بسم الله الرحمن الرحيم

The Sixteenth Annual Meeting

The Egyptian Society of Nuclear Medicine Specialists

Sharm El-Sheikh

Egypt

16th – 19th March, 2016

General Information

Organizing Committee

President of Congress:

Prof. Dr. Walid Omar.

President of Society:

Prof. Dr. Hosna Moustafa.

Secretary of the Congress:

Consultant Dr. Khalid Taalab.

Program Directors:

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Lec. Shaimaa Elrasad.

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Invited Speakers:

Prof. Dr. Abouzied, M.	(Saudi Arabia)
Lec. Amr, M.	(Egypt)
Lec. Elrasad, Sh.	(Egypt)
Ass. Prof. Elkhloy, W.	(Egypt)
Prof. Dr. Marafi, F.	(Kuwait)
Prof. Dr. Moustafa, H.	(Egypt)
Prof. Dr. Omar, W.	(Egypt)
Prof. Dr. Siraq, Q.	(Kuwait)
Prof. Dr. Talaat, A.	(Qater)
Consultant Dr.Taalab, Kh.	(Egypt)
Lec. Zidan, L.	(Egypt)

Local Organizing Committee:

Prof. Dr. Moustafa, H.

Consultant Dr. Taalab, Kh.

Eng. Abdou, M.

Lec. Dr. Elrasad, Sh.

Lec. Dr. Amr, M.

Phy. El-maghrapy, Sh.

Congress Location:

Radisson Blu – Sharm El-Sheikh, Egypt

Congress Language:

Official language of the congress is English.
No simultaneous translation will be provided.

Projection:

Computer projection is available and Computer data should be handed over to the congress office one-hour before the session.

Climate:

The weather during March in Sharm El-Sheikh region is generally sunny by day and cool by night.

Visas:

Citizens of most countries require entry visa for Egypt.
The Egyptian Embassy and/or Consulate in your country can inform you if a visa is necessary.

Travel to Sharm El-Sheikh:

Sharm El-Sheikh could be easily reached by plane, as well as cars or buses.

Cancellations:

Only written cancellations will be accepted.

- Up to 4 st February 2016, all payments for registration fees are refunded with less 10% for accommodation cancellation charge.
- Up to 14th February 2016, no refund for registration fees and all other payments are refunded less 25% for accommodation cancellation charges.
- No refund will be made after 26th February 2016.

Awards of Society:

(1) Professor/ Abdel-Razzak award

For young doctors in Nuclear Medicine field **less than 35 year old.**
They should have **oral presentation** during the Annual Meeting.
The Doctor will receive a **certificate and 1500 L.E**.

(2) Professor/ Abdel-Dayem award

For doctors **less than 50 year old** during the Annual Meeting 2016.
They should submit (3) international articles or articles published in EJNM in Nuclear Medicine field **published in the last 3 Years before 31/1/2016**; for evaluation by Prof.Dr. Hussein Abdel-Dayem.
The Doctor will receive a **certificate and 3000 L.E**.

Important Guidelines

For chair persons:

- Please be in your session place at least 10 minutes before its start.
- Speakers should strictly observe timing of presentation and discussion.
- Discussants should clearly state their name.
- Participants should not speak without permission.

For speakers:

- Turn in your data one hour prior to the start of the session.
- Collect your data from the preview room immediately after the session.
- You should be in session room at least 10 minutes before its onset.
- Time allowed for presentation is 10 minutes.
- Follow chair persons instructions.
- Discussion is strictly at time indicated.

Computer Center:

- Located in a room outside the congress hall.

NO SMOKING OR USING MOBLIE PHONE IN MEETING ROOM

Congress office:

Prior to and after the meeting

- **Prof. Dr. Walid Omar.**

Cellular: (002) 01222174144 & 01005154400

E-mail: ***womars@gmail.com***

During the meeting
Radisson Blu – Sharm El-Shikh, Egypt

Social program:

Wednesday	**16/03**	**17:00 - 18:00**	**Registration.**
Friday	**18/03**	**15:45 - 16:00**	**Closing ceremony**

Excursions: web site: www.esnms.net.
Mail box: info@esnms.org.
Mail of Secretary: ahmedsobhyesnms@gmail.com.

