

The Egyptian Society of Nuclear Medicine Specialist

The Seventeenth International Nuclear Medicine Conference Marriott Hotel - Cairo, Egypt 23^{rd.} – 24^{th.}March, 2019.

President of Conference:

Prof. Dr. Hosna Moustafa.

Secretary of the Conference:

Maj. Ge. Dr. Khalid Taalab.

Program Directors:

Prof. Dr. Walid Omar.

Dr. Phy. Magdy Khalil.



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Invited Speakers:

Prof. Dr. Burkhard Klemenz	(Germany)
Prof. Dr. El-Refaie, Sh.	(Egypt)
Ass. Prof. Dr. El-Saied, Y.	(Egypt)
Prof. Dr. Furumoto, Sh.	(Japan)
Prof. Dr. Kawachi, N.	(Japan)
Consultant Dr. Salman, Kh.	(Saudi Arabia)
Consultant Dr. Siraj, Q.	(Kuwait)
Prof. Dr. Skanjeti, A.	(France)
Prof. Dr. Tashiro, M.	(Japan)
Prof. Dr. Talaat, A.	(Egypt)
Prof. Dr. Watabe, H.	(Japan)
Lec. Dr. Zidan, L.	(Australia)



الجَمعيَة المَصريَة لِلمُتَخَصِصين في الطب النَوَوي

The Egyptian Society of Nuclear Medicine Specialist

Local Organizing Committee:

Prof. Dr. Moustafa, H.

Prof. Dr. Omar, W.

Maj. Ge. Dr. Khidr, A.

Maj. Ge. Dr. Taalab, Kh.

Dr. Phy. Khalil, M.

Dr. Phy. El-maghrapy, Sh.

Eng. Abdou, M.

Awards of Society:

(1) Professor: Abdel-Razzak Award

Donated By {General Electric}

For young doctor in Nuclear Medicine field less than 35-year-old.

He / She should has **best oral presentation** during the 2019 Annual Meeting.

(2) Professor: Abdel-Dayem Award

Donated By {Siemens Healthineers}

For doctors less than 50-year-old during the 2019 Annual Meeting.

He / She should submit (3) International Articles or Articles Published in EJNM in last 3 years.



The Egyptian Society of Nuclear Medicine Specialist

Conference Location:

Marriott Zamalek- Cairo, Egypt.

Conference Language:

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

Projection:

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

Climate:

The weather during March in Cairo region is generally sunny by day and cool by night.

Visa:

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.



The Egyptian Society of Nuclear Medicine Specialist

Important Guidelines:

For chair persons:

- Please be in your session place at least 10 minutes before its start.
- Speakers should be strictly stuck to presentation and discussion time.
- Discussants should clearly state their name.

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 oral presentation is 10 minutes.
- Follow chair persons instructions.
- Discussion is strictly at time indicated.



The Egyptian Society of Nuclear Medicine Specialist

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

Maj. Ge. Dr. Khalid Taalab.
Cellular: (002)01222 90 69 60
E-mail: <u>ktaalab@gmail.com.</u>

During the meeting Marriott Zamalek– Cairo, Egypt.

Social program:

Saturday	23/03	08:30 - 09:15	Registration.	
Sunday	24/03	15:45 - 16:30	Closing ceremony.	
Excursions: Web site: <u>www.esnms.net.</u>				

Mail of Secretary Mr. Ahmed Sobhy: <u>ahmedsobhyesnms@gmail.com</u>.

Conference Bag includes;

- Abstract Book.
- Certificate of attendance.



The Egyptian Society of Nuclear Medicine Specialist

Saturday March 23

Molecular PET/CT Imaging & Imaging in Cardiology & Free Papers



The Egyptian Society of Nuclear Medicine Specialist

First Day Saturday 23rd March 2019 Registration 08:30 – 09:15

Presidential Address 09:15 – 09:30

Dear colleagues and members of nuclear medicine society

Dear colleagues, guests and NM family members!

