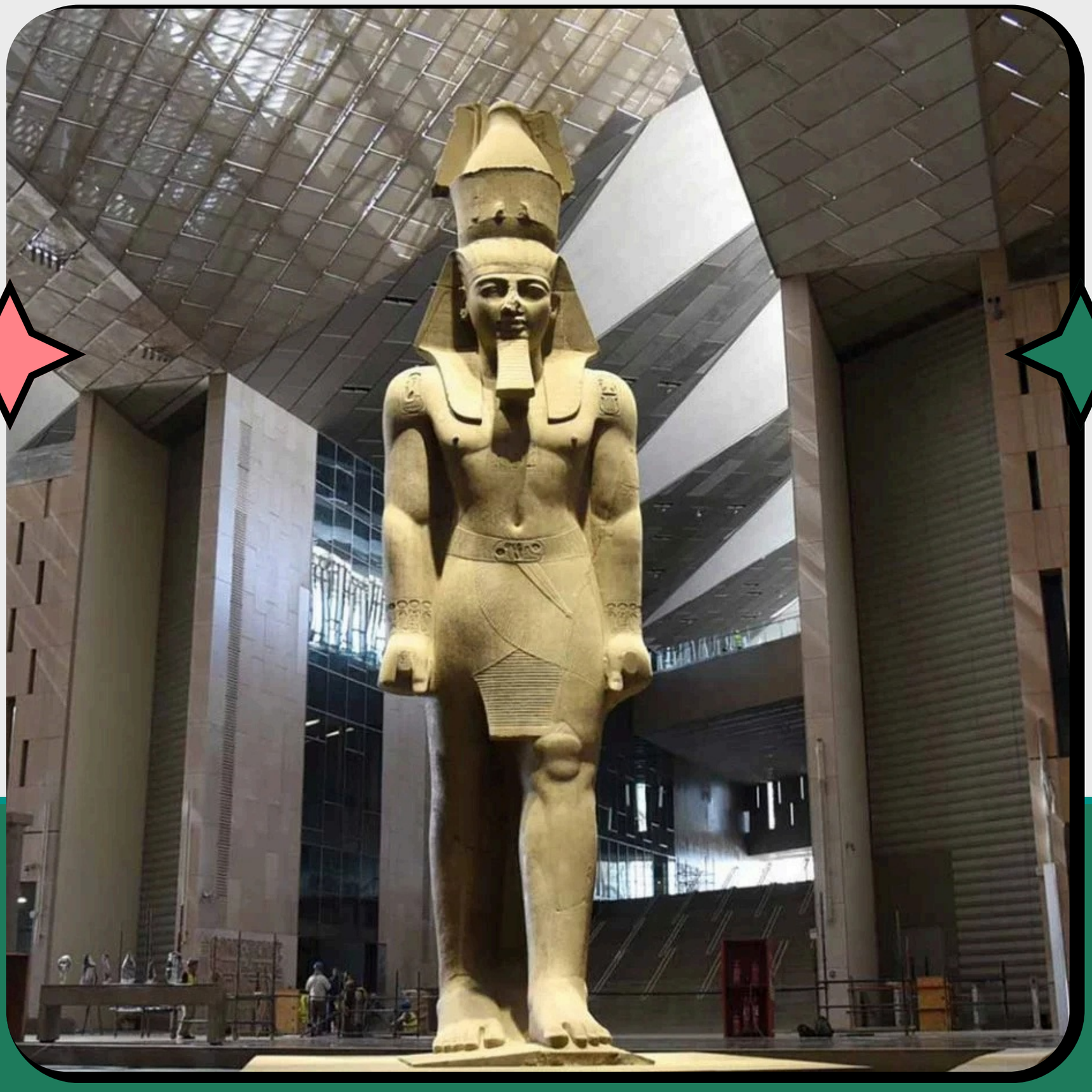
IAEA

The Egyptian Society of Nuclear Medicine Specialists (ESNMS)

THE EGYPTIAN SOCIETY OF NUCLEAR MEDICINE SPECIALISTS
E.S.N.M.S

20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine



Saturday- Sunday

11th – 12th April, 2026

Triumph Plaza Hotel

www.esnms.net

The Egyptian Society of Nuclear Medicine Specialists (ESNMS)