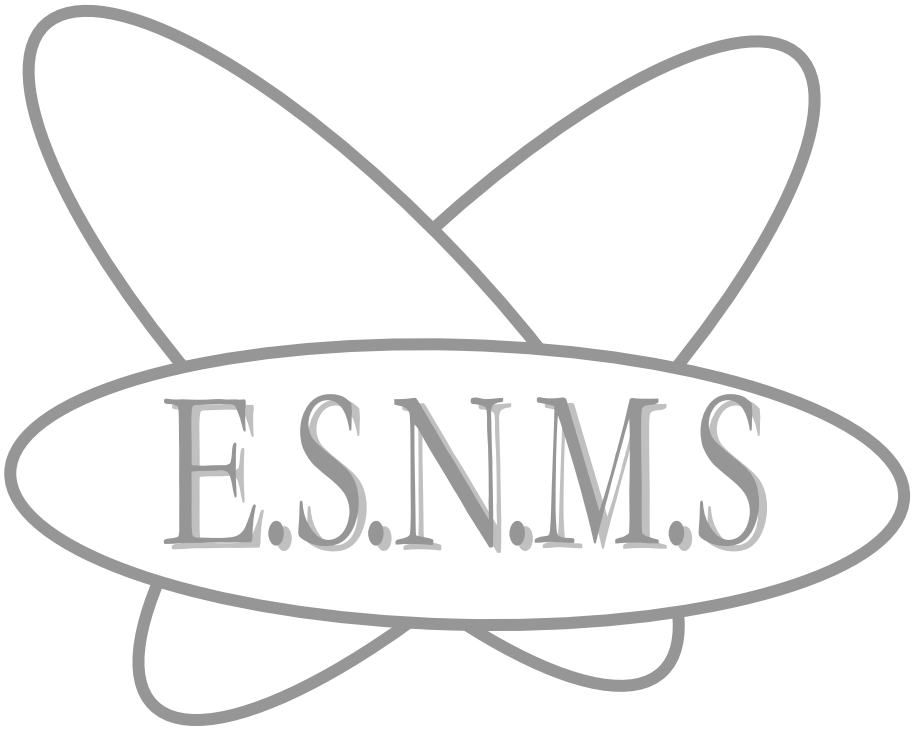
Congress Bag includes;

- **Abstract Book.**
- **A copy of previous meetings CD.**
- **Certificate of attendance.**

- **Tenth & Eleventh issues of ESNMS Magazine will be available for members of society.**

Wednesday

March 16



PET/CT in Lung / Neuroblastoma / Diagnosis & Therapy of Thyroid Cancer

First Day
Wednesday 16 Th March 2016
Registration
17:00 – 18:00

Presidential Address 18:00 – 18:15

Dear colleagues and members of nuclear medicine society

Dear colleagues, guests and family members!

It is truly an honor and a privilege for me to speak at the opening of the 16th. Conference of the ESNMS; this meeting is a culmination of efforts of many people who worked for almost one year to bring us together in very hard conditions of our homeland.

The Purpose of the Conference, is awareness by the recent updates in Nuclear Medicine; in diagnosis and therapy.

First and foremost, I would like to take this opportunity to thank everyone who accepted our invitation to come to Egypt and share us our Congress;

We are delighted that: Prof. Qaiser Siraq; Prof. Fahd Marafi; Prof. Ahmed Talaat. Prof. Wael El-Kholy; Prof. Abu-Zaid. Sharing with us this Conference.

We are thankful to the board members and organizing committee for helping in preparation of this meeting

We are greatly honored for all members to be with us in this event.

I would like to cordially thank our sponsors from; Maggie Medical; NEU-Soft; Femto Trade; Emerald; Arab Chemical Consulting Centre; Gamma Trade; Ab-Care; Center of Molecular Research and Ghalioungui companies; without their support this Conference would not have been possible.

It is great that all of us got here today in one piece that makes us happy.

Head of congress
Prof. Dr. Walid Omar

Session I 18:15 – 19:45 PET/CT in Lung / Neuroblastoma / Diagnosis & Therapy of Thyroid Cancer		
Chair Persons:		
Prof.Dr. Moustafa, H. **(Egypt)** **Prof.Dr. Omar, W.** **(Egypt)**		
1	**18:15 – 18:45**	**PET/CT in staging of Lung Cancer** Prof. Dr. Taalab, Kh. (Egypt)
2	**18:45 – 19:05**	**Added Value of PET/CT in Neuroblastoma** Dr. Amr, M. (Egypt)
3	**19:05 – 19:25**	**Radio-iodine Therapy in Differentiated Thyroid** Dr. Elrasad, Sh. (Egypt)

19:25 –19:45 Discussion

Thursday

March 17

PET/MRI / Interesting Cases /

PET/CT Applications / Breast

& Free papers

Second Day
Thursday 17 th March 2016

Session II 10:00 – 12:00
PET/MRI / Interesting Cases & PET/CT Applications

Chair Persons:

Consultatnt Dr. Taalab, Kh. **(Egypt)**

Prof. Abu-zeid, M. **(Saudi Arabia)**

5	**10:00 – 10:40**	**Evolution, Clinical Potentials and Future Expectations of PET/MRI** Prof.Dr. Khairy, A. (Qatar)
6	**10:40 – 11:20**	**Interesting Cases** Prof.Dr. Zaher, A. (Egypt)
7	**11:20 – 12:00**	**PET/CT Oncological Applications of F-18 Choline** Prof.Dr. Abo Zied, M. (Saudi Arabia)

Session III 12:00 – 14:00
Breast & Free Papers

Chair Persons:

Prof.Dr. Talaat, A. **(Qatar)**

Consultant Dr. Khidr, A. **(Egypt)**

8	**12:00 – 12:40**	**Different Imaging Modalities in Breast Cancer** Prof. Dr. Moustafa, H. (Egypt)
9	**12:40 – 13:00**	**Sentinel Node Imaging in Breast Cancer.** Prof.Dr. Sirag, Q. (Kuwait)

Free Papers

13:00 – 13:10 **S/III – 1**

PET/CT in Evaluation of GIST Tumors

El-Hennawy, G[1], El-Ghaly, E[1], Fathy, H[1] and Moustafa, H[2].

[1]Nuclear Medicine Units in NCI and Oncology and [2]Nuclear Medicine Department, Cairo University, Egypt.

13:10 – 13:20 **S/III – -2**

Value of Dual Time Point PET/CT in Malignant Lymphoma

Mehesen, M[1], Fathy, H[1], Kotb, M[1] and Moustafa, H[2].

[1]Nuclear Medicine Units in NCI and Oncology and [2]Nuclear Medicine Department, Cairo University, Egypt.

13:20 – 13:30 **S/III – 3**

Diagnostic Performance of SPECT/CT Versus Diffusion-weighted MRI in Characterization of Equivocal Osseous Lesions Detected by Bone Scan

Khalil, M[1].Abdelhafez, Y[1].Haisam S. Atta[2].Kandeel, A[3].

[1]Nuclear Medicine Unit, [2]Radiology Department, South Egypt Cancer Institute, Assiut University and [3]Oncology and Nuclear Medicine Department, Cairo University, Egypt.

13:30 – 13:40 **S/ III – 4**

Role of 18F-FDG PET/CT in Assessment of Primary Tumor Response to Neoadjuvant Chemo Radio-therapy in Esophageal Cancer Patients

Roushdy, E[1]. Abdelhafez, Y[1]. Abougabal, M[2], Osama, D[3].Chi-Ju Yeh[4], Ying-Kai, Chao [5]. Chen-Kan Tseng [6], Yu-Chen Chang[7]

[1] Nuclear Medicine Unit, South Egypt Cancer Institute, Assiut University. [2]Oncology and Nuclear Medicine Department, Cairo, EGYPT.[3] Radiotherapy Department, South Egypt Cancer Institute, Assiut University, Assiut, EGYPT.[4] Department of Pathology. [5] Division of Thoracic Surgery.[6] Department of Radiation Oncology ,.[7]Chang Gung Memorial Hospital, College of Medicine, Chang Gung University, Chang Gung Memorial Hospital, Taoyuan, TAIWAN.