It is truly an honor for me to speak to you all at the opening of the 17^{th.} Conference of the ESNMS. This meeting is a big efforts of many people who worked so hard for almost one year to bring us together again in such meeting.

The purpose of the conference is awareness of recent updates in Nuclear Medicine field; in both diagnosis and therapy.

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

We are delighted that: Dr. Andrea Skanjeti (IAEA) Expert; Prof. Dr. Manabu Tashiro; Prof. Dr. Naoki Kawachi; Prof. Dr. Shozo Furumoto; Prof. Dr. Hiroshi Watabe (Japan Society for the Promotion of Science); Prof. Dr. Burkhard Klemenz (Germany); Consultant Dr. Khalid Salman (Saudi Arabia); Consultant Dr. Qaiser Siraj, (Kuwait) and Dr. Lamia Zidan (Australia) have accepted our invitation and will share us this meeting.

We are thankful to all board members and organizing committee for helping in preparation of this event.

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

I would like to cordially thank our sponsors for their support this conference including; General Electric; Siemens Healthineers; Femto Trade; Emerald Pro; NEU-Soft; Ghalioungui; Egypt Trust; Maggie Medical and Ab-Care;.

I hope for all you to have nice time during this conference.

President of Conference

Prof. Dr. Hosna Moustafa



The Egyptian Society of Nuclear Medicine Specialist

First Day			
Saturday 23 rd March 2019			
	Session I 09:30 – 12:30		
	\mathbf{N}	Iolecular PET/CT Imaging	
Ch	Chair Persons:		
Maj. General Dr. Taalab, Kh. (Egypt)			
Prof. Dr. Refaei, Sh. (Egypt)			
1	09:30 - 10:00	Best practices for better IQ and diagnosis PET/CT	s accuracy in
		(Mr. Abderrahmane Ouared)	(Algerian)
		(Mr. Amro Kandil)	(Egypt)
2	10:00 - 10:30	Gallium 68 PSMA in Prostate Cancer.	
		(Prof. Dr. Sherif El-Refaei)	(Egypt)
3	10:30 - 11:00	Clinical Applications of PET/MRI Imagi	ng.
		(Prof. Dr. Burkhard Klemenz)	(Germany)
4	11:00 - 11:30	Gallium 68 in Neuroendocrine Tumors.	
		(Dr. Andrea Skanjeti)	(France)

11:30 - 11:45

Discussion



The Egyptian Society of Nuclear Medicine Specialist

Free Papers

S/I – 1

The Role of 18-F FDG PET/CT in Pediatric Extra-Nodal Lymphoma. Youssif, H¹. Fathy, H¹. Elkholy, E¹ and Moustafa, H².

¹Nuclear Medicine Department. ²Oncology department, NEMROCK center, Cairo University, Egypt.

11:55 – 12:05 S/I – 2

The Role of F18 FDG PET/CT in Initial Staging in Head and Neck Squamous Cell Carcinoma.

Saied, M¹. kandeel, A¹. El Sayed, Y¹. Selim, H² and El Daly, M².

¹Nuclear Medicine Department. ²Oncology department, NEMROCK center, Cairo University, Egypt.

12:05 – 12:15 S/I – 3

Correlation of Molecular Subtypes and PET/CT in Patients with Metastatic Breast Cancer

Nasr, A². Moustafa, H¹and Tawakol, A¹.

¹ Maadi Armed Force Hospital.²Oncology and Nuclear Medicine Department, Cairo University Egypt.

