

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها على هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

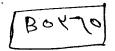
تحفظ هذه الأفلام بعيدا عن الغبار في درجة حرارة من ١٥-٥٠ مئوية ورطوبة نسبية من ٢٠-٠٠% To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%



بعض الوثائـــق الإصليــة تالفــة



بالرسالة صفحات لم ترد بالإصل



Role of Tc-99m Sestamibi and Triple phase bone scan in assessment of response of bone sarcomas to treatment

Thesis

Submitted in partial fulfillment of the degree of Msc in Nuclear

Medicine

By Raef Riad Kamel M.B., B.Ch

Supervisors

Prof. Dr. Hosna Moustafa

Professor of Nuclear Medicine
Faculty of Medicine Cairo University

Dr. Walid Omar

Dr. Emad Ebied

Lecturer of Nuclear Medicine
NCI
Cairo University

Lecturer of Pediatric Oncology NC I Cairo University

COUNTER.

c.1/8/

المحمد على المحمد

البلكرة.

7)

•

\$0₁ --- --

الم الهيال

يرار الد

| / كلية الطب | جامعة الناهرة |
|-------------|---------------|
| | القصر العي |

أجتماع لجنة الحكم على الرسالة البقديةن الطبيب / مراحد رياحي كاص نى المع الدووي

| Role of Tc-99 m Sestamba and Trypla: interest of Bone of Bone |
|--|
| Phase Done Son in assessment of response of Done |
| S constanting |
| : باللغة المربية : دور التأثير و سيا من والي الزرى العفاد في |
| : باللغة العربية : دور التأنيوم بيستا صبي والمس الذري العظام في من والمس الذري العظام في من والمس الذري العظام في من والمس علاج أورام العثلام الحرطانية الارليم |
| |
| بناء على مواغقة الجامعة بتاريخ ١١/١ / على الفحص والمناقشة للرسالة المذكورة أعسلاه على النحد والتالي :_ المذكورة أعسلاه على النحد والتالي :_ |
| |
| (۱ <u>) در حرة محرول</u> عن المشرفين المشرفين المشرفين |
| ٢) المرة المحال (المحمد متحن داخلي المحمد داخلي المحمد داخلي المحمد داخلي المحمد داخلي المحمد المحدد المحمد المحم |
| ٣) ان رن های مو هسیم از مای مو هسیم خارجی |
| بعد فحص الرسالة بيواسطة كل عضومنغردا وكتابة تقاريو منفودة لكل منيسر إنعندت اللجزة حترمية في |
| يهم الله العالم ١٠٠١ / ٢٠٠١ مسل ١٤٠٠ م الله العالم ١٤٠١ من الله الله الله الله الله الله الله الل |
| به الطب - جامعة الغاهرة وذلك لمناقشة الطالب في جلسة علنية في معضووا إرسالة والنتائد القريد السريد |
| لألبمها ولأولك الأسب الواري القرنا والرااء الراريم |
| نرار اللجنة: <u>نيول لل سالة و مُن يون كا كاريات</u> |
| |
| |
| |
| |
| |
| |

تونيمات أعضاء اللجنسة :_

المشوف المستحسن . . المسائل المرابع المبارك بدا

(عصام)

البيتحن الخارجسير

الستحن الداخلس ... dec. e.p. b...

| | · | |
|---|---|---|
| | | |
| · | | , |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Acknowledgments

Firstly, I would like to thank God a lot for his help throughout the course of this work and really without his help this work could not be completed.

I wish to express my great appreciation and gratitude to Prof. Dr. Hosna Moustafa, Prof. of Radiation Oncology and Nuclear Medicine, Faculty of Medicine, Cairo University, I am very grateful for her kindness, continious care, meticulous supervision, valuable comments and scientific methodology. She pays much effort and gave me a lot of time in constructing and reviewing this study. Really no wards could be able to describe such kind Prof. I thanks God for being one of her candidates.

I would like to express my deep thanks and gratitude to Prof. Dr. Mohsen Barsoum, Prof. of Radiotherapy, National Cancer Institute, Cairo University, for his support, encouragement and kind care.

I wish to express my deepest thanks to Dr. Walid Omr, lecturer of Nuclear medicine, National Cancer Institute, for his valuable comments, interesting suggestions, contenious supervision and follow up all though the course of this work.

I would like to thank Dr. Emad Ebied, lecturer of Paediatric Oncology, National Cancer Institute, for has witty remarks, scientific discussion, precise comments. He helped me a lot in collecting the cases and follow them up during the course of the study.

Finally, I like to express my deep thanks to all my colleagues and all the workers in Nuclear medicine Unit, National Cancer Institute, for their kind help all through this study.