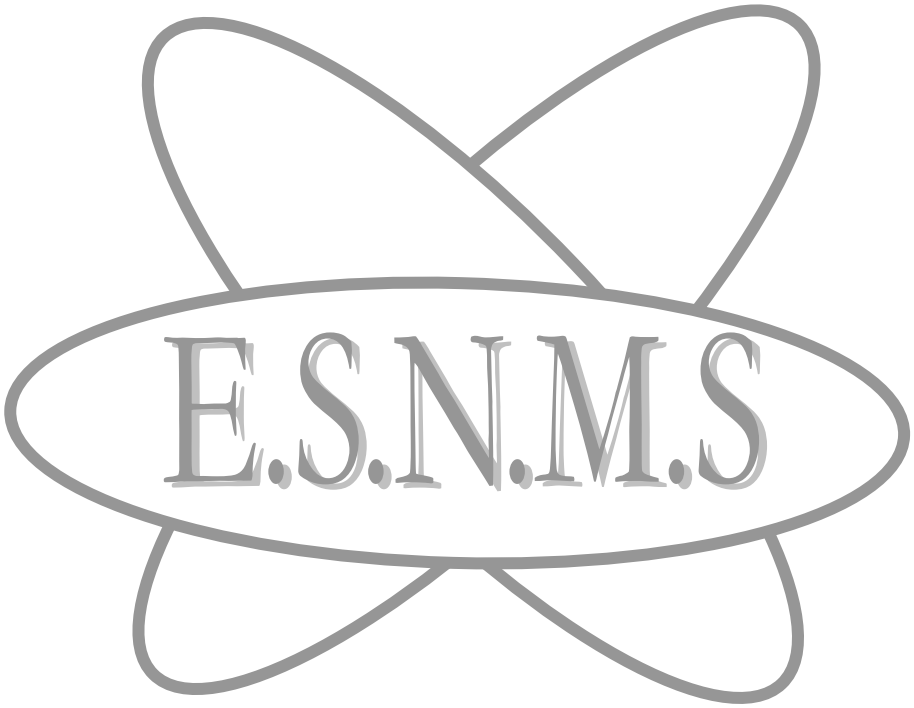
13:40 – 14:00 Discussion

Session IV 16:00 – 16:30 هَيئَة الرِقَابَة النَوَويَة و الإِشعَاعَيَة		
Chair Persons:		
Prof. Dr. Omar, W. **(Egypt)** **Prof. Dr. Kandeel, A.** **(Egypt)**		
10	**16:00 – 16:30**	**New Regulations of Atomic Energy for Distributions of Radionuclides in Egypt** Prof,Dr. El-Kholy, W. (Egypt)

16:30 – 17:00 Discussion

Friday

March 18



Brain /Prostate/ Cardiology and Liver

& Free Papers

Third Day
Friday 18 th March 2016

Session V 10:00 – 11:45
Brain & Free Papers

Chair Persons:

Prof. Dr. Omar, A. **(Kuwait)**

Consultant Dr. Abdel-samiea, M. **(Egypt)**

11	**10:00 – 10:30**	**Clinical Value of FET- PET/CT in Brain Tumors** Prof. Dr. Omar, W. (Egypt)
12	**10:30 – 11:00**	**Brain Imaging in Dementia** Prof. Dr. Sirag, Q. (Kuwait)

Free Papers

11:00 – 11:10 **S/ V – 5**

Tc-99m (V) DMSA Brain SPECT: Does it have a Place in Predicting Survival in Patients with Glioblastoma Multiforme?

Badwey, A[2]. Amin, A[2]. Mustafa, M[2]. Abd El-Hadi, E[1]. Monier, A[1].Saad, E[1].

[1]Oncology and [2]Nuclear Medicine Department, Cairo University, Egypt.

11:10 – 11:20 **S/ V – 6**

Radio-embolization: Role of Nuclear Medicine in Treating Hepatic Malignancies

Rizq, Sh. Sharara, Sh and Abou-senna, H.

Radio-diagnosis department, Ain Shams University, Cairo, Egypt

11:20- 11:30 Discussions

11:30 – 13:30

Friday Prayer & Lunch

& Photo Picture

Session VI 13:30 – 16:00 Prostate / Cardiology / Liver & Free Papers		
Chair Persons:		
Prof. Dr. Moustafa, H.		**(Egypt)**
Prof. Dr. Zaher, A.		**(Egypt)**
13	**13:30 – 14:15**	**Molecular Imaging in Prostate Cancer in the Thera-nostic Era** Prof. Dr. Marafi, F. (Kuwait)
14	**14:15- 14:45**	**The Evolving Role of Hybrid Multimodality Imaging in Nuclear Cardiology.** Prof. Dr. Sirag, Q. (Kuwait)
15	**14:45 – 15:10**	**PET/CT with MRI Fusion in Liver Cancer** Dr. Zidan, L. (Egypt)

Free Papers

15:10 – 15:20 **S/ VI – 7**

The Role of 18F-FDG-PET Imaging for the Detection of Hepatocellular Carcinoma in Cirrhotic Patients

Ali, E[1]. Abou – Gabal, M[3]. El-hussieny, M [2] and Moustafa, H3.

[1]Department of Nuclear Medicine, Sohag Oncology Center. [2]Monofia liver institute, Oncology and

[3]Nuclear Medicine Department, Cairo University, Egypt.

15:20 – 15:30 **S/ VI – 8**

Gastric Emptying Scintigraphy in Evaluation of Patients Submitted to Sleeve Gastrectomy

Ibrahim, A[1]. Abd El-megeed, M[2].

[1] Department of Radio diagnosis [2] General Surgery, Ain Shams University, Egypt.

15:30- 15:45 Discussion

15:45- 16:00 Closing Ceremony + Awards

Review Article

Added Value of PET/CT in Neuroblastoma

Amr. M.

. Lecturer of nuclear medicine, NCI, Cairo University, Egypt.