12:15 - 12:30

Discussion

Coffee Break

12:30-13:00



The Egyptian Society of Nuclear Medicine Specialist

First Day Saturday 23 rd March 2019				
	Se	ession II 13:00 – 1	5:45	
		Imaging in Cardiolog	у	
Chair Persons:				
Prof. Dr. Ziada, G. (Kuwait)				
Consultatnt Dr. Khidr, A. (Egypt)				
1	13:00 - 13:15	PET/CT, The Next Generation	n.	
		(Eng. Khaled Elgowely)	(Egypt)	
	13:15 - 13:30	Clinical PET/CT Cases.		
		(Prof. Dr. Walid Omar)	(Egypt)	
2	13:30 - 14:10	Multimodality Cardiac Imagin	ng Including Hybrid	
		PET/CT Imaging.		
		(Consultant Dr. Qaisar Siraj)	(Kuwait)	
3	14:10 - 14:40	Additional Role of SPECT/C	Γ in Diagnosis of CAD.	
		(Ass. Prof. Yasser Elsaied)	(Egypt)	
4	14:40 - 15:00	Non ischemic applications of cardiac PET Imaging.		
		(Dr. Susan Adil)	(Egypt)	

$15:00 - \overline{15:15}$

Discussion



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Free Papers

15:15 - 15:25S/II - 1

The Value of Myocardial MIBI Washout Rate in Risk Stratification of

Coronary Artery Disease

Omar, M¹. Moustafa, H¹. Abd El-Ghany, MM² and El-Rasad, Sh¹.

¹Nuclear medicine department, NEMROCK center. ²Cardiology department, Cairo University, Egypt.

S/II - 215:25 - 15:35

Value of Calcium Scoring in Addition to Myocardial Perfusion

Imaging in Patients with Coronary Artery Disease

Mahmoud, M. El-Tawil, A. Mohamed, Y. and Dessoki, N.

Nuclear medicine department, NEMROCK center, Cairo University, Egypt.

15:35 - 15:45

15:45 - 16:00

Conference Group Photo

نعقًاد الجَمعيَة العُموميَة لأعضاء جَمعيَة الطَّب النَّوَوي _16:30 – 5:45

16:30 - 18:00

Lunch

Discussion



The Egyptian Society of Nuclear Medicine Specialist

Sunday March 24

Molecular Imaging in CNS/Bone &Theranostics & Free Papers



The Egyptian Society of Nuclear Medicine Specialist

Second Day Sunday 24 th March 2019				
Session III 09:30 – 12:30				
	Mo	lecular Imaging in CNS/B	one	
Chair Persons:				
Prof. Dr. Zaher, A. (Egypt)				
Dr	Dr. Khalil, M. (Egypt)			
1	09:30 - 10:00	Conventional Bone Scan versus F-	18 FDG and F-18	
		NaF Hybrid PET/CT Imaging in Bone Metastases.		
		(Prof. Dr. Ahmed Talaat)	(Egypt)	
1	10:00 - 10:30	Development of Fluorine-18 Trace	rs for AD Brain	
		Imaging.		
		(Prof. Dr. Shozo Furumoto)	(Japan)	
2	10:30 - 11:00	Automatic evaluation of Pharmacokinetics for		
		Amyloid tracers.		
		(Prof. Dr. Hiroshi Watabe)	(Japan)	
3	11:00 - 11:30	Functional Neuro-Imaging Researc	ch on Dementia.	
		(Prof. Dr. Manabu Tashiro)	(Japan)	

11:30 - 11:45

Discussion



The Egyptian Society of Nuclear Medicine Specialist

Free Papers

11:45 - 11:55

S/III – 1

The Predictive Value of PET-scan in Diffuse Large B-cell in Optimizing the Treatment Decision.

Salama, M¹. El Refaei, SH¹. Zawam, H². Abougabal, M¹. Salama, R² and Zawam, H².

¹Nuclear Medicine Department. ²Oncology department, NEMROCK center, Cairo University, Egypt.

11:55 – 12:05 S/III – 2

The Role of Bone Marrow Biopsy and FDG-PET/CT in Identifying Bone

Marrow Infiltration in Newly Diagnosed Adult Patients with High Grade

NHL and Hodgkin Lymphoma.