20TH CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Prof. Dr.
Hosna Mustafa
President of the ESNMS

Prof. Dr.
Khalid M. Taalab
President of the Conference

Prof. Dr.
Walid Omar
General Secretary of the Conference

Prof. Dr.
Elshaymaa Hussein
Conference Moderator

www.esnms.net

The Egyptian Society of Nuclear Medicine Specialists (ESNMS)

20TH CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

IAEA

THE EGYPTIAN SOCIETY OF NUCLEAR MEDICINE SPECIALISTS E.S.N.M.S

MEET THE EXPERTS

Abdelhamid Elgazzar
(EGYPT)

Anita Brink
(AUSTRIA)

Ayah Nawwar
(UK)

Antonia Dimitrakopoulou-Strauss
(GERMANY)

Egesta Lopci
(ITALY)

Hussien Farghaly
(EGYPT)

John Buscombe
(UK)

Markus Luster
(Germany)

Ramsey Badawy
(USA)

Raef Riad
(AUSTRALIA)

Tarek Elmaghraby
(Egypt)

Yasser Gaber
(USA)

IAEA

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

THE EGYPTIAN SOCIETY OF NUCLEAR MEDICINE SPECIALISTS
E.S.N.M.S

LOCAL ORGANIZING COMMITTEE

- Prof. Hosna Moustafa
- Prof. Mai Amr
- Ass. Prof. Elshaymaa Hussein
- Ass. Prof. Magdy Khalil
- Lecturer Hoda Nagui
- Eng. Mohamed Abdou

ESNMS CONFERENCE 2026

MEET OUR SPONSORS & PARTNERS

Femto Trade
For Scientific Services

GE HealthCare

SIEMENS Healthineers

GTCO Since 1981

GAMMA TRADE Co.
FOR SCIENTIFIC SERVICES AND CONSULTATION
S.A.E

APRIL 11-12
2026

www.esnms.net

In the Memory of Father of Nuclear Medicine Physics in Egypt

Prof. Dr. Gaber Ziada

- We honor the memory of Professor Dr. Gaber Ziada, the pioneering figure and the father of Nuclear Medicine Physics in Egypt.
- vHe graduated from the Faculty of Science, Cairo University in 1970, earned his MSc in 1975, and PhD in 1978. He became a Professor of Nuclear Medicine Physics in 1989 and was appointed Emeritus Professor at the Faculty of Medicine, Cairo University in 2007.
- Throughout his illustrious career, he contributed profoundly to the development of Nuclear Medicine both in Egypt and abroad. He undertook sabbatical leaves at Kuwait University (1983–1988, 1994–1999, 2002–2015) and received advanced training at the KFA Nuclear Research Center, Germany (1979–1981). His expertise was recognized internationally, with multiple missions as an IAEA expert to countries including Kuwait, Egypt, Pakistan, Saudi Arabia, Sudan, Morocco, Australia, Germany, and Austria between 1984 and 2008.
- Professor Gaber Ziada played a pivotal role in establishing MSc and PhD programs in Nuclear Medicine at Cairo and Kuwait Universities and devoted himself to postgraduate teaching in Nuclear Medicine Physics, Instrumentation, and Computer Applications at Cairo, Assiut, and Kuwait Universities. He supervised 42 PhD and 31 MSc students, authored 65 manuscripts in international journals, and contributed extensively to conferences with 53 posters and abstracts.
- His international engagement included memberships in the Egyptian Science Syndicate (1971), American Society of Nuclear Medicine (1984), European Society of Nuclear Medicine (1985), and the Egyptian Society of Nuclear Medicine, where he served on the Board of Directors from 2023 until his passing.
- Professor Gaber Ziada's dedication, mentorship, and vision have shaped generations of nuclear medicine specialists and left an ineffaceable mark on the field. His legacy will continue to inspire both his students and colleagues around the world.