Objective: Molecular imaging is changing diagnostic and treatment paradigms in patients of neuro-endocrinal tumors through its ability to non-invasively characterize disease, supplementing the traditional role of using imaging for localizing and measuring disease with increasing range of therapies there was a need for their individualization to the specific subtype of tumor expressed, which varies in aggressiveness from well to poorly differentiated phenotypes.

FDG as non-specific or other specific radio-tracer as (^{11}C-HED, ^{18}F-DOPA, ^{124}I-MIBG, or ^{68}Ga-DOTATOC), using PET/CT is now able to characterize these subtypes and determine disease extent in a single whole body study with high accuracy due to combined high-quality PET/CT in a single device which has high spatial resolution.

FDG PET/CT may yield useful clinical information in neuroblastoma patients beyond anatomic localization of disease. Through its depiction of the metabolic state of tumour cells, it might provide insights into the proliferative or malignant potential of disease as several publications have shown that 18 F-FDG uptake correlates with high proliferative activity, cellular dedifferentiation, and aggressiveness of neuroendocrine tumors which may influence treatment decisions.

PET/CT in Evaluation of GIST Tumors

El-Hennawy, G[1]. El-Kholy, E[1]. Fathy, H[1] and Moustafa, H[2].

[1]Nuclear Medicine Units in NCI and [2]Oncology and Nuclear Medicine Department, Cairo University, Egypt

Objective: Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract with 70% of all GISTs are found in the stomach. The management of gastrointestinal stromal tumors (GISTs) has been revolutionized with the introduction of imatinib mesylate as a targeted therapeutic agent and the dramatic change in the tumor metabolic activity following successful therapy with follow up using(FDG)-PET/CT. **Patients and Methods:** 47 consecutive patients (mean age: 49.2±12.7) with histologically proven GIST underwent whole-body FDG-PET/CT. A clinical/radiological CT and PET/CT follow-up for 3-15 months duration served as standards of reference. Further lesions analyses were done to compare the performance of PET/CT and diagnostic CT. **Results:** There was no difference between CT and PET/CT in the initial staging of GIST or in detection of primary /recurrent lesions. A higher PET CT value in assessment of target therapy response was found in 11 patients (28%) compared to CT. As regard lesions analysis, the sensitivity, positive predictive value for lymph nodes detection were 97%, 94 % for PET/CT and 82%, 79% for diagnostic CT respectively. The sensitivity and positive predictive values for peritoneal deposits were 95.5% and 98 %, for PET/CT & 70% and 86% for diagnostic CT respectively. The sensitivity and positive predictive values for liver deposits were 72% and 92 %, for PET/CT & 100% and 100 %, for diagnostic CT respectively. Comparing patient`s prognosis with no metastatic spread in follow up, 66.7 % of patients with lymph nodes metastases showed disease progression (P=0.026).In addition, 92.3% of patients who had complete metabolic remission or stable disease on follow up PET CT and did not had any newly developed metastases. While 55.5 % of patients who died or progressed on follow up PET/CT had double/triple organ metastases (5 patients), with statistically significant difference (P <0.001). No statistically significant relation was found between prognosis and patient`s age, sex, site of primary GIST.

Conclusion: Combined PET/CT can provide additional functional information as compared with diagnostic CT in GIST, especially in assessment of therapy.

S/III -2

Value of Dual Time Point PET/CT in Malignant Lymphoma

Mehesen, M[1], Fathy, H[1], Kotb, M[1] and Moustafa, H[2]

[1]Nuclear Medicine Units in NCI and [2]Oncology and Nuclear Medicine Department, Cairo University, Egypt

