بسم الله الرحمن الرحيم

قال الله تعالى

اللَّهُ نُورُ السَّمَاوَاتِ وَالْأَرْضِ ۚ مَثَلُ نُورِهِ كَمِشْكَاةٍ فِيهَا مِصْبَاحٌ ۖ الْمِصْبَاحُ فِي زُجَاجَةٍ ۖ
الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ يُوقَدُ مِنْ شَجَرَةٍ مُبَارَكَةٍ زَيْتُونَةٍ لَا شَرْقِيَّةٍ وَلَا غَرْبِيَّةٍ
يَكَادُ زَيْتُهَا يُضِيءُ وَلَوْ لَمْ تَمْسَسْهُ نَارٌ ۚ نُورٌ عَلَىٰ نُورٍ ۗ يَهْدِي اللَّهُ لِنُورِهِ مَنْ يَشَاءُ ۚ
وَيَضْرِبُ اللَّهُ الْأَمْثَالَ لِلنَّاسِ ۗ وَاللَّهُ بِكُلِّ شَيْءٍ عَلِيمٌ

صدق الله العظيم

سورة النور الآية (35)

Dedication

To my father

My mother

My brother

My friend (wifaq ,usra, Sara and Abubakr)

Acknowledgement

Firstly I thank Allah for his bless of life and

Creation …..

To my family for their great support in my of

Life….

With my respect and love I dedicate this modest work

To my supervisor Dr. Hassan Elsiddig

and full thanks to Nada Salih Salih

&Dr. Moneera Abdallah

Radiation and isotope center-Khartoum (RICK)

ملخص الدراسه

اجريت هذه الدراسه الوصفيه في ولايه الخرطوم في الفتر بين فبراير 2012 وحتي يوليو 2012 وتهدف للكشف عن العلاقه بين واسمات السرطان , مستقبل الاستروجين, مستقبل البروجستيرون وهير 2 مع الكي اي 67 ,لدي السودانيين المصابين بسرطان الثدي .استخدمت في هذه الدراسه خمسين عينه عشوائيه, 47 كانت من مرضي كانوا مشخصين بالسرطان الغددي الغازي ,اثنان سرطان مخاطي وواحد سرطان حليمي, تراوحت اعمارهم بين 20 و 80 سنه .

لكل عينه طبقت اثنتين من التقنيات النسيجيه : الهيماتوكسلين والايوسين وكيمياء مناعه الانسجه للكي اي 67.

كانت النتائج كالاتي :الاستروجين كان ايجابيا ل 27 عينه بنسبه (54%) والبروجستيرون كان ايجابيا ل15 عينه بنسبه (30%) والهير 2 7 (14%) كان +1و10 (20%) ++ و11 (22%)كانت +++ ,والكي اي 67 كان ايجابيا ل 29عينه بنسبه(54%) بالاعتماد علي هذه النتائج خلصت الدراسه الي انه لاتوجد علاقه ذات دلاله احصائيه بين الكي اي 67 مع مستقبل الاستروجين , البروجستيرون والهير2.

.

Abstract

This is a descriptive retrospective study carried out in Khartoum state_Sudan during the period from February 2012 to July 2012.The study aimed at detection the association of ki67 proliferative marker with ER, PR, and HER2 markers among Sudanese females with Breast Cancer random Samples from 50 patients were included (47 with invasive ductal carcinoma, 2 with Mucinous carcinoma, and one sample with papillary carcinoma). Their ages ranging from 20 to 80 years.

For each specimen 2 histopathological procedures were performed; H&E stain and ki67 immunohistochemistry.

ER was expressed among 27 (54%) of the samples, PR expressed among 15(30%) of the samples, while expression of HER2 seven samples (14%) were +, ten samples (20%) were ++, 11 samples (22%) were +++.The expression of Ki67were on 29(54%) sample On the basis of these findings it is concluded that; there was no statistical association between ki67, and the demonstrated ER, PR and HER2.

List of continent

Subject	Page no
Chapter one	
1.1: Introduction	1
1.2: objectives	3
1.2.1: General objective:	3
1.2.2: Specific objectives	3
Chapter Tow	
2. Review of Literature	4
2.1. Anatomy and Histology of the breast	4
2.2 The lymph (lymphatic) system of the breast	5
2.3 Normal histology of the breast	6
2.4 Breast cancer:	8
2.4.1 Risk factor:	8
2.4.2 Sign and symptom	8
2.4.3:Biology of breast cancer	8
2.5 Type of Breast Cancer:	9
2.5.1.Ductal carcinoma in situ	9
2.5.2. Invasive (or infiltrating) ductal carcinoma 2.5.3Invasive(or infiltrating) lobular carcinoma:	9 10
2.5..4. 1Inflammatory breast cancer	10
2.5. 6.Triple-negative breast cancer	10
2.5. 7.Paget disease of the nipple	11
2.5.8. Phyllodes tumor	11
2.5.9. Angiosarcoma:	12

2.5.10.Special types of invasive breast carcinoma	12
2.6 Clinical examination	13
2.6 1. Mammograms	13
2.6.2. Ultra Sound	13
2.6.3. MRI	14
2.7. Lab diagnosis:	16
2.7.1. Biopsy	16
2.7.2. FNA:	16
2.7.3. In Situ Hybridization	17
2.8. Immunohistochemistry	17
2.8.1Tumor marker	17
2.8.1.1.Estrogen and progesterone receptors	17
2 .8.1.2.Her-2	20
2.8.1.3.ki67	22
2.8.1.3.1Nature, Sequence, and Function	22
2.8.1.3.2Determination of Ki-67	24
2.8.1.3.3Ki-67and Other Markers of Proliferation	24
2.8.1.3.4 Ki67 and breast	25
Chapter three	
3.1 Study design	30
3.2.Study area	30
3.3Study sample	30
3.4Selection criteria	30
3.5 Ethics	30
3.6 Sample collection & preparation	30
3.7 Staining procedures:	31

3.7.1Haematoxylin and Eosin	31
37.2Immunohistochemical staining	31
3.8 Statistical analysis	32
Chapter four	
4 result	33
Chapter five	
5-Discussion	46
Chapter six	
Conclusion and recommendations	49
Chapter seven	
References	50

List of tables

Table No	Title	Page
Table 4.1	Classification of study population by diagnosis	35
Table 4.2	Distribution of study population by age (years)	36
Table 4.3	The description of study population by tumor grade	37
Table 4.4	Diagnosis and Ki67correlation	42
Table 4.5	ER and KI67 correlation	43
Table 4.5	ER and KI67 correlation	44
Table 4.7	HER2 and Ki67 correlation	45

List of figures

Figure NO	Title	Page
Figure 4.1	The expression of ER marker among the study samples	38
Figure 4.2	The expression of PR marker among study samples	39
Figure 4.3	The expression of HER2 marker among study samples	40
Figure 4.4	The expression ki67marker among	41

List of abbreviations

ER	Estrogen
Pr	Progesterone
Bc	Breast cancer
%	percent
H&E	Haematoxylin and Eosin
T	Tumor size
N	Number of lymph node
M	Metastasis
Ig	Immunoglobulin
DCIS	Ductal carcinoma in situ
IDC	.Invasive ductal carcinoma
ILC	Invasive lobular carcinoma
IBC	Inflammatory breast cancer
HER2	Human epidermal receptor
KD	Kilo Dalton
FISH	Florescent. In Situ Hybridization
TNBC	treated with neoadjuvant chemotherapy
SPSS	Statistical package of social science
PCR	Polymerase chain reaction