Biograph Trinion PET/CT

Air-cooled design | **Table weight capacity** 272 kg (600 lb) | **Flared bore** | **Small footprint** | **No equipment room**

Scan&GO tablet[1] and wireless remote control[1] | Patient and gantry **moodlights**[1] | **Patient cameras** | **Paper roll holder**[1] | **IV Pole**[1]

[1] Optional.

Awards of the Society

(1) Professor: Abdel-Razzak Award

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

He / She should have best oral presentation during the 2026 Conference Meeting.

(2) Professor: Abdel-Dayem Award

For doctors less than 45-year-old during the 2026 Conference Meeting.

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

Conference Location:

- Triumph Plaza Hotel – 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 April in Cairo region is generally hot by day and good 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.

Important Guidelines:

For Chairpersons:

-Please be in your session place at least 10 minutes before its start.

-Speakers should be strictly stuck to presentation and discussion time.

-Discussion will be as end the of session.

For Speakers:

-Turn in your data one hour prior to the start of the session.

-Time allowed for oral presentation is 10 minutes.

-Follow chair persons instructions.

-Discussion is strictly at end the of session.

NO SMOKING OR USING MOBLIE PHONE IN MEETING ROOM.

Conference President:

Prof. Dr. Khalid M. Taalab

E-mail: ktaalab@gmail.com.

Conference Moderator:

Ass. Prof. Elshaymaa Hussein

E-mail : elshaymaa_hussein@yahoo.com

Social Program:

Saturday	11/04/2026	08:30 - 09:15	Registration.
Sunday	12/04/2026	15:20 - 16:00	Closing ceremony.

Excursions: Web site: www.esnms.net.

Secretary: Mr. Khaled Eid:

Email: esnmssociety@gmail.com

Conference Bag includes:

-Abstract Book.

-Certificate of attendance.

Femto Trade

For Scientific Services

Advanced medicine, **personalized care.**

Improving Lives Through Innovation: Egypt Leader company in Nuclear Medicine

THE EGYPTIAN SOCIETY OF NUCLEAR MEDICINE SPECIALISTS

E.S.N.M.S

20th

CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

SCIENTIFIC PROGRAM

123-456-7890

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Day 1 - SATURDAY, April 11, 2026

Session I: 09:30- 12:20

Nuclear Medicine in Complex Clinical Reality

Immunotherapy /Infection

Session II: 13:00- 15:30

Next-Generation Molecular Imaging

FAPI PET/CT / Total-Body PET/CT/ Cardiac

Day 2 - SUNDAY, April 12, 2026

Session III: 09:30- 12:20

Exploiting Molecular Signatures of Disease

PET/CT Brain / Thyroid/ Breast/ Neuroendocrine

Session IV: 13:00- 16:00

The Future of Nuclear Medicine

Theransotics/ Artificial Intelligence

We are strategically positioned to deliver Theranostics

Integrating **digital products and solutions** across care pathways

Discovery

With scalable, targeted tracer development , production, and distribution of PET radiopharmaceuticals.

PETtrace™ Solid Target Platform
Incredibly productive and credibly reliable

Diagnosis

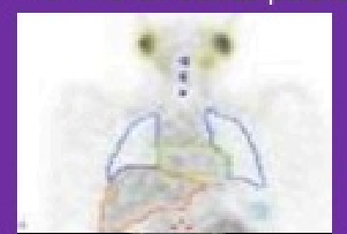
Delivering ultra- high sensitivity PET/CT and PET/MR solutions.

