

## الآية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

فَتَبَسَّمْ ضَاحِكًا مِنْ قَوْلِهَا وَقَالَ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ  
نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا  
تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ

صدق الله العظيم

سورة النمل الآية 19



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**I dedicate this study to my mother and father  
for supporting me all these years and my  
family for being by my side.**

**To my brothers and sisters**

**To my colleagues and friends.**



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**I thank Allah for giving me the ability to complete this study. I would like to thank my supervisor Dr. Munsoor Mohamed for being by my side and helping me throughout this study. I also appreciate the support of the lab staff in Isotope Therapy and Radiation Center in Khartoum and Turkey Hospital. My thanks extended to my friends; Ekram, Randa, Shaema and Ayman.**



This is a descriptive cross-sectional study conducted during the period from March 2011 to June 2011 in Radio isotopes center(RICK) at Khartoum state , the study aimed to determine the coagulation mechanism among 100 Sudanese breast cancer female patients, as test group, and 50 healthy female , as control group. The patients with an age range between 31-70 year, with average of 49 years, and the control group with age range between 30 -70 year, with average of 47 years.

Five (5) ml of venous blood were collected from breast cancer female patients and control group, 3 ml were added in trisodium citrate anticoagulant to preparation of platelet poor plasma from citrated blood by centrifugation at 3000 round /minute for 15minute, the ppp analyzed by using coagulometer instrument (clot) for PT and APTT, the remaining 2 ml of blood was added in EDTA anticoagulated for platelet count and Hemoglobin measurement by using automated hematology analyzer (F-820).

Fifty one percent of patients had been diagnosed with Invasive ductal carcinoma (IDC), 27% were ductal carcinoma (DC) ,5% were Invasive cystic carcinoma (ICC) ,4% were Bilateral carcinoma (BC), 4% were inflammatory breast cancer (IC), 3% were Lobular carcinoma (LC), 3% were Papillary carcinoma (PC) and 3% with Phyllodes tumor(PsT).

There were 45% of patients in grade II, 25 % in grade I, 21% in grade III and 5% in grade IV and 4% grade Zero.

The results showed that all females patients had a history of breast cancer for about several months, also the results indicated that there were 79% of patients had been treated with chemotherapy, 3% treated with chemo/radiotherapy and remaining not treated with any types of treatment .

Also the result showed that Hb and platelets were in the limit of control values. PT and INR were significantly increased and APTT were decreased according to control group. The result indicate that the

mean of PT & INR increased in patients with invasive ductal carcinoma and phyllodes tumor ,when the mean of APTT increased in patient with phyllodes tumor, the means of Hb and platelet were decreased in papillary carcinoma and phyllodes tumor .Also the result indicated the mean of PT and INR increased in patient had not treated and patient treated by chemotherapy ,when the mean of APTT decreased in patient treated with chemo/radiotherapy ,with no correlate between this parameters and dose of treatment.

The conclusion of this study proved that the mean of PT increased in breast cancer patient female probably due to defect in the liver function or decreased the level of vitamin K

Also the decreased in APTT which probably result of circulating activating clotting factors and elevated level of factor VIII.

## ملخص البحث

أجريت هذه الدراسة الوصفية المقطعية خلال الفترة من مارس 2011 و حتى يونيو 2011 في مركز العلاج بالذرة والإشعاع النووي بولاية الخرطوم ,وشملت هذه الدراسة مجموعة من 100 أمراه مصابة بسرطان الثدي, تراوحت أعمارهن فيما بين 31-70عاما, بينما كان متوسط أعمارهن 49 عاما. كما اختير لهذه الدراسة عدد 50 أمراه معافاة (كمجموعه ضابطة ) وبتراوح أعمارهن ما بين 30- 70 عاما , بينما كان متوسط أعمارهن 47 عاما.