Objective: The purpose of the present study is to evaluate the value of dual-time-point F-18 FDG PET/CT imaging in malignant lymphoma (ML) to differentiate between benign lesions and residual or relapsing malignant lesions. **Materials and methods:** This prospective study included 252 lymph nodes in 60 patients. F-18 FDG PET/CT scan was performed at 50 min (early scan) and at 100 min (delayed scan) after the injection. The maximum standardized uptake value (SUV max) of each lesion was calculated at early and delayed scans. Also, we estimated the difference between early and delayed SUV max (D-SUV max) and the retention index (RI-SUV max) to evaluate the change of tracers in the lesions. Also, the early lesion/liver ratio and delayed lesion/liver ratio were calculated. Then the cut-off values of them were evaluated using receiver operating characteristic analysis. The correlation of these cutoff values correlated with different clinico-pathological parameters. **Results:** The cut-off value in Early-SUV max was 4.05, Delayed-SUV max was 4.45, D-SUV max was 0.45, RI-SUV max was 1.55, Early lesion/liver ratio was 1.25 and in Delayed lesion/liver ratio was 1.35, the delayed-SUV max had the highest sensitivity and specificity of 85.3% and 92.6% respectively. The DTP PET/CT showed sensitivity of 95.3%, specificity of 76.4%, accuracy of 86.1%, and positive predictive value of 80.9% and negative predictive value of 94% respectively. In correlation of DTP cut off value with the different clinico-pathological parameters, nodular sclerosis and lymphocytic predominance pathological subtypes showed the highest sensitivity of 100%, while mixed cellularity showed the lowest sensitivity of 64.3%. The absence of B-symptoms in Hodgkin lymphoma lesions showed higher sensitivity of 100% compared to the presence of B-symptoms at initial staging of 77.8%. In Hodgkin lymphoma, cervical sites at Hodgkin lymphoma lesions showed the lowest sensitivity and specificity 90.2%& 61.4% respectively, while in non-Hodgkin lymphoma lesions, the abdomino-pelvic site showed the sensitivity of 100%. According to Deauville criteria in Hodgkin lymphoma lesions, grade 4 showed the highest sensitivity of 100%, while grade 2 showed the lowest sensitivity of 44.4%.

Conclusions:

The dual time point FDG PET/CT scan may have added value to differentiate between post-therapy changes as benign lesions and residual or relapsing malignant lesions in lymphoma.

S/III -3

Diagnostic Performance of SPECT/CT Versus Diffusion-weighted MRI in Characterization of Equivocal Osseous Lesions Detected by Bone Scan

Khalil, M[1].Abdelhafez, Y[1].Haisam S. Atta[2].Kandeel, A[3].

[1]Nuclear Medicine Unit, [2]Radiology Department, South Egypt Cancer Institute, Assiut University and [3]Oncology and Nuclear Medicine Department , Cairo University, Egypt.

Objectives: To evaluate the diagnostic performance of 99mTc-MDP bone scintigraphy using SPECT/CT in comparison to diffusion-weighted (DW) MRI in the characterization of solitary osseous lesions detected on planar bone scintigraphy. **Material and Methods:** This prospective study recruited 29 cancer patients referred for bone scintigraphy (staging/restaging/follow-up) with their planar whole body scan showing solitary equivocal osseous lesion. Every patient further underwent SPECT/CT& DW-MRI within two weeks. Studies were read independently by one experienced nuclear medicine physician and one experienced radiologist on a 5-point score: (score 1 = benign, score 2 = likely benign, score 3 = equivocal, score 4 = likely malignant and score 5 = malignant). The final diagnosis of disease status was made on the basis of subsequent clinical/imaging follow-up for at least 6 months. **Results:** of the 29patients evaluated, only 9 (31%) proved to have osseous metastases and 20 (69%) were disease free. Both modalities were true positive in 4, true negative in 14, false positive in 1 and false negative in 1 patient SPECT/CT & DW-MRI had sensitivity67% vs 67%, specificity90% vs 75%, negative predictive value86% vs 83%, positive predictive value75% vs 55% and accuracy of respectively83% vs 72%.. No statistically significant difference noted in sensitivity, specificity or accuracy in both modalities.

Conclusions: Bone scintigraphy using SPECT/CT is not superior to DW-MRI in characterization of solitary osseous lesions detected on planar scans. Further work is ongoing to identify the added lesions role of each modality in evaluation of solitary bone lesion.

S/III -6

Role of 18F-FDG PET/CT in Assessment of Primary Tumor Response to Neoadjuvant Chemo Radio-therapy in Esophageal Cancer Patients

Roushdy, E[1]. Abdelhafez, Y[1]. Abougabal, M[2], Osama, D[3].Chi-Ju Yeh[4], Ying-Kai, Chao [5]. Chen-Kan Tseng [6], Yu-Chen Chang[7]

[1] Nuclear Medicine Unit, South Egypt Cancer Institute, Assiut University. [2]Oncology and Nuclear Medicine Department, Cairo Univesity.[3] Radiotherapy Department, South Egypt Cancer Institute, Assiut University, Egypt.[4] Department of Pathology. 5 Division of Thoracic Surgery .6 Department of Radiation Oncology .7Chang Gung Memorial Hospital, College of Medicine, Chang Gung University, Chang Gung Memorial Hospital, Taoyuan, Taiwan.

Objective: To correlate semi-quantitative PET/CT parameters analysis of the primary tumor obtained to the five pathologic regression grade (PRG) in patients with esophageal cancer. **Materials and Methods:** 18-F-FDG-PET/CT was performed before (baseline) and after the end of neoadjuvantchemoradiotherapy (NACR). Response was evaluated using EORTC criteria. Every patient underwent surgical resection of the primary tumor. SUV max of the primary tumor in the baseline and post-NACR studies as well as the absolute & percentage change in SUV max (Δ_{abs} SUV max& Δ_{per} SUV max; respectively) was compared to PRG. Further volumetric features analyses are in-progress. **Results:** This ongoing analysis recruited a total of 64 patients with locally advanced esophageal cancer. The distribution of Δ_{per} SUV max& post-NACR SUV max showed statistically significant difference among the different PRG groups ($P < 0.001$ & 0.005; respectively); while the baseline SUV max& Δ_{abs} SUV max were not associated with correlation with PRG.

Conclusion: Changes of primary esophageal tumor SUV max after Neoadjuvant chemotherapy is linked to the pathologic regression grade

Tc-99m (V) DMSA Brain SPECT: Does it have a Place in Predicting Survival in Patients with Glioblastoma Multiforme?

Badwey, A[2]. Amin, A[2]. Mustafa, M[2]. Abd El-Hadi, E[1]. Monier, A[1]. Saad, E[1].

[1]Oncology and [2]Nuclear Medicine Department, Cairo University, Egypt.

Objective: Pentavalent technetium-99m dimercaptosuccinic acid (Tc-99m (V) DMSA) is reported as a useful tool for detection of residual or recurrent gliomas. We aimed to investigate the prognostic value of Tc-99m (V) DMSA brain SPECT in patients with glioblastomamultiforme (GBM). 40 patients [21 males and 19 females; mean age 48.6±12.2 years] with GBM were included. Tc-99m (V) DMSA brain SPECT was done after surgery and before onset of radiation therapy or chemotherapy (Baseline study), at 4–6 weeks and at 6 months as a follow-up after therapy. The end point of the study was clinical follow-up for 2 years and/or death. 4–6 weeks after therapy, 40 and 60 % had negative and positive Tc-99m (V) DMSA for viable tumor tissues respectively (P=0.09). At 6 months follow-up, 62.5 % of (V) DMSA negative patients and 12.5 % of the positive subjects were responders (P=0.001). The median over-all survival (OS) of all patients was 12.3 month [range 5–24 month]. Patients with positive (V) DMSA had worse survival (8.87 month) compared to the negative ones (16.67 month) (P=0.0001). Multivariate Cox regression analysis showed that Tc-99m (V) DMSA brain SPECT studies at 4–6 weeks and 6-months follow-up were independent prognostic factors for survival [OR 1.069; 95 % CI 1.417–2.174;P=0.03 and OR 1.055; 95 % CI 0.821–1.186; P=0.01 respectively]. Stratification of tumors into risk groups based on prognostic parameters may improve outcome by altering or intensifying treatment methods. Technetium-99m dimercaptosuccinic acid brain SPECT may have an additional prognostic role in patients with GBM which needs further evaluation in larger future series.

Radio-embolization : Role of Nuclear Medicine in Treating Hepatic Malignancies

Rizq, Sh. Sharara, Sh and Abou-senna, H.

Radio-diagnosis department, Ain Shams University, Cairo, Egypt.

The incidence of hepatocellular carcinoma is increasing. Most patients present beyond potentially curative options and are usually affected by underlying cirrhosis. In this scenario, trans-arterial therapies, such as radio-embolization, are rapidly gaining acceptance as a potential therapy for hepatocellular carcinoma and liver metastases.

Radio-embolization is a good option for patients with primary and secondary (metastatic tumors) in the liver. The goal of this therapy is to shrink tumors and prevent them from growing again. In some cases, there can be enough shrinkage for the patient to be re-considered for surgery or liver transplantation.

Nuclear medicine imaging modalities play a pivotal rule in the whole process of radio-embolization. In fact, they are an integral part of a complex multidisciplinary approach; hepatic perfusion imaging with 99mTc-macroaggregated albumin particles (99mTc-MAA), which identifies extra-hepatic accumulation of radiopharmaceutical and lung shunt, is necessary to correctly select patients who are good candidates for the treatment. Quantitative assessment of the post-administration intrahepatic microsphere distribution with SPECT or PET is important for evaluation of toxicity and efficacy and can be used for the prediction of patient response and for patient-specific therapeutic dose optimization. Finally, [18F] FDG PET/CT imaging is important in the assessment of early response after RE and in predicting patient outcome. This review provides an overview of this technique with much focus on our successful trials in the last couple of years in Ain Shams university interventional radiology unit.

Review Article

PET/CT and MRI in Liver Cancer

Zidan, L.

Nuclear Medicine Department, Cairo University, Egypt.

The liver may host a variety of benign and malignant tumors. Correct detection and characterization of FLLs are of vital importance as they may significantly affect the choice of therapeutic approach in many cases. Improvements in imaging technology allow identification and characterization of both malignant and benign liver lesions. Multi-phase hepatic CT is the known standard that effectively diagnoses most liver lesions. DW-MRI provides unique insight into tissue cellularity, tissue organization, integrity of cells and membranes, as well as the tortuosity of the extracellular space, which can be helpful for detecting malignant diseases and for distinguishing tumor tissues from non-tumor tissues. PET with ^{18}F-FDG usually in the setting of a combined whole body PET/CT for tumor detection allows for a more accurate differentiation of lesions due to the added information on glucose metabolism. This review discusses the application of PET/CT, Tri-phasic CT and MRI in liver cancer, not only in staging, and monitoring disease, but also in surveillance following tumor ablation. The advantage of each imaging technique is highlighted, while underscoring the potential pitfalls and limitations of each imaging modality.

The Role of 18F-FDG-PET Imaging for the Detection of Hepatocellular Carcinoma in Cirrhotic Patients

Ali, E[1]. Abou – Gabal, M[3]. El-hussieny, M [2] and Moustafa, H[3].

[1]Department of Nuclear Medicine, Sohag Oncology Center. [2]Monofia liver institute, Oncology and [3]Nuclear Medicine Department, Cairo University, Egypt.

Introduction: Role of PET (18F-FDG) has been reported to have inadequate sensitivity in hepatocellular carcinoma; however its detection rate in patients with liver cirrhosis is mandatory. **Material and Methods:** 77 patients with liver cirrhosis and suspicious liver lesions underwent a whole-body PET/CT scan for detection of HCC and extra hepatic metastases at radiology center in the period between November 2011 and December 2014. All patients underwent PET/CT imaging and Tri-phasic diagnostic CT. Data collected included gender, age, PET/CT and Tri-phasic CT imaging findings, tumor number and histological data. **Results:** the study include 65 male (84.4%) and 12 female (15.6%) with mean age 55.26± 9.69.AFP was documented in only 38 patients. 8 patients had AFP (<100 ng/ml), 7 patients had AFP (100-400 ng/ml), 23 patients had AFP >400 ng/ml. 54 patients with liver cirrhosis had positive PET/CT scans (70%). All of them had poorly differentiated HCC, with sensitivity 75%, Specificity 100 %. 71 patients had positive Tri-phasic CT with sensitivity of (98.6 %). 18 patients with negative PET/CT scan had well and moderate differentiated HCC. The detection of extra hepatic metastases was significantly higher than of primary lesions using PET/CT with positive finding in (87.9%).

Conclusion: 18F FDG PET/CT has an important role in the evaluation of biological behavior of HCC with more metabolically active lesions seen in poorly differentiated HCC. Also, FDG PET/CT imaging is superior in detecting extra hepatic metastases.

Gastric Emptying Scintigraphy in Evaluation of Patients Submitted to Sleeve Gastrectomy

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Objective: The prevalence of obesity is increasing at an alarming rate and has virtually become a problem. Recently, laparoscopic sleeve gastrectomy (SG) has been proposed as an option for surgical treatment of obesity; however, this could be associated with motor gastric dysfunction and abnormal gastric emptying due to the resection of gastric pacemaker. **Patients and methods:** Gastric scintigraphy study was done for 20 patients who underwent laparoscopic sleeve gastrectomy to assess gastric emptying for solids. The Gastric scintigraphy study was done preoperatively followed by 3 and 6 months post operatively Patients were in fasting condition for 8 hours and an oral ingestion of the radiotracer sulfur colloid labeled with 99mTc in solid phase was used. Processing included qualitative (visual) and quantitative assessment with region of interest around the stomach and generating a time activity curve, on this time intensity curve, half time (T1/2) of emptying and percentage of retention are calculated. The percentage of retention is calculated at 30, and 60 min for solid phase .**Results:** Two patients developed post-operative leakage and could not complete the study. Accelerated emptying occurred in 14 patients after surgery, but it was normal in 2 patients and delayed emptying has been found in 2 patients .Some mechanisms could explain the accelerated gastric emptying after sleeve gastrectomy which could be: modification in the functional anatomy; reduction in gastric reservoir function and alteration of gastric pacemaker and inter-digestive motility. **Conclusion**: Accelerated gastric emptying time after sleeve gastrectomy is evident in the follow up after 3 and 6 months compared to preoperative examination. These results could play a significant role in surgery planning and could be taken in consideration for the dietary indications after surgery and during follow-up.