Hussien, M¹. Kandeel, A¹. Younis, J¹. Gawad, W² and Zidan, ¹L. ¹Nuclear Medicine Department.²Oncology department NEMROCK center, Cairo University, Egypt.

12:05 – 12:15 S/III – 3

Influence of Various Blood Glucose Levels and Dual-time-Point Imaging on

Standardized Uptake Values in Normal and Malignant Tissues Using 18F-FDG-

PET/CT

Maamoun, M. Kandeel, A. Abd El Kareem, M and Hussein, Sh. Nuclear Medicine Department, NEMROCK center, Cairo University, Egypt.

12:15 - 12:30

Discussion

Coffee Break

12:30 - 13:00



The Egyptian Society of Nuclear Medicine Specialist

Second Day Sunday 24 th March 2019				
	S	ession IV 13:00 - 15:45	5	
		Theranostics		
Ch	Chair Persons:			
Prof. Dr. Moustafa, H. (Egypt)				
Prof. Dr. Omar, W. (Egypt)				
1	13:00 - 13:30	Theranostics concept and the success story of PRRT.		
		(Dr. Andrea Skanjeti)	(France)	
2	13:30 - 14:00	NET and PRRT		
		(Dr. Lamia Zidan).	(Egypt)	
3	14:00 - 14:30	Yttrium 90 therapy		
		(Consultant Dr. Khalid Salman)	(Saudi Arabia)	
4	14:30 - 15:00	Lutetium Octreotide Therapy.		
		(Dr. Andrea Skanjeti)	(France)	
5	15:00 - 15:30	Imaging in Targeted Alpha Therapy	and Ion Beam	
		Therapy.		
		(Prof. Dr. Naoki Kawachi)	(Japan)	

15:30 - 15:45

Discussion

15:45 - 16:30

Closing Ceremony + Awards

16:30 - 18:00

Lunch



The Egyptian Society of Nuclear Medicine Specialist

S/I - 1

The Role of 18-F FDG PET/CT in Pediatric Extra-Nodal Lymphoma.

Youssif, H¹. Elkholy, E¹. Fathy, H¹. Moustafa, H² and Hussein, M¹.

¹Nuclear Medicine Unit, NCI. ²Nuclear medicine Unit, NEMROCK center, Cairo University, Egypt.

Background: Pediatric Extra-nodal lymphoma (ENL) is sub group of lymphoma defined as lymphomatous infiltration of anatomical sites other than the lymph nodes or lymphatic tissue. PET/CT with 2-deoxy-2fluorine-has become the standard imaging tool for initial staging, follow-up, and treatment response assessment in patients with lymphoma. However, limited number of studies discusses the role of FDG PET-CT in evaluation of primary or secondary extra-nodal involvement in pediatric lymphoma. Aim of the work: To explore the PET/CT image value in differentiation between both types of extra-nodal lymphoma regarding their anatomical distribution, metabolic behaviors among the different histologic types and their prognosis. Patients and methods: this prospective preliminary study of 32 pediatric patients with pathologically proved lymphoma at extra-nodal site (either primary or secondary extra-nodal involvement) for initial assessment at national cancer institute. Preliminary results: 20 patients (62.5 %%) of the study group had primary extra nodal lymphoma, while the other 12 patients (37.5%) were with secondary extranodal lymphoma. NHL was more common at primary extra-nodal lymphoma than HL, while HL was more common in secondary extra-nodal lymphomas. The most common histological sub-type for primary extra nodal lymphoma was Burkitt's lymphoma representing (60%) of patients, while the most common histological type for secondary extra-nodal lymphoma was nodular sclerosis type representing (33.3%). These results are still preliminary results and further extension with large number of patients will be done.

Conclusion: 18-F FDG PET/CT may be considered in such preliminary data as the most important imaging modality for lymphoma assessment especially for extra-nodal involvement that can be easily missed on other imaging modalities.