تم أخذ 5 مل من الدم الوريدي من النساء المصابات بسرطان الثدي والمجموعة الضابطة وضع 3 مل في مضاد التجلط سترات الصوديوم الثلاثية لتحضير البلازما فقيرة- الصفائح الدموية بواسطة وضع الدم المحفوظ في سترات الصوديوم في جهاز الطرد المركزي في 3000 دوره بالدقيقة لمدة 15 دقيقة , تم قياس البروثرومبين والثرومبولايتين الجزئي النشط بواسطة جهاز قياس زمن التجلط . ما بقى من الدم 2 . لقياس خضاب الدم و الصفائح الدموية EDTA مل وضع في مضاد التجلط

تم تشخيص 51% من الحالات بأنها مصابة بسرطان قنوات الثدي المنتشر, 27% من الحالات بأنها مصابة بسرطان قنوات الثدي , و 6% بأنها مصابة بسرطان الكيس المنتشر, و 4% من الحالات تتمثل في السرطان الألتهاى, و 4% بالسرطان الثنائي, و 3 % بالسرطان الارتشاحى للغدد, و 3% تتمثل في السرطان العنقودي و 3% تتمثل في ورم . فليدز .

تم تصنيف 45% من المريضات بأنهن في المرحلة الثانية من المرض , و 25% في المرحلة الأولى, و 21 % في المرحلة الثالثة من المرض 5 % في المرحلة الخامسة

وقد لوحظ أن مدة المرض عند المصابات تبدأ من شهر أو أكثر , و أن 79% من النساء تحت العلاج الكيميائي ,18% لم تتم معالجتهم ,بينما تم علاج 3 % من المريضات بواسطة العلاج الاشعاعى والكيميائي معا .

و ايضا أظهرت النتائج أنه لا يوجد اختلاف في معدل خصاب الدم و الصفائح الدموية بين المصابات بسرطان الثدي والمجموعة الضابطة , بينما يوجد زيادة في متوسط زمن البرو ثرومبين والمعدل العالمي النسبى و نقصان في متوسط الثرومبو بلايتين الجزئي النشط .

أظهرت النتائج وجود زيادة في متوسط البرو ثرومبين والمعدل العالمي النسبى لدى المريضات المصابات بسرطان الكيس المنتشر وورم فليدز ووجد نقصان في متوسط الثرومبوبلايتين الجزئي النشط لدى المصابات بورم فليدز و أيضا نقصان في متوسط خصاب الدم والصفائح الدموية لدى المصابات بالسرطان العنقودي وورم فليدز و أظهرت الدراسة وجود زيادة في متوسط معدل البرو ثرومبين والمعدل العالمي لدى المريضات اللآتى لم تعالجن واللاآتى يعالجن بالعلاج الكيميائي , ونقصان في متوسط الثرومبوبلايتين الجزئي النشط لدى المريضات اللآتى يعالجن بالعلاج الاشعاعى والكيميائي معا ولقد تبين أيضا انه لا توجد علاقة ذات دلالة احصائية بين الاختبارات التي أجريت في الدراسة وعدد جرعات العلاج.

خلصت هذه الدراسة الى : زيادة معدل زمن البرو ثرومبين في النساء المصابات بسرطان الثدي ربما يرجع إلى الاعتلال فى وظائف الكبد أو نقص فيتامين ك .

كما أظهرت الدراسة نقصان زمن الثرومبوبلايتين الجزئي النشط ربما نتيجة إلى نشاط عوامل التجلط و زيادة في عامل 8

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# Abbreviation

APTT : activated parietal tromboplastine time.

BC : bilateral carcinoma .

BRCA : breast receptor cancer antigen.

DC : ductal carcinoma .

DIC : disseminated intravascular coagulation.

DNA: deoxy nucleic acid

ER : estrogen receptor .

FDP :fibrinogen degradation product .

FNAC : fine needle aspiration and cytology .

HMWK : high molecular weight kininogen .

IBC : inflammatory breast cancer .

ICC : invasive cystic carcinoma .

IDC : invasive ductal carcinoma .

INR : international normalized ratio .

ISI : international sensitivity index .

LC : lobular carcinoma .

PC : papillary carcinoma .

PLA : phosphor lipase enzyme .

PPP : platelet poor plasma .

PR : progesterone receptor .

PT : prothrombin time .

Pst : phyllodes tumor .

TF : tissue factor .

TFPI : tissue factor pathway inhibitor .

TNF : tumor necrosis factor .

TNM : t size of tumor, n spread to lymph node ,m metastasis to distant part of the body.

TXA : thromboxane A<sub>2</sub> .

vWF : von willebrand factor .