الآية

بِسْمِ اللّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى:

إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ وَالْفُلْكِ الَّتِي تَجْرِي فِي الْبَحْرِ بِمَا يَنْفَعُ النَّاسَ وَمَا أَنْزَلَ اللَّهُ مِنَ السَّمَاءِ مِنْ مَاءٍ فَأَحْيَا بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا وَبَثَّ فِيهَا مِنْ كُلِّ دَابَّةٍ وَتَصْرِيفِ الرِّيَاحِ وَالسَّحَابِ الْمُسَخَّرِ بَيْنَ السَّمَاءِ وَالْأَرْضِ لَآيَاتٍ لِقَوْمٍ يَعْقِلُونَ

صدق الله العظيم

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Dedication

To my mother

To my **father**

To my **brothers**

They gave me my life, and everything else in between, but they truly shut me up when the words comes to describe how much I love them and appreciate the efforts they have put into giving me the life I have now.

To my **best friends**

Who are always in my heart.

Acknowledgements

Firstly we thank **Allah** for His continuous blessing that make this work accomplished and possible.

Then, I would like to express my deep gratitude to **Dr. Amar Mohammed Ismail** who was abundantly helpful and offered invaluable assistance, support and guidance.

I want to extend my deep thanks to **my faculty** for providing the laboratory facilities**.**

I cannot find word to express my gratitude to **my colleages** for sharing knowledge and assistance

Abstract

A descriptive cross-sectional hospital based study was conducted in the Radiation & Isotopes Centre Khartoum (RICK), during the period from March to August 2013. In order to estimate Vitamin D and phosphate levels in Sudanese patients with breast cancer, sixty histologically confirmed breast cancer patients and thirty apparently healthy females as control group.

Vitamin D was estimated using Euroimmun 25-OH vitamin D competitive ELISA kits, phosphate was estimated using phosphomolybdic acid method, fully automated analyzer used for washing and reading processes, spectrophotometer analyzer for reading of phosphate concentration, questionnaire and results data obtained were analyzed using (SPSS version 16).

The results showed, that majority of breast cancer patients at age 41-60 which compose 45%. There was decrease in mean of serum vitamin D level among patients compared with control group resulting in (*P*-value=0.000). This study showed that , no significant increase in mean serum phosphate levels between patients in comparison with control group (*P*-value=0.19). The results showed a decrease in vitamin D levels in postmenopause compared with premenaupose breast cancer patients (P-value=0.046).

There was no significant decrease in the mean of serum vitamin D and no significant increase in the mean of serum phosphate level in breast cancer patients when classified according to their parity, body mass index and duration of disease, the results showed week negative correlation between vitamin D and phosphate.

The study concluded that, there was a decrease in vitamin D level among Sudanese women with breast cancer especially in menopause women. Vitamin D supplement trail to evaluate if breast cancer patients in Sudan needs vitamin D supplement and

monitoring to avoid vitaminosis is recommended. study the vitamin D and phosphate in correlation with breast cancer stages and metastasis.

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اجريت هذه الدراسة بمستشفي الذرة للعلاج بالاشعة النووية بولايه الخرطوم خلال الفترة من مارس الي اغسطس 2013 وذلك بهدف قياس مستوى فيتامين د والفوسفات في مصل مرضي سرطان الثدي .تم جمع ستين عينة دم من مريضات سرطان الثدي بالاضافة الى ثلاثين عينة دم اخري جمعت من نساء اصحاء غير مصابات . قيس معدل فيتامين د باستخدام الطريقة المناعية الانزيمية بينما قيس الفوسفات باستخدام طريقة المولييبدات الفوسفاتية.تم جمع النتائج وحللت البيانات احصائيا حيث اوضحت الدراسة ان خمسة واربعون من النساء المصابات بسرطان الثدي تقع اعمارهن مابين الاربعين والستين عام . كما وجدت الدراسة انخفاضا في متوسط تركيز فيتامين د لدى المرضى خاصة من زادت اعمارهن عن الخمس واربعين. لم تكن هنالك اي فروق معنوية في متوسط تركيز فيتامين د والفوسفات لدى النساء المصابات بسرطان الثدي عندما قسمن الى مجموعات حسب عدد مرات الانجاب ووزنهن وفترة اصابتهن بالمرض . كما وجدت الدراسة علاقة عكسيه غير معنوية بين فيتامين د الفوسفات.

استنادا على هذه النتائج اوصت الدراسة بضرورة اعطاء مرضى سرطان الثدي جرعات فيتامين د مع ضرورة متابعة الجرعة .كما اوصت بمزيد من الدراسات فيما يختص بفيتامين د والفوسفات وعلاقتهما بسرطان الثدي ..

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Abbreviations

2, 3 BPG	2, 3 Bisphospho Glycerate
ATP	Adenosine Triphosphate
BMI	Body Mass Index
BRCA1 and 2	Breast Cancer Associated protein 1 and 2
COPD	Chronic Obstructive Pulmonary Disease
DBP	Vitamin D Binding Protein
DCIS	Ductal Carcinoma Insitu
DNA	Deoxyribonucleic Acid
ER	Esterogen Receptor
FNA	Fine Needle Aspirate
GMP	Guanosine Monophosphate
HRT	Hormone Replacement Therapy
ICU	Intensive Care Unit
IUPAC	International Union of Pure and Applied Chemistry
LCIS	Lobular Carcinoma Insitu
MAARS	Membrane Associated Rapid Response
MAP	Mitorgen Activated Protein
MRI	Magnetic Resonance Imaging
NADPH	Nicotinamide Adenine Dinucleotide Phosphate-oxidase
P. Value	Probability Value

PKC	Protein Kinase C
PR	Progesterone Receptor
PTA	Phosphate Acetyletransferase
RICK	Radiation and Isotope Center in Khartoum
RNA	Ribonucleic Acid
SD	Standard Deviation
SPSS	Statistical Package for Social Science
TNM	Tumor, Node, Metastasis classification
TPN	Total Parental Nutrition
VDR	Vitamin D Receptor