

**Sudan University of Science and Technology**  
**College of Graduate Studies**

**Assessment of Prostatic Carcinoma spread using Bone  
scintigraphy**

تقويم انتشار سرطان البروستاتا بواسطة تصوير العظام بالنظائر  
المتشعة

**A thesis submitted for partial fulfillment of the M.S.C degree  
requirements in Nuclear Medicine Technology.**

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بِسْمِ اللَّهِ  
الرَّحْمَنِ الرَّحِيمِ

وَقُلْ رَبِّي  
زَدَنِي عِلْمًا

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# Dedication

To my mother to my father  
To my whole family

## ***Acknowledgement***

I would like to thanks and appreciate to:

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## Abstract

The aim of the study is to evaluate the prostatic cancer patients metastases by using bone scintigraphy with  $^{99m}\text{Tc}$  MDP. The study included 70 prostate cancer patients, where the study was done in RICK and Aniline Medical Center. The data was collected on the following variables: Age, weight, height, grade, stage, primary site, secondary site and PSA level. This study was done by using Gamma camera dual head and radiopharmaceutical ( $^{99m}\text{Tc}$  MDP). The result of this study reveal that; 68.6% of the patients included in this study have a metastases in vertebral column, which represents the highest percentage among the other site of bones, while 27.1% spread to femur, 22.9 % to shoulder, 12.9 % to ribs and 25.7 % to hip . The common line of treatment for prostatic cancer patients was hormonal and radiotherapy which represent 52.9% and the less common one was hormonal therapy and surgery. There is a relation between PSA and weight and age. PSA and weight i.e. inverse proportionality, PSA age direct proportionality.

## الخلاصة

أجريت هذه الدراسة لتقويم انتشار سرطان البروستاتا في المرضى باستخدام مسح العظام بواسطة الطب النووي هذه الدراسة تحتوي على 70 مريض بسرطان البروستاتا. أجريت هذه الدراسة في المركز القومي للعلاج بالأشعة والنظائر المشعة بالخرطوم ومركز النيلين الطبي. استخدمت متغيرات كثيرة لجمع المعلومات في هذا البحث منها العمر، الوزن. أجريت هذه الدراسة باستخدام قاما كاميرا وماده صيدلانية إشعاعية. أظهرت نتيجة هذه الدراسة أن 68.6% من مرضى سرطان البروستاتا انتشر المرض لديهم إلى العمود الفقري وهذه النسبة تمثل أكبر نسبة انتشار المرض في العظام. بينما العلاج الأكثر شيوعا بين مرضى سرطان البروستاتا هو العلاج الهرموني بالإضافة للعلاج الإشعاعي والذي يمثل 52.9% والأقل شيوعا هو العلاج الهرموني بالإضافة إلى عملية استئصال البروستاتا والذي يمثل فقط 10% ومن نتائج الدراسة أيضا وجود علاقة عكسية ما بين مستوى انتيجين البروستاتا والوزن وعلاقة طردية ما بين مستوى انتيجين البروستاتا والعمر.

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List of Abbreviations	
<b>Stage :</b>	
1	stage one
2	stage two
3	stage three
4	stage four
<b>Primary grade:</b>	
1	primary grade one
2	primary grade two
3	primary grade three
4	primary grade four
5	primary grade five
<b>Secondary grade :</b>	
1	secondary grade one
2	secondary grade two
3	secondary grade three
4	secondary grade four
5	secondary grade five
<b>Bone metastases:( spine, femur, shoulder ,ribs, hip)</b>	
1	yes
2	No
<b>Treatment:</b>	
1	hormone + radiotherapy
2	hormonal+radiotherapy+chemotherapy.
3	hormone+ surgery
4	hormonal therapy .