-value = 0.205).

The results of this study conclude that: CRP is a useful predictor marker for cardiovascular disease in hypertensive patients with vitamin D deficiency; females are more susceptible for vitamin D deficient than males. More studies recommended to underlying the mechanism of association between hypertension, vitamin D and CRP.

ملخص الدراسة

بروتين سي التفاعلي كان أول بروتين تم وصفه كبروتين للطور الحاد, وهو مؤشر نظامي حساس بشكل رائع للالتهاب وتلف الأنسجة خاصة في أمراض القلب والأوعية الدموية. ارتفاع ضغط الدم هو مشكلة صحية شائعة في جميع أنحاء العالم وأحد عوامل الخطر الكبرى لأمراض القلب والأوعية الدموية. فيتامين (د) قد يقلل من انتشار ارتفاع ضغط الدم من خلال عمله على نظام الرينين أنجيوتنسين وضبط البيئة الداخلية للكالسسيوم وتنظيم انقباض العضلات الملساء في الاوعية الدموية.

أجريت دراسة مستعرضة وصفية لتقييم بروتين سي التفاعلي في الدم كعلامة مؤشرا لأمراض القلب والأوعية الدموية لدى مرضى ارتفاع ضغط الدم فاقد فيتامين (د) في ولاية الخرطوم, وربط مستوى فيتامين (د) وبروتين سي التفاعلي مع متغيرات الدراسة (الجنس, مؤشر كتلة الجسم, العمر ومدة المرض).

التحتمانية ثمانين مريض ارتفاع ضغط الدم في هذه الدراسة, وقدر فيتامين (د) في مصل الدم للمرضى بواسطة تقنية الإنزيم المناعي المرتبط بينما تم قياس بروتين سي التفاعلي في مصل الدم بواسطة محلل الكيمياء الآلي كوبياس سي 311, وتحليل البيانات تم باستخدام برنامج الكمبيوتر الحزمة الإحصائية للعلوم الاجتماعية.

أظهرت النتائج ان نسبة ارتفاع ضغط الدم متساوية تقريبا بين الجنسين, الذكور (52.3%) والإناث (47.7%). أظهر الإناث, مجموعة زاندي الوزن والمرضى الذي لديهم المرض لأكثر من خمس سنوات انخفاض مستوى فيتامين (د), قيمة بيرسون ساوت (0.000, 0.033 و 0.041) علي التوالي.

متوسط مستوى بروتين سي التفاعلي أظهر ارتفاع ملحوظ عند مجموعة زاندي الوزن, قيمة بيرسون تساوي (0.014).

لا توجد فروقات ذات دلالة احصائية في متوسط فيتامين (د) و بروتين سي التفاعلي في مختلف الفئات العمرية. متوسط بروتين سي التفاعلي أظهر عدم وجود اختلافات ذات دلالة احصائية في مجموعة الدراسة عندما صنفت علي اساس الجنس ومدة المرض , قيمة بيرسون ساوت (0.374 و 0.330) علي التوالي. متوسط مستوى بروتين سي التفاعلي أظهر ارتفاع ملحوظ عند مجموعة فاقد فيتامين (د) , قيمة بيرسون تساوي (0.049).

ارتباط بيرسون أظهر وجود علاقة عكسية ضعيفة بين فيتامين (د) و بروتين سي التفاعلي, معامل الارتباط (-0.137), قيمة بيرسون تساوي (0.205) .

نتائج هذه الدراسة تخلص الى أن: بروتين سي التفاعلي علامة مؤشرة مفيدة لأمراض القلب والأوعية الدموية لدى مرضى ارتفاع ضغط الدم فاقد فيتامين (د), كما ان الإناث أكثر عرضة لنقص فيتامين (د) من الذكور. المزيد من الدراسات موصى بها لتوضيح الية الارتباط بين ارتفاع ضغط الدم, فيتامين (د) و بروتين سي التفاعلي.

List of Contents

Content	Page No
Dedication	I
Acknowledgements	II
Abstract	III
ملخص الدراسة	IV
List of Contents	V
List of Figures	VIII
List of Tables	X
Chapter One: Introduction and Literature Review	
1.1 Hypertension	1
1.1.1 Epidemiology	1
1.1.2 Classification of Hypertension	1
1.1.2.1 Essential Hypertension	2
1.1.2.2 Secondary Hypertension	2
1.1.3 Complications and Target Organ Damages of Hypertension	2
1.1.4 Diagnosis of Hypertension	2
1.1.4.1 Blood Pressure Measurement	2
1.1.4.2 Laboratory Investigations	3
1.1.5 Treatment of Hypertension	3
1.1.6 Prevention of Hypertension	3
1.2 Vitamin D	3
1.2.1 Vitamin D Structure	3
1.2.2 Vitamin D Nomenclature	4
1.2.3 Chemical Properties	4
1.2.4 Isolation of Vitamin D Metabolites	4
1.2.5 Physiology of Vitamin D	4
1.2.6 Absorption of Vitamin D	5
1.2.7 Synthesis of Vitamin D	5
1.2.8 Transport by Vitamin D Binding Proteins (Vitamin DBP)	5
1.2.9 Storage of Vitamin D	5

1.2.10 Metabolism of Vitamin D	6
1.2.11 Catabolism and Excretion of Vitamin D	6
1.2.12 Physiological Action of Vitamin D	6
1.2.12.1 Action of Vitamin D in Endocrine System	6
1.2.12.2 Non Genomic Action of Vitamin D	7
1.2.12.3 Vitamin D in Non -classical System	7
1.2.12.4 Specific Functions of Active Vitamin D	7
1.2.13 Nutritional Requirements and Recommended Dietary Allowance of Vitamin D	8
1.2.14 Food Sources of Vitamin D	8
1.2.15 Vitamin D Deficiency	8
1.2.16 Hypervitaminosis D	9
1.2.17 Vitamin D as hormone function	9
1.2.18 Biological Mechanisms Relating Vitamin D with Hypertension	9
1.2.18.1 Vitamin D and Renin- Angiotensin System (RAS)	9
1.2.18.2 Vitamin D and Intracellular Calcium homeostasis	9
1.2.18.3 Vitamin D and Other Vascular Mechanisms	10
1.2.18.4 Secondary Hyperparathyroidism	10
1.3 C-Reactive Protein	10
1.3.1 Definition	10
1.3.2 History and Nomenclature of CRP	10
1.3.3 Genetic and Biochemistry of CRP	11
1.3.4 Function of CRP	11
1.3.5 Clinical Significance of CRP	12
1.3.6 Role of CRP in Cardiovascular Disease	12
1.3.7 Diagnostic use of CRP	13
1.3.8 Cardiology Diagnostic Test of CRP	13
1.3.9 CRP and Hypertension	14
1.3.9.1 Pathophysiologic Implications	14
1.3.9.1.1 Causative Connection	14
1.3.9.1.2 Reverse Causality	15
1.4 Rationale	16

1.5 General Objective	17
1.6 Specific objectives	17
Chapter Two: Materials and Methods	
2.1 Materials	18
2.1.1 Study Design	18
2.1.2 Study Area	18
2.1.3 Study Population	18
2.1.4 Inclusion Criteria	18
2.1.5 Exclusion Criteria	18
2.1.6 Collection of samples	18
2.1.7 Ethical Considerations	18
2.2 Methods	19
2.2.1 Vitamin D Estimation	19
2.2.1.1 Principle	19
2.2.1.2 Procedure	19
2.2.1.3 Calculation of Results	20
2.2.1.4 Detection Limits	20
2.2.1.5 Linearity	20
2.2.2 CRP Estimation	20
2.2.2.1 Principle	20
2.2.2.2 Procedure	20
2.2.2.3 Calculation	20
2.2.3 Statistical Analysis	20
Chapter Three: Results	
Results	21
Chapter Four: Discussion	
Discussion	35
Conclusion	41
Recommendations	42
References	43
Appendix	50

List of Figure

Figure	Title	Page No
Figure (3.1)	Fig. 3.1 Shows frequencies of gender among hypertension patients, results expressed as percentage (%).	21
Figure (3.2)	Fig. 3.2 Presenting the mean of hs CRP level in study group classified according to vitamin D status (normal, deficient and sever deficient), result expressed as ($M \pm STD$)	25
Figure (3.3)	Fig. 3.3 Shows mean of hs CRP level in study group classified based on gender (male and female), result expressed as ($M \pm STD$), with P -value 0.374	26
Figure (3.4)	Fig. 3.4 Shows mean of hs CRP level in study group classified based on body weight, normal weight ($BMI \leq 26.5 \text{ kg/m}^2$) and over weight ($BMI > 26.5 \text{ kg/m}^2$), result expressed as ($M \pm STD$), with P -value 0.014.	27
Figure (3.5)	Fig. 3.5 Presenting mean of hs CRP level in study group, classified as 40 years and less and more than 40 years, result expressed as ($M \pm STD$), with P -value 0.223.	28
Figure (3.6)	Fig. 3.6 Shows mean of hs CRP level in study group based on duration of disease, as group with disease for 5 years and less and other with disease for more than 5 years, result expressed as ($M \pm STD$), with P -value 0.330	29
Figure (3.7)	Fig. 3.7 Shows mean of vitamin D level in study group classified based on gender (male and female), result expressed as ($M \pm STD$), with P -value 0.000.	30

Figure (3.8)	Fig. 3.8 Shows mean of Vitamin D level in study group classified based on body weight, normal weight ($BMI \leq 26.5 \text{ kg/m}^2$) and over weight ($BMI > 26.5 \text{ kg/m}^2$), result expressed as ($M \pm STD$), with P -value 0.033.	31
Figure (3.9)	Fig. 3.9 Shows mean of Vitamin D level in study group, classified as 40 years and less and more than 40 years, result expressed as ($M \pm STD$), with P -value 0.959.	32
Figure (3.10)	Fig. 3.10 Shows mean of Vitamin D level in study group based on duration of disease, as group with disease for 5 years and less and other with disease for more than 5 years, result expressed as ($M \pm STD$), with P -value 0.041.	33

List of Tables

Table	Title	Page No
Table (3.1)	Table.3.1 Shows percentages of BMI, classified as normal weight ($\text{BMI} \leq 26.5 \text{ kg/m}^2$) and over weight ($\text{BMI} > 26.5 \text{ kg/m}^2$) among gender (male and female).	22
Table (3.2)	Table.3.2 Presenting the percentages of vitamin D status (normal, deficient and sever deficient) among gender (male and female).	23
Table (3.3)	Table.3.3 Shows percentages (%) of vitamin D status (normal, deficient and sever deficient) among both gender classified based on body weight, normal weight ($\text{BMI} \leq 26.5 \text{ kg/m}^2$) and over weight ($\text{BMI} > 26.5 \text{ kg/m}^2$).	24
Table (3.4)	Table.3.4 Shows Pearson correlation analysis, showed the correlation between vitamin D and hs CRP, result expressed as (Pearson's r: 0.137, P: 0.205)	34