بسم الله الرحمن الرحيم

Sudan University of Science and Technology

Colloge of Graduate Studies

Measurement of Prothrombin Time and Activated Partial Thromboplastin Time of Sudanese Smokers in Khartoum State

قياس زمن البروثرومبين والثرومبوبلاستين الجزئي المنشط في المدخنين السودانين في ولاية الخرطوم

A dissertation submitted in partial fulfillment of MSc degree in Medical laboratory science – Hematology and Immunology Department

By

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ا لآيـــــــــة

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{قُل لَّوْ كَانَ الْبَحْرُ مِدَادًا لِّكَلِمَاتِ رَبِّي لَنَفِدَ الْبَحْرُ قَبْلَ أَن تَنفَدَ كَلِمَاتُ رَبِّي وَلَوْ جِئْنَا بِمِثْلِهِ مَدَدًا }

صدق الله العظيم

سورة الكهف الآية 109

Dedication

To the candle which burns to enlighten the life

My mother

To the one who I live for making his dream to become true

My father

To who encouraged me

My sisters

(Doha, Reel, Leen)

My friends

To special person who inspired and give me the meaning of the being

(Waleed)

To those who have made it possible my teachers

To any person who support me till I reach this stage

To every person hope to see me successful

Acknowledgement

Firstly all thanks to Almighty Allah for blessing my life. Greatest thanks to my supervisor for her support, guidance and encouragement .

Professor. Sana ElTahir Abdullah

Thanks are extended to all teachers staff of Hematology Department, University and special thanks to Ustaz . Mudather Abdalrheem for his support and help throughout this study.

Thank you for any one who helped me in this study ,Finally special gratitude is sent to the all volunteers for their cooperation and patience.

Abstract

This is a case control study, was done in khartoum state in the period from april to september 2014.The aim of this studyis to determine some of the haemostatic parameters (Prothrombin Time(PT) and Activated Partial Thromboplastin Time(APTT), among Sudanese tobacco smokers to determine the effect of smoking on PT and APTT.One hundred and fifty blood samples were collected , 100 samples as a case group (smokers), and 50 samples as a control group (non-smokers). Platelet Poor Plasma were obtained form the blood samples to measure the PT and APTT using coagulometer .

The result revealed that the mean of PT was 18.2±3.2 seconds among the case group and 13.1±1.5 seconds for the control group was statistically significant ($P < 0.05$), while APTT was 33.4± 3.5 seconds and 30.8±2.1 seconds for case and control group respectively, was statistically insignificant ($P > 0.05$). Also the result showed that there is no significant differences regarding to PT and APTT when compared with the duration of smoking and the number of cigarette smoked per day. On conclusion there was a significant prolongation of PT among the case group (smokers) and the APTT were not affected.

المستخلص

هذه الدراسة اجريت لقياس وقت البروثرومبين و الثرومبوبلاستين المنشط الجزئي ، بين مدخني التبغ السودانيين لقياس تأثير تدخين عليهما وهي دراسة عرضية،اجريت في ولاية الخرطوم في فترة من ابريل إلى سبتمبر 2014 عينات الدم المجمعه 150، 100 عينة كمجموعة حالة (مدخنون)، و50 عينة كمجموعة قياسية (غير مدخّن).الدم على شكل بلازما صفيحة دم وتقيأسها باستخدام جهاز قياس التجلط.

اظهرت النتائج بأن متوسط زمن البروثرومبين 18.2±3.2 ثانية بين مجموعة الحالة و13.1±1.5 ثانية للمجموعة القياسية التي كانت هامة بشكل إحصائي (P>0.05)، بينما كان الثرومبوبلاستين المنشط الجزئي 33.4±3.5 ثانية و30.8±2.1 ثانية للحالة والمجموعة القياسية على التوالي، الذي كان غير هامه بشكل إحصائي (P< 0.05). اظهرت أيضاً النتيجة بأنه ليس هناك إختلافات بخصوص إلى البروثرومبين والثروبوبلاستين المنشط الجزئي عندما قارنا بدّة تدخين وعدد مرات التدخين اليوميه . في الخاتمة كان هناك إطالة في زمن البروثرومبين بين مجموعة الحالة (مدخنون) وقيم الثرومبوبلاستين المنشط الجزئي لم تؤثر عليها.

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Abbreviation

ADA	Adenosine deaminase
ADP	Adenosine diphosphate
ADP ase	Adenosine diphosphatase
APTT	Activated partial thrompoblastin time
cAMP	Cyclic adenosine monophosphate
CaCl	Calcium /chloride
CD40L	CD40 Ligand
COPD	Chronic obstructive pulmonary disease
DIC	Disseminated intravascular coagulation
FDPs	Fibrinogen degradation products
GP	Glycoprotein
GPI	glycophosphoinositol
HLA	Human leukocyte antigen
HMWK	High molecular weight kininogen
MW	molecular weight
NO	Nitric oxide
O.D	Optical density
PC	Protein C
PG	Prostaglandin
PI3 kinase	Phosphatidylinositol 3-kinase
PLA2	Phospholipase A2
PPP	Platelet poor plasma
PT	Prothromin time
TF	Tissue factor
TFPI	Tissue factor pathway inhibtor
tPA	Tissue plasminogen activator
TXA2	Thromboxane A2
uPA	Urokinase plasminogen activator
vWF	VonWillbrand factor
WHO	World health organization