

# الآية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى:

إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ  
وَاجْتِلَافِ اللَّيْلِ وَالنَّهَارِ وَالْفَلَكَ الَّتِي  
تَجْرِي فِي الْبَحْرِ بِمَا يَنْفَعُ النَّاسَ وَمَا  
أَنْزَلَ اللَّهُ مِنَ السَّمَاءِ مِنْ مَّاءٍ فَأَخْبَا بِهِ  
الْأَرْضَ بَعْدَ مَوْتِهَا وَبَتَّ فِيهَا مِنْ كُلِّ دَابَّةٍ  
وَتَصْرِيفِ الرِّيَّاحِ وَالسَّحَابِ الْمُسَخَّرِ بَيْنَ  
السَّمَاءِ وَالْأَرْضِ لآيَاتٍ لِقَوْمٍ يَعْقِلُونَ

صدق الله العظيم

سورة البقرة الآية 164

## **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 colleagues** 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 premenopause 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 weak 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 trial 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.

اجريت هذه الدراسة بمستشفى الذرة للعلاج بالاشعة النووية بولاية 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 الموليبيدات الفوسفاتية.تم جمع النتائج وحللت البيانات احصائيا حيث اوضحت الدراسة ان خمسة واربعون من النساء المصابات بسرطان الثدي تقع اعمارهن ما بين 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 اصابتهم بالمرض . كما وجدت الدراسة علاقة عكسية غير معنوية بين فيتامين د والفوسفات .

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

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

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