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S/I - 2

The Role of F18 FDG PET/CT in Initial Staging in Head and Neck Squamous Cell Carcinoma. Saied, M¹. kandeel, A¹. El Sayed, Y¹. Selim, H² and El Daly, M².

¹Nuclear medicine Unit. ² Oncology Department, NEMROCK center, Cairo University, Egypt.

Background: Head and neck squamous cell carcinoma (HNSCC) is the sixth most common malignancy worldwide, accounting for approximately 9% of all cancer cases, responsible for an estimated 1%–2% of all cancer deaths. Accurate assessment of disease extension is essential to plan the most appropriate treatment, with important implications for patient outcomes. Aim of work: to assess the role of PET/CT in initial staging of head and neck squamous cell carcinoma and its role in changing the management compared to other conventional methods (CT, MRI, U/S, endoscopy, ect....).Patient and method: a prospective study of 31 patients (21 male and 10 female) mean age 49.3 with histological confirmed squamous cell carcinoma, underwent PET/CT for staging prior to conventional methods; routine physical examination, endoscopy, CT, U/S, MRI, ect... with time interval less than 30 days. The findings of PET/CT were compared with those of the other conventional method. Results: No significant difference between conventional methods and PET/CT in T staging (p=0.8). There was significant difference between conventional methods and PET/CT in N staging (p=0.034). No significant difference between conventional method and PET/CT in M staging (p=0.647). PET/CT changed; T staging in 3/31 (9.6%) cases, up staging in 2 (6.4%) cases and down staging in one (3.2%) case. N staging in 13/31 (41.9%) cases, up staging in 13 cases and down staging in zero case. M staging in 3/31 (9.6%) cases, up staging in 2 (6.4%) cases and down staging in one (3.2%) case. PET/CT changed the intent of treatment in one case 1/31 (3.2%) and caused radiotherapy modification in 21/31cases (67.7%).

Conclusion: ¹⁸F-FDG-PET/CT is considered a valuable imaging tool in head and neck squamous cell carcinoma in initial staging which change the staging and hence the management in radiotherapy planning.



The Egyptian Society of Nuclear Medicine Specialist

S/I - 3

Correlation of Molecular Subtypes and PET/CT in

Patients with Metastatic Breast Cancer.

Moustafa, H¹. Nasr, A² and Tawakol, A¹.

¹ Oncology and Nuclear Medicine Department, Cairo University and ² Maadi Armed Force Hospital. Egypt.

Background: Approximately 5% to 10% of breast cancers are metastatic at diagnosis. F18F- FDG PET/CT is able to supply functional information for tumor staging with higher sensitivity, specificity and accuracy as compared to CT in detection of metastatic spread and follow up after treatment. Treatment of metastatic breast cancer is based on consideration of tumor biology and clinical history. The aim of this study: to assess of the impact of PET/CT in patients with metastatic breast cancer and monitoring the therapy response in relation to different molecular subtypes. Material and Methods: The study included 40 patients classified into 4 molecular subtypes; Luminal A like subtype (13 patients), Luminal B+ subtype (15 patients), Luminal Bsubtype (4 patients) and Basal like subtype (8 patients). All patients with possible metastatic breast cancer performed PET-CT before treatment, while 34 patients perform PET-CT after the end of therapy. **Results:** on lesion based analysis the total numbers of metastatic lesions in CT and bone scan were 120 lesions (49 in LNs, 24 in lung, 8 in liver; while 39 in bone). Metastatic lesions in PET/CT were 76 lesions (46 in LNs, 22 in lung and 8 in liver and 22 in bone). During follow up after therapy, the majority of luminal A group showed complete response to therapy during follow up PET/CT scan. Also, luminal B+ subgroup showed partial response. While most of basal-like subgroup showed progressive disease.

Conclusion: PET/CT can detect metastatic spread in breast cancer and monitor therapy response in relation to different molecular subtypes. The mean SUV max showed relation to the different molecular subtypes.



The Egyptian Society of Nuclear Medicine Specialist

S/II - 1

The Value of Myocardial MIBI Washout Rate in Risk Stratification of Coronary Artery Disease.

Omar, M¹. Moustafa, H¹. Abd El-Ghany, MM² and El-Rasad, Sh¹.

¹Nuclear Medicine Unit, NEMROCK center. ²Cardiology department, Cairo University, Egypt.

Background: risk assessment of coronary artery patients determines the current burden of the disease which considered the key determinant to improve the quality of patient's life. Aim of the work: in this study to estimate the rate of global myocardial MIBI washout in coronary artery disease patients with different risk stratifications. Material and methods: this prospective study included 100 patients. All patients were stratified into low, intermediated and high risk patients; clinically using Framingham score and according to stress ECG results using Dukes' score and finally according to myocardial perfusion scan. Then global myocardial washout rate was estimated in all patients and correlated to their risk category. **Results:** Global washout was intermediately positive-correlated with the clinical risk stratifications as well as exercise ECG Dukes' risk stratifications with correlation coefficient 0.4 and 0.6 respectively. While the global washout was strongly positive-correlated with the myocardial perfusion scan risk stratification level demonstrating correlation coefficient 0.68.

Conclusion: The rate of myocardial MIBI washout is directly proportion with the risk category of the CAD patients. The rate of MIBI washout can be used as an additional parameter for risk stratifications of CAD patients.



The Egyptian Society of Nuclear Medicine Specialist

S/II - 2

Value of Calcium Scoring in Addition to Myocardial Perfusion Imaging in Patients with Coronary Artery Disease.

Mahmoud, M. El-Tawil, A. Mohamed, Y. and Dessoki, N.

Nuclear medicine department, NEMROCK center, Cairo University, Egypt.

Background: The coronary artery calcium (CAC) score has been shown to predict future cardiac events. However the extent to which the added value of a CAC score to the diagnostic performance of myocardial perfusion imaging (MPI) by single photon emission computed tomography (SPECT) is unclear. **Aim of the work:** The purpose of this study is to investigate the correlation between CAC score and SPECT myocardial perfusion imaging in patients with suspected coronary artery disease. **Material and Methods:** A prospective study of the CAC scores by use of the Agatston calcium scoring method and myocardial perfusion SPECT imaging was conducted in 50 patients, who underwent both coronary computed tomography (CT) and SPECT examinations due to suspected coronary artery disease. A Pearson correlation test was used to determine the relation between CAC scores and MPI-SPECT assessments with regard to the evaluation of the extent of disease. **Results:** The study showed that both MPI defect size and severity are strongly correlated with CAC score with mean CAC score in case of normal MPI 155.6+/-152 and in case of abnormal MPI 1096+/-570.9 and P value < 0.0001. We also found that the higher clinical risk is seen in patients with high CAC score and those associated with positive MPI study.

Conclusions: Total CACs can be used as procedure in clinically low risk patients with CAD. MPI study is the standard imaging choice in clinically intermediate or high risk patients with CAD and associated with high CACs.



The Egyptian Society of Nuclear Medicine Specialist

S/III - 1

The Predictive Value of PET/CT in Diffuse Large B-cell in Optimizing the Treatment Decision. Salama, M¹. El Refaei, SH¹. Zawam, H². Abougabal, M¹. Salama, R² and Zawam, H².

¹Nuclear Medicine Unit. ²Oncology Department, NEMROCK center, Cairo University, Egypt.

