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Dedication

I would like to dedicate the benefits of this research to my parents who are encourage me to follow the spiral of education, to my teachers whose efforts are illuminating the pages of this research and paving the way of knowledge for me and to all loyal friends .

Abstract

Malignant diseases are widely prevalent and the bone imaging plays a big role in cancer secondaries detection.

The objectives of research were to evaluate the common cancer in Sudan and to estimate the anatomical sites of bone secondaries.

For laying out this research, the researcher collects the statistical information from the statistic section of Radiation and Isotopes Center Khartoum “RICK”, the analysis is carried out by using computer program.

The results showed that two fold has increased Cancer during the past nine years, female were more affected than male, and the common cancer in sudan 2007-2008(RICK) for female were breast, cervix uteri, blood and spleen, ovary, esophagus, lymphoma, uterus, thyroid, skin, and mouth, in this order. On the other hand the common for male were blood malignancy and spleen, lymphoma, prostate, esophagus, liver, bronchus and lung, nasopharynx, stomach, skin, and bladder.

Common primary cancer that caused- bone metastasis were breast and prostate and the common bone metastasis site were that vertebral column with a percentage of 44.8%,femur with a percentage of 10.3%, ribs with a percentage of 9.5%, pelvis with a percentage of 8.6%, hip joint with a percentage of 6.9%, shoulder joint with a percentage of 6%, skull with a percentage of 4.3%, knee joint with a percentage of 2.6%, humerus with a percentage of 2.6%, sternum with a percentage of 1.7%, elbow joint with a percentage of 0.9%, foot with a percentage of 0.9%,clavicle with a percentage of 0.9%, tibia and hand with no evidence of

metastasis. In more details and specifically, the result showed that the lumber vertebrae and proximal part of femur was the target of cancer cell migration.

Bone metastases were found in elderly persons, and much less common in children. Beside that, the distribution of cancer cases according to marital status during years 2007 – 2008, married cancerous patients consist the majority 71.6% from total patients.

Also the study found that obese patient represent 28%, while under weight patients represent 14% , as shown the obese patients increased by two fold compare with under weight patients and had multiple metastasis with high percentage 79% compare with 57% in thin patients, this result indicate that bone metastasis facilitated by obesity.

الخلاصة:

الأمراض الخبيثة واسعة الانتشار وتصوير العظام يلعب دورا كبيرا في اكتشاف ثانويات السرطانات .

وأهداف هذا البحث تقييم السرطانات الشائعة في السودان وتقدير الأماكن التشريحية لثانويات السرطانات في العظام .

ولإخراج هذا البحث ، جمع الباحث المعلومات الإحصائية من قسم الإحصاء بالمركز القومي للعلاج بالأشعة والطب النووي (RICK) وتم التحليل بواسطة برنامج كمبيوتر .

وأوضحت النتائج أن حالات السرطانات قد تضاعفت خلال الأعوام التسعة الماضية ، والإناث أكثر اصابة من الذكور ، والسرطانات الشائعة في السودان في الأعوام 2007-2008 (RICK) للإناث هي سرطان الثدي ، عنق الرحم ، الدم والطحال ، المبيض ، المرئ ، الغدد الليمفاوية ، الرحم، الغدة الدرقية ، الجلد والفم ، بهذا الترتيب ، أما للذكور فهي سرطانات الدم والطحال ، الغدد الليمفاوية ، البروستات ، المرئ ، الكبد ، القصبات الهوائية والرئة ، البلعوم الأنفي ، المعدة ، الجلد والمثانة .

أكثر السرطانات الابتدائية التي تسبب الانبثاث في العظام هي سرطانات الثدي والبروستات وأكثر أماكن الانبثاث في العظام هي العمود الفقري بنسبة 44.8% ، بعظمة الفخذ بنسبة 10.3% ، الأضلاع بنسبة 9.5% ، الحوض بنسبة 8.6% ، مفصل الورك بنسبة 6.9% ، مفصل الكتف بنسبة 6% ، الجمجمة بنسبة 4.3% ، مفصل الركبة بنسبة 2.6% ، وعظمة العضد بنسبة 2.6% ، عظمة القص بنسبة 1.7% ، مفصل الكوع بنسبة 0.9% ، عظمة الساق الأكبر والأيدي من غير حدوث إنبثاث .

وأكثر تفصيلا وتحديدا أوضحت النتيجة أن الفقرات البطنية والجزء القريب من عظمة الفخذ هما الأكثر استهدافا لهجرة الخلايا السرطانية .

ووجد أن الإنبثاث في العظام غالبا في الأشخاص كبار السن واقل في الأطفال ، وبجانب ذلك توزيع السرطانات وفقاً للحالة العائلية في الأعوام 2007-2008م المتزوجون يمثلون الأغلبية بنسبة 71.6% من كل المرضي .

وكذلك وجدت الدراسة أن المرضي ذو السمنة يمثلون 28%ـ ، بينما المرضي ذو الوزن الضعيف يمثلوا 14%ـ ، كما أوضحت أن الأشخاص البدينين ضعف الأشخاص ضعاف البنية ولهم إنبثاث واسع متعدد في العظام بنسبة 79% ، مقارنة بنسبة 57% في ضعاف الوزن وهذه النتيجة تشير إلي أن الانبثاث للسرطان في العظام تيسره البدانة .

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List of Abbreviation

RICK	Radiation and Isotopes Center Khartoum
HBV	Hepatitis-B Virus
DNA	Deoxyribo Nuclic Acid
C N S	Central Nervous System
U.S. A	United State of America
Ca^{+}	Calcium Ione
PTH	Parathyroid Hormone
SOAC	Savanna Organization Against Cancer
Tc^{99m}	Technetium-99metastable
CT	Computed Tomography
MRI	Magnetic Resonance Imaging
PET	Positron Emission Tomography
FDG	Fluorodeoxyglucose
NCI	National Cancer Institute Wad Madani- Sudan
A.M.L	Acute Myeloid Leukemia
SPECT	Single Photon Emission Computed Tomography
[NaI (Tl)]	Thallium activated Sodium Iodide
PMT	Photomultiplier Tube
SMC.	summing matrix circuit
3D	Three Dimension
2-D	Two Dimension
mm.	Millie Meter
kev.	Kilo Electron Volt
Mo-99/Tc-99m	**Molybdenum-99/Technetium-99m generator**
P-C-P	Diphosphonates Carbon Bonds

MDP	Methylene diphosphonates
HDP	Hydroxy Ethylene Diphosphonates
SPSS	Statistic Professional for Social Science
ml	Millie Litter
mci	Millie Curie
BMI	Body Mass Index
C.M.L **Ca**	Chronic Myeloid Leukemia Cancer

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