Omni Legend
Answers at the speed of sight

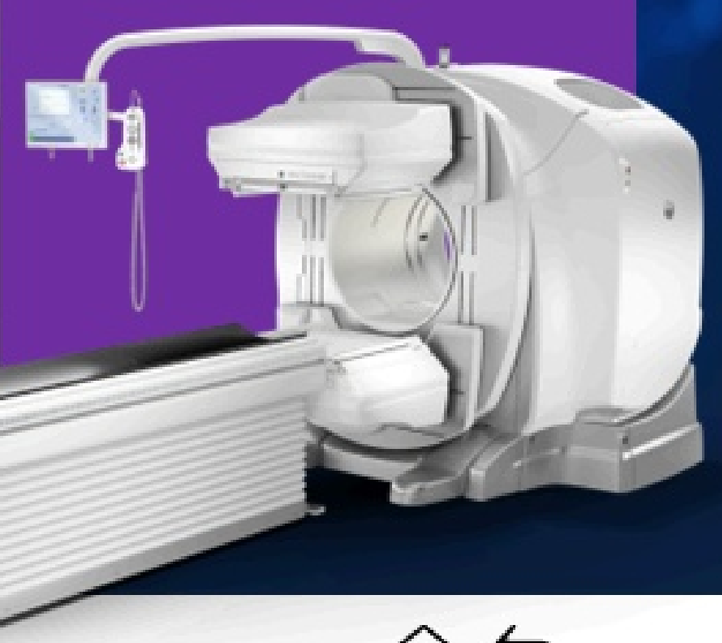
Treatment

Empowering treatment monitoring with SPECT/CT scanners and advanced AI-powered clinical applications.

Xeleris V
"AI Theranostics package*"



NMCT 800 series
Precision imaging at the speed of tomorrow



*Theranostics package includes Q.Volumetrix AI, Q.Liver, and Q.Thera AI. Q.Thera AI is 510(k) pending at the FDA and not available for sale in the United States.

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Day 1 - SATURDAY, April 11, 2026

Session I: 09:30– 12:20

Nuclear Medicine in Complex Clinical Reality

Immunotherapy /Infection

Chair Persons:

Prof. Dr. **Walid Omar** (Egypt)
Prof. Dr. **Mai Amr** (Egypt)
Consultant Dr. **Adel Khedr** (Egypt)

09:30 - 10:00	**FAPI PET/CT as New Insights in Oncology**	**Egesta Lopci** (Italy)
10:00 – 10:30	**Diabetic foot Disease. Update on Diagnostic Strategy**	**Abdelhamid Elgazzar** (Egypt)
10:30 –10:50	**PET/CT in Fever of Unknown Origin**	**Aya Nawaar** (UK)
10:50 – 11:20	**PET Myocardial Perfusion**	**Raef Riad** (Australia)

FREE PAPERS

11:20 – 11:30	**Prognostic Value of 18F-FDG PET/CT Volume Based Metabolic Parameters in Patients with Malignant Pleural Mesothelioma.** [1]Randa Koura. [2]Hosna Mostafa, [1]Esraa El kholy, [1]Ahmed Abdelmaksoud, [1]Nuclear Medicine Unit, NCI, Nuclear Medicine Unit Faculty of Medicine Cairo University, Egypt
11:30 – 11:40	**Evaluating the Diagnostic Performance of PET/CT in Triple-Negative Breast Cancer.** [1]Rawan Sherra, [2]Tarek ElMaghraby, [1]Maha Mehesen, [1]Dina Deif [1]Nuclear Medicine Unit, NCI, [2]Nuclear Medicine Unit Faculty of Medicine Cairo University, Egypt.
11:40 – 12:10	**Biograph Trinion, Future forward by design"** **Eng. Ahmed Sayed: "Business Manager MI Egypt "** SIEMENS Healthineers
12:10 – 12:30	DISCUSSION
12:30 – 13:00	Coffee Break

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Day 1 - SATURDAY, April 11, 2026

Session II: 13:00- 15:30

Next-Generation Molecular Imaging

FAPI PET/CT / Total-Body PET/CT/ Cardiac

Chair Persons:

Prof. Dr. **Ashraf Fawzy** (Egypt)
Prof. Dr. **Ahmed Zaher** (Egypt)
Prof. Dr. **Walid Diab** (Egypt)