TC-SESTA MIBI AS PREDICTOR OF CHEMOTHERAPY RESPONSE IN BONE SARCOMA

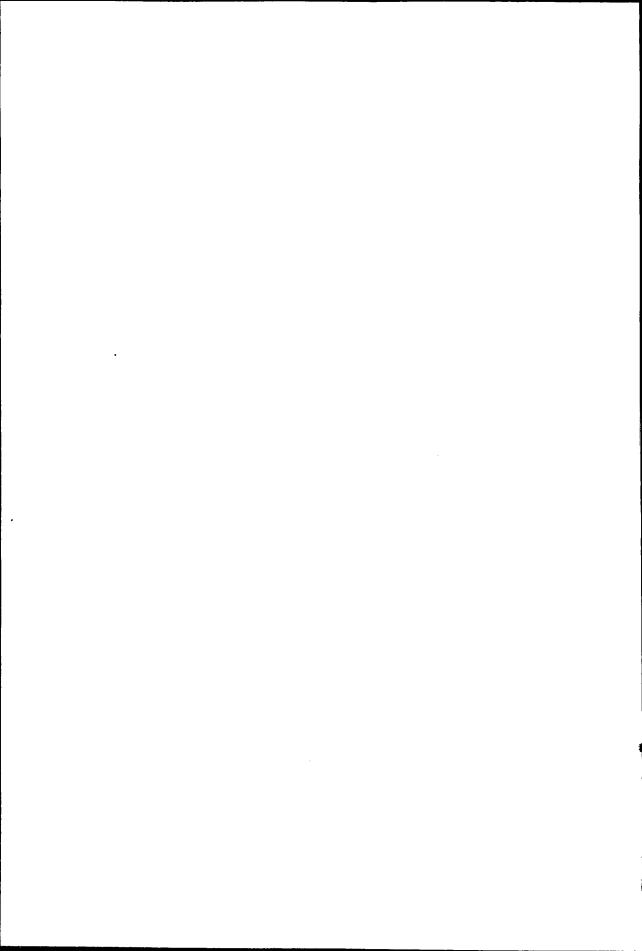
Objective: Chemotherapy is the initial treatment in bone sarcoma which may be followed by surgery or radiotherapy in patients with good response. Attempt to assess response to therapy in relation to histopathologic evaluation is mandatory.

Material & methods: 28 patients with bone sarcoma (18 osteosarcoma, 10 Ewing sarcoma) with their age ranged 8-19 years were included. The group is formed of 24 males and 4 females. Pre-chemotherapy assessment was done using 20 mCi of 99mTc-MDP WBS with imaging at 10 min., 3 hours to assess the primary lesion and exclude metastatic spread. Whereas 99mTc-MIBI in a dose of 20 mCi with early images at 20 min. and late images at 2 hours were done before and after 3-4 courses of chemotherapy. Correlation of Tc-MIBI scan with the percentage of necrosis histopathologically was possible in 19 patients following surgical removal of involved limb. The remaining 9 patients were assessed clinically and radiologically versus Tc-MIBI scan for a period ranging 6-12 months.

Results: Good response was evident in 12 patients with marked changes in qualitative images from high to no or mild uptake with significant decrease in mean 99mTc-MIBI ratio 2.57, 2.07 in early & late images to 0.95 & 0.89 (P < 0.01). 9 patients of osteosarcoma in this group showed > 90% necrosis in the surgically removed limb, while the other 3 Ewing sarcoma had no viable tumor in 99mTc-MIBI scan with no evidence of clinical or radiologic recurrence for 6-12 months. The second group with partial response showed some change in qualitative images from high to moderate degree in post chemotherapy scan. Also, mean quantitive Tc-MIBI in early & late images were 5.03, 5.02 before chemotherapy and changed to 2.77, 2.43 following chemotherapy with significant difference (P< 0.05). The percentage of necrosis in this group ranged 50-90%. The third group with no response had no change in qualitative images before and after chemotherapy. Also, the mean early & late quantitive Tc-MIBI ratio before chemotherapy were 2.93, 2.69 with no change following chemotherapy with mean values of 3.8, 2.8 respectively. This group had necrosis < 50% histopathologicaly.

To conclude: Tc-MIBI scan is a good methods for assessment of chemotherapy response with significant correlation to histopathologic change.

Frey h'ords: To som Desta the, Tregete Phini brene Scan, estersarciona, Eveny Sarcioma, bone Sarcomas, response



LIST OF ABBREVIATIONS

A.T.P.ase Adenosine triphosphatase

C.T. Computerized Tomography

Ca⁺⁺ Calcium ion

Cc Cubic centimeter

CGy Centigray

D.N.A. Deoxy ribonucleic acid

E.S. Ewing's sarcoma

FDG Fluoro-deoxy glucose

Fig Figure

Ga-67 Gallium-67 citrate

G.I.T. Gastrointestinal tract

Gy Gray

HDMXT High dose methotrexate

Hrs Hours

K⁺ Potassium ion

Key Kilo electron volt

Kg. Kilogram

L.D.H Lactate dehydrogenase

L/N Lesion to normal

mCi Millicurie

M.D.P. Methylene diphosphonate

M.F.H. Malignant fibrous histiocytoma

Mg⁺⁺ Magnesium ion

MiBI Methoxy isobutyl isonitrite

min Minutes

M.R.I. Magnetic resonance imaging

Natt Sodium ion

N.C.I National Cancer Institute

O.S. Osteosarcoma

PET. Positron emission Tomography

P.I. Post-injection

PPENT Peripheral primitive neuro-ectodermal tumour

R.N.A. Ribonucleic acid

SPECT Single photon emission computerized Tomography

Tc-99m Technetium-99m

TI-201 Thallium-201 chloride

Greater than

Lesser than

Greater than or equal to

Lesser than or equal to