

# **Dedication**

**To my:**

- Beloved and blessed parents who did everything for me.**
- Lovely ants.**
- Dear brothers and sister.**
- Dear members of my family.**
- Wonderful Dr. Munsoor Mohammed Munsoor.**

## ***Acknowledgment***

Primary my praise and thanks should be to Allah, the almighty most gracious and most merciful, who granted me the serenity, means of strength and practice to accomplish this work.

I am deeply indebted to my supervisor Dr: **Munsoor Mohammed Munsoor** for his valuable help and guidance during this study I am also great to his patience assistance and invaluable device.

My appreciation is extend to all academic staff, technologist and other members of the department of haematology Sudan University of science and technology

## Abstract

This study was hospital analytical case control, and it was conducted for evaluate of haemostatic mechanism among the Sudanese patient with liver diseases attending Khartoum teaching hospital throughout the period between November 2009– March 2010.

Forty patients were informed about the study, expected out come and agreement of participation was obtained, then the questionnaire was used to collect the information about patient's age, sex, blood groups as well as other diseases.

As well 5 ml of blood were taken from the patients 2.5 ml of which were taken in heparin anticoagulant, and the remaining 2.5 were taken in EDTA anticoagulant and were used to evaluate the haemostatic mechanism (Prothrombin Time, Activated Partial thromboplastin, Platelets counts).

The mean age of patients having liver diseases was 49 years. The liver disease patients include two gall cholecystitis (5%), five obstructive jaundice (13%), ten liver cirrhosis (25%), fifteen HBV (38%), six HCV (15%) and two liver metastasis (5%). The values of PT, APTT, INR and Platelet of the liver diseases patient were (17.5), (39.8), (1.5) and (151.8) respectively.

The PT values in Liver cirrhosis, HBV, gall cholecystitis and obstructive jaundice were higher compared with control; *P*.value was < 0.008, <0.08, <0.000 and <0.03 respectively.

The APTT values in HBV, obstructive jaundice, HCV and liver metastasis there were higher compared with control, *P*.value were < 0.002, < 0.000, <0.04 and < 0.003 respectively.

The Platelet count values in Liver cirrhosis, HBV and HCV there were higher compared with control *P*.value were < 0.000, <0.000 and < 0.007 respectively.

Lastly the PT-INR in Liver cirrhosis, gall cholecystitis, obstructive jaundice and HCV there were higher compared with control *P*.value were < 0.01, < 0.003, < 0.03 and < 0.008 respectively. In conclusion the haemostatic mechanism is extremely affected as results of liver diseases.

## ملخص الاطروحه

هذه دراسته تحليله تعتمد علي المقارنه بين الحاله والمعيار المفترض , تم اجراءها لتقييم آليه التجلط, لدي المرضى السودانيين البالغون المصابون بامراض الكبد بمستشفى الخرطوم التعليمي في الفترة بين نوفمبر 2009م - مارس 2010م .

. تم اخطار 40 مريضا عن الدراسه واغراضها , وبعد ذلك تم اخذ الموافقه

بعد ذلك جمعت المعلومات من المرضى بواسطه الاستبيان عن الجنس , العمر , فصيلة الدم وما اذا كانوا مصابين بامراض اخري .

ايضا اخذت من المرضى 5 ملليلتر من الدم. 2.5 مل منها في انبويه اختبار تحتوي و 2.5 مل الاخرى اخذت في انبويه اختبار تحتوي علي, ( EDTA ) علي مانع التجلط وقد استعملت لتقييم الية التجلط . (زمن Heparin) مانع التجلط الهيبرين (وتعداد الصفائح الدموية INR و APTT وزمن الثرومبلاستين النشط PT البروثرومبين

وقد اظهرت نتائج التحليل الحصائي ان متوسط اعمار مرضي الكبد هو 49 سنه , وايضا اظهرت النتائج النسب المئوية لامراض الكبد: تليف الكبد (25%)، اليرقان الانسدادي (13%)، التهاب المرارة (5%)، التهاب الكبد الوبائي (ب) (38%)، التهاب الكبد الوبائي (س) (15%) واورام الكبد (5).

INR و APTT وزمن الثرومبلاستين النشط PT كما وجد ان متوسط زمن البروثرومبين . وتعداد الصفائح الدموية هو 17.5 ، 39.8 ، 1.5 و 151.8 علي التوالي

وجد ان قيم زمن البروثرومبين لمرضى تليف الكبد ، و التهاب الكبد الوبائي (ب) ، و التهاب المرارة ، واليرقان الانسدادي . كانت عالية مقارنة بالمعيار المعنوي تساوي 0.008، 0.03 ، 0.000 ، 0.03 علي التوالي

اما بالنسبة لقيم زمن الثرومبلاستين النشط لمرضى التهاب الكبد الوبائي (ب) ، اليرقان الانسدادي ، التهاب الكبد الوبائي (سي) ، اورام الكبد كانت عالية مقارنة بالمعيار المعنوي تساوي 0.02 ، 0.000 ، 0.04 ، 0.003 علي التوالي

كما ان قيم تعداد الصفائح الدموية لمرضى تليف الكبد ، التهاب الكبد الوبائي (ب) ، التهاب الكبد الوبائي (سي) كانت قليلة مقارنة بالمعيار المعنوي تساوي 0.000، 0.007، 0.000.

لمرضى تليف الكبد ، التهاب المرارة ، اليرقان الانسدادي ، PT-INR واخيرا قيم التهاب الكبد الوبائي (سي) كانت عالية مقارنة بالمعيار المعنوي تساوي 0.01 ، 0.003، 0.03 ، 0.008 علي التوالي

خلاصه : وجد ان آليه التجلط تتاثر بشدة بسبب الاصابه بامراض الكبد

## LIST OF ABBREVIATION

Item	Abbreviation
Prothrombin time	PT
Activated partial thromboplastin time	aPTT
International normalize index	INR
Platelets	Plts
Anti thrombin	AT
Fibrin derivative products	FDBs
von Willebrand factor	vWf
phospholipase enzymes	PLA <sub>2</sub>
Thromboxane A <sub>2</sub>	TXA <sub>2</sub>
tissue factor	TF
high-molecular-weight kininogen	HMWK
tissue factor pathway inhibitor	TFPI
Platelet Function Analyzer	PFA
international sensivity index	ISI
thrombin time	TT
very low density lipoproteins	VLDLs
Thrombopoietin	tpo
disseminated intravascular coagulation	DIC
collagen-ADP	COL-ADP
Collagen-epinephrine.	COL-Epi
hepatic satellite cells	HSCs
protease activated receptors	PARs
hepatitis C virus	HCV
Ethylene diamine tetra acetic acid	EDTA
optical cytometer hydro focus free	OCHF
forward side scatter	FSC
Platelet poor plasma	PPP
logarithmic mean normal PT	LMNPT
kaolin cephalin clotting time	KCCT
thromboplastin time with kaolin	PTTK

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