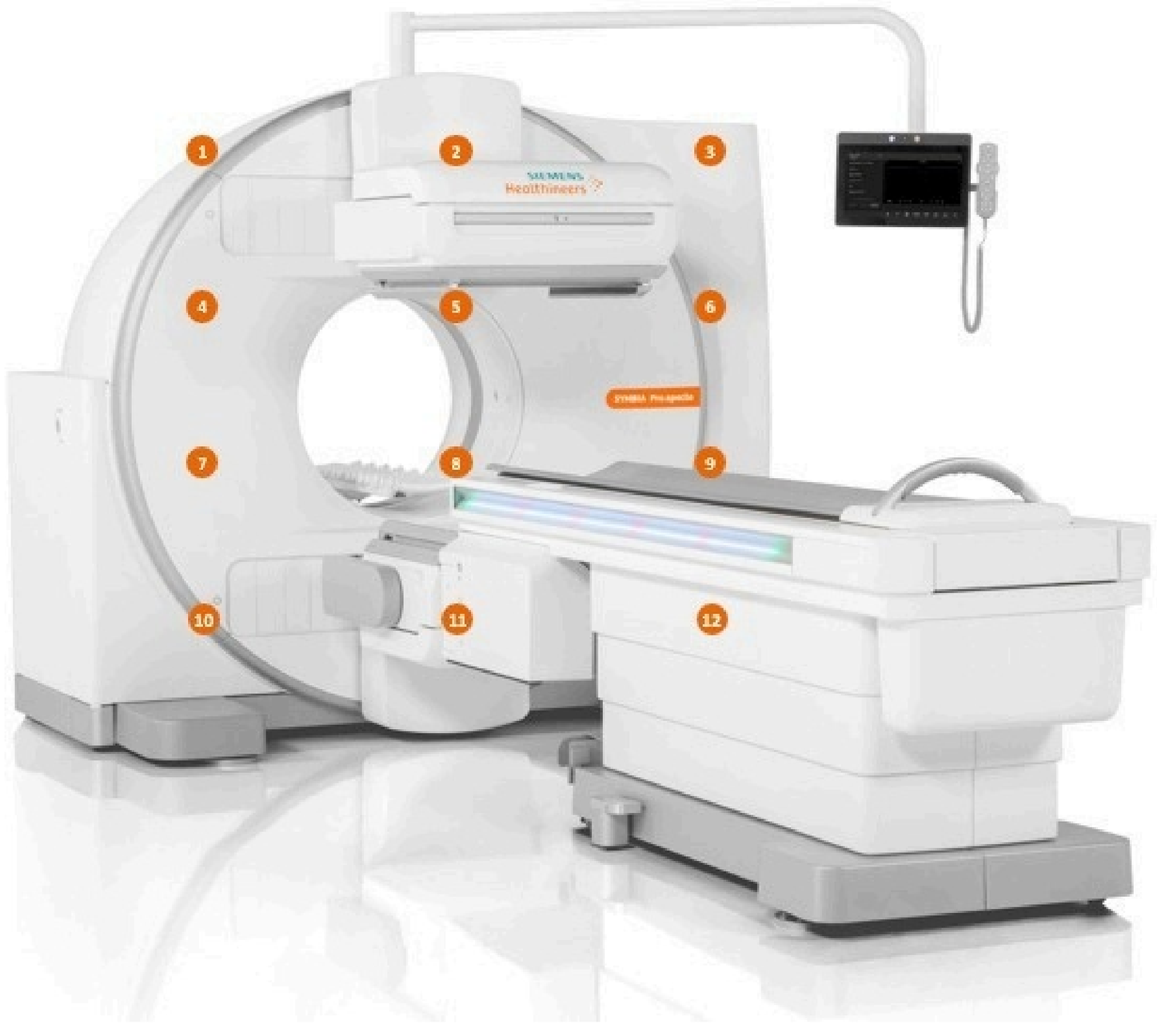
13:00 – 13:20	**The current status and barriers for NM service delivery in Africa"?**	**Anita Brink (IAEA Austria)**
13:20 – 13:50	**Response to immunotherapy.**	**Egesta Lopci (Italy)**
13:50 – 14:10	**Long-axial-field-of-view (LAFOV) PET-CT in oncology for diagnosis and precision therapy**	**Antonia Dimitrakopoulou-Strauss, (Germany)**
14:10 – 14:30	**Non-oncologic applications of total-body PET**	**Yasser Gaber (USA)**