Background: Diffuse large B cell lymphoma (DLBCL) is aggressive type of non-Hodgkin lymphomas. The role of 18F-FDG PET/CT scan is well established at the baseline and at the end of treatment for DLBCL patients. Many studies reported that patients with a negative scan after initial 2-3 cycles of chemotherapy showed better progression-free (PFS) and overall survival (OS). Therefor it is important to determine an accurate predictive tool to stratify patients who are more likely to relapse, to allow clinicians to modify their treatment accordingly. Aim of the work: this study aimed to define the predictive value of interim 18F-FDG PET/CT in patients initially diagnosed as DLBCL treated with chemotherapy as first line. Patients and Methods: This prospective study was performed in NEMROCK Center for thirty-nine patients, with newly DLBCL. Patients were subjected to whole body 18F-FDG PET/CT as a baseline and after 3 cycles of their 1st line chemotherapy (interim PET). All patients underwent a complete evaluation with a baseline scan, interim PET-I scan (PET-I), and an end-of -treatment scan (PET-E). Results: According to PET-I (interim PET), patients were subdivided into metabolic responders (PETnegative patients) including patients with complete and partial response and metabolic nonresponders (PET-positive patients) with progressive and stable disease using Deauville criteria. PET-negative patients 36/39 patients (92.3%) received three additional courses, whereas in PETpositive patients (3 patients) received 2nd line chemotherapy. Two patients of them were still nonresponder at the end-of-treatment study while, the other one became responder. At the end-oftreatment PET/CT scan of patients 35/39 (89.7%) patients were metabolic responders and the remaining 4 patients (10.3%) were metabolic non-responders.

Conclusion: In DLBCL, PET-CT is valuable in treatment decision and early shift for nonresponding patients as well as optimization of the management of patients for chemotherapy treatment.



The Egyptian Society of Nuclear Medicine Specialist

S/III - 2

The Role of Bone Marrow Biopsy and FDG-PET/CT in Identifying Bone Marrow Infiltration in Newly Diagnosed Adult Patients with High Grade NHL and Hodgkin Lymphoma.

Hussien, M¹. Kandeel, A¹. Younis, J¹. Gawad, W² and Zidan, L¹.

¹Nuclear medicine department.²Oncology department NEMROCK center, Cairo University, Egypt.

Aim of work: To compare between FDG PET/CT and bone marrow biopsy (BMB) in assessment of bone marrow infiltration in Hodgkin lymphoma (HL) and aggressive non-Hodgkin lymphoma (NHL) lymphoma. **Patients and Methods:** This prospective study was conducted on 138 patients of adult lymphoma (50 HL, 88 NHL). The study included 70 male and 68 female with median age of 43 years. All patients had pre therapy FDG PET/CT and BMB. **Results:** Concordance between PET/CT and BMB was observed in 104/138 patients (75.4%). Both tests were negative in 86 patients and both were reported positive in 18 patients. In NHL, bone marrow infiltration (BMI) was detected by PET/CT in 26/88 (29.5%) and by BMB in 22/88 (25%), the concordance was detected in 64/88 (72.7%) patients. In HL, BMI was detected by PET/CT in 14/50 (28%) and by BMB in 8/50 (16%), the concordance between PET/CT and BMB was detected in 40 patients (80%). The overall results revealed a border line significant higher sensitivity for FDG PET/CT (73.9%) compared to BMB (62.5%) (p 0.046). FDG PET-CT provides upstaging in 8.6% of the enclosed patients. In HL group, PET/CT showed significantly higher sensitivity compared to BMB being 87.5% versus 50% (p 0.02). While For NHL group, sensitivity for PET/CT and BMB were 66.7% and 68.8% (p<0.1).

Conclusion: FDG PET/CT is a promising alternative tool to BMB in initial assessment of BMI in adult patient with HL & NHL lymphoma.



The Egyptian Society of Nuclear Medicine Specialist

S/III - 3

Influence of Various Blood Glucose Levels and Dual-time-Point Imaging on Standardized Uptake Values in Normal and Malignant Tissues Using ¹⁸F-FDG-PET/CT

Maamoun, M. Kandeel, A. Abd El Kareem, M and Hussein, Sh.

Nuclear medicine department, NEMROCK center, Cairo University, Egypt.

Background: Standardized uptake values (SUVs), are semi-quantitative parameters widely used to measure tracer accumulation in tissues, their accuracy can be influenced by multiple biological and procedural factors. Aim of work: To assess the impact of various blood glucose levels (BGLs) and delayed time point imaging (DTPI) on¹⁸F-FDG uptake values as measured with SUV max and SUV mean in normal organ tissues as well as in neoplastic lesions. Patients and methods: Our prospective study was done on 200 patients who were referred for clinical PET/CT examinations for various oncological indications. Semi-quantitative indices were obtained within apparently normal regions in multiple specified organs and the main pathological lesion in the early and delayed axial PET/CT images and the values were compared within various patients' groups e.g. Diabetic status, BMI, creatinine level, IV contrast administration, and history of previous chemotherapy and radiotherapy. Results: BGL, DM and obesity significantly affect SUV measurements in the brain, bone marrow, lungs, mediastinal blood pool, liver, spleen and muscles. Higher SUV max values among patients with lower BGL in the brain and lungs, and significantly higher SUV max values among patients with higher BGL in mediastinal blood pool, liver, spleen, muscles, and bone marrow. All organs except the spleen demonstrated significant difference between early and late images including malignant lesions.

Conclusions: clear understanding of the biological and technical factors affecting ¹⁸F-FDG bio-distribution in normal and pathological tissues, and taking into consideration the potential sources of bias and variance in SUV measurements are needed for the proper interpretation of ¹⁸F-FDG- PET/ CT studies.



The Egyptian Society of Nuclear Medicine Specialist

S/III - 4

Added value of I-131 SPECT/CT imaging after I-131 ablation in patient with differentiated thyroid cancer. Hamid, W¹. Elnakib, E¹. kandeel, A². Gaber, M¹. Muhammed, A¹.

¹Clinical Oncology and nuclear medicine department, Sohag University. ²Nuclear medicine Unit, NEMROCK center, Cairo University, Egypt.

Aim of the work: to evaluate the diagnostic value of I-131 SPECT/CT over traditional I-131 whole body planar scintigraphy during post-I-131 ablative dose imaging or during regular follow up of patient with differentiated thyroid cancer. Material and methods: a total of 108 patients with differentiated thyroid cancer were subjected to near total thyroidectomy and post-operative neck US to enroll status of residual disease together with base line serum TG. Planar I-131 whole body scan (WBS) and SPECT/CT was done by hybrid gamma camera system. Neck and chest SPECT/CT was performed as well. Results: In who performed post-therapy scan, there were 68 foci out of 70 patients were detected in thyroid bed is seen at both WBS and SPECT/CT. Six foci were interpreted as equivocal lesion in WBS were seen in SPECT/CT as thyroid duct remnant. 38 patients had follow up diagnostic WBS. 8 foci were seen in WBS and SPECT/CT as residue in 5 and recurrence in 3. Additional 2 lesions were detected by SPECT/CT in the thyroid bed. A total of 24 radioactive foci were identified as potential LN metastases on WBS (8 foci had positive uptake, 10 lesions were equivocal for LN metastasis. The remaining 6 lesions were confirmed with SPECT/CT as metastatic LNs. Distant Metastases: 28 lesions had positive uptake as distant metastases (8 foci in lungs and 20 foci in bones). 15 of these 28 foci were suggested to be positive findings on WBS. SPECT/CT showed that 15 of the 28 foci positive had positive uptake (lungs 5 foci, and bones 10 foci). Additional 6 out of 13 foci noted as equivocal foci for distant metastases were localized by SPECTT/CT (3 in lungs and 3 in bones). The remaining 7 equivocal foci were shown to represent physiologic uptake or benign lesions.

Conclusion: SPECT/CT improved the detection and localization of LN and distant metastases compared with planner WBS and have a considerable effect on the management of patients with well-differentiated thyroid carcinoma.