FREE PAPERS

14:30 – 14:40	**Clinical-based Machine-Learning Model for Prostate Cancer Stage Prediction.** **Abdelhamid Elhendy[1], Ahmed Kandeel[1], Mohammed Houseni[2], Hussam Zawam[1] and Ahmed Badawy[1]** **[1]Department of Clinical Oncology and Nuclear Medicine, Faculty of Medicine, Cairo University.** **[2]Radiology department, National Liver institute, Menoufia University, Egypt**
14:40 – 14:50	**The Added Value of F-18 fluorodeoxyglucose Positron Emission Computed Tomography PET/CT in Assessment of Pleural Metastases in Breast Cancer Patients.** **[1]Mayada Ashraf, [1]Esraa El-Kholy, [1]Salma Abdelaziz AbdelAzim Badr, [2]Ahmed Abdelsamie Kandeel[1]** **[1]Nuclear Medicine Unit, National Cancer Institute,** **[2]Nuclear Medicine Unit, Faculty of Medicine, Cairo University, Egypt.**
14:50 – 15:10	**DISCUSSION**
15:10 – 15:40	**Value of Ga-Trivehxin PETCT Dr.Mohamed Elkanawaty**
15:40 – 17:00	**Lunch**

Symbia Pro.specta SPECT/CT with myExam Companion

SIEMENS Healthineers



1. **Intra-recon motion correction (MC Pro)**
   Data-driven motion correction solution for multiple types of SPECT studies
2. **Respiratory motion correction for cardiac**
   Automatically generate images virtually free of respiratory motion
3. **Cardiac retrospective gating**
   Reconstruct cardiac gated images retrospectively
4. **IQ•SPECT™**
   Minimum dose and maximum speed in cardiac imaging
5. **IQ•Neuro**
   Faster neuro scanning
6. **SMART Neuro AC**
   Brain images corrected for attenuation without CT radiation dose
7. **AutoPlanar**
   Automatically create virtual planar images from a SPECT acquisition
8. **Continuous acquisition (CR Pro)**
   Continuous acquisition mode for all SPECT studies
9. **Attenuation and scatter correction**
   Attenuation and scatter correction for all SPECT studies
10. **xSPECT Quant™**
    Standardized, accurate, reproducible, absolute quantification
11. **Broad Quantification**
    Quantification for most SPECT isotopes and collimators
12. **xSPECT Bone™**
    High-resolution bone imaging

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Day 2 - SUNDAY, April 12, 2026

Session III: 09:30– 12:20

Exploiting Molecular Signatures of Disease

PET/CT Brain / Thyroid/ Breast/ Neuroendocrine

Chair Persons:

Prof. Dr. **Ahmed Kandeel** (Egypt)

Ass. Prof. Dr. **Abou El-magd El- Noby** (Egypt)

Consultant Dr. **Abd Elmoneim Omar** (Egypt)

09:30 - 10:00	**PET in Degenerative Brain Disease. Relationship Between Tau and Cognition in the Evolution of Alzheimer's Disease.**	**John Buscombe (UK)**
10:00 – 10:30	**Novel Theragnostic Concepts in Thyroid Cancer Management**	**Markus Luster (Germany)**
10:30 –11:00	**Estrogen Receptor Targeting with 18F-Fluoroestradiol (18F-FES PET): Applications and Interpretation.**	**Hussien Farghaly (EGYPT)**
11:00 – 11:30	**PET in Neuroendocrine Tumors.**	**Tarek Elmaghraby (EGYPT)**

FREE PAPERS

11:30 – 11:40	**18F-PSOutperforms Conventional Bone Scintigraphy in Detecting Bone Metastases from Prostate Cancer.** **[1]Waleed Alaa El-Deen El-Hosary, [1]Abubakr Yehia ElHawary, [1]Khaled Mohamed Taalab, and [2]Yasser Mohamed El-Sayed.** [1]Armed Forces College of Medicine, [2]Nuclear Medicine Department, Faculty of Medicine, Cairo University
11:40 – 11:50	**Evaluation of 18F-FDG-Avid Thyroid Incidentalomas.** **Doaa Ibrahim[1], Samar Maher[2], Ahmed Abdelrady[3], Nagwa Abd El-Sadek Ahmed[4] Mai Sayed[1].** [1]Nuclear Medicine Unit, Department of Clinical Oncology and Nuclear Medicine, University. [2] Radiology department, Sohag Oncology Center, [3]Department of Radiology, Al zhar University, Assuit branch,. [4] Department of Pathology, Faculty of Medicine, Sohag University, Egypt
11:50 – 12:10	**DISCUSSION**
12:10 – 13:00	**Group Photo / Coffee Break**

The 20th CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

Day 2 - SUNDAY, April 12, 2026

Session IV: 13:00- 16:00

The Future of Nuclear Medicine

Theransotics/ Artificial Intelligence

Chair Persons:

Prof. Dr. **Sherin Wagih** (Egypt)
Prof. Dr. **Yasser El-Saied** (Egypt)
Ass. Dr. **Alaa Eldeen Nagy** (Egypt)

13:00 - 13:30	**Novel Theragnostic Concepts in Prostate Cancer Management.**	**Markus Luster (Germany)**
13:30 – 14:00	**The Latest Advances in Peptide Receptor Radionuclide Therapy for Gastro-entero-pancreatic Neuroendocrine Tumors.**	**John Buscombe (UK)**
14:00 - 14:30	**Artificial Intelligence for improving Nuclear Medicine images: Opportunities and Cautions**	**Ramsey Badawy (USA)**

FREE PAPERS

14:30 – 14:40	**Correlation between SUVmax value and Gleason Grade in Patients with Suspected Prostate Cancer by 18F-PSMA PET/CT** **Mona Saeid[1] Passant Shibel[2], Hoda Anwar[1].** **[1]Department of Clinical Oncology and Nuclear Medicine [2]Department of Pathology, Faculty of Medicine, Cairo University, Egypt**
14:40 – 14:50	**Tumor Sink Effect in F-18-PSMA PET/CT** **Hisham Shebeta, Hoda Anwar, Maha Abd Elkareem, Marwa Maamoun.** **Department of Clinical Oncology and Nuclear Medicine, Faculty of Medicine, Cairo University, Egypt .**
14:50 – 15:10	**DISCUSSION**
15:10 – 16:00	**Closure & Awards** **Prof. Dr. Hosna Moustafa (Egypt)** **Prof. Dr. Khalid M. Taalab (Egypt)**

Femto Trade

For Scientific Services

Creating Hope

PRECISION FROM MOLECULAR INSIGHT

Advancing Nuclear Medicine
through Innovative Imaging
& Targeted Therapies.

41 شارع محمود عزمي - متفرع من شارع أحمد عرابي - المهندسين
فاكس : 33035964 - تليفون .: 33035963 - 33459227 - 33457918

Mahmoud Azmy St., From Ahmed Orabi St., El-Mohandseein, Giza, Egypt 41
Tel.: (202) 33035963 - 33459227 - 33457918 - 33460244, Fax: 33035964

www.femtoegypt.com - E-mail: femto@femtoegypt.com

THE EGYPTIAN SOCIETY OF NUCLEAR MEDICINE SPECIALISTS

E.S.N.M.S

20th

CONFERENCE OF NUCLEAR MEDICINE

Expanding Horizons in Nuclear Medicine

ABSTRACTS

123-456-7890

Prognostic Value of 18F-FDG PET/CT Volume Based Metabolic Parameters in Patients with Malignant Pleural Mesothelioma

[1]Randa Koura. [2]Hosna Mostafa,,[1]Esraa El kholy, [1]Ahmed Abdelmaksoud

[1]Nuclear Medicine Unit, NCI, [2]Nuclear Medicine Unit Faculty of Medicine Cairo University, Egypt.

Purpose: Malignant pleural mesothelioma (MPM) is a disease with poor prognosis but there is variation in survival between patients. Prognostic information is therefore potentially valuable in managing patients, particularly in the context of clinical trials where patients could be stratified according to risk. Therefore, we have evaluated the prognostic ability of parameters derived from baseline 18F-FDG PET/CT. Methods: In order to determine the relationships between metabolic activity and prognosis of disease. We reviewed all 18F-FDG PET/ CT scans used for pretreatment staging of MPM patients in NCI from January 2016 to May 2021 (n =56) and measured SUV including mean, maximum and peak values, MTV and TLG. Overall survival (OS) or time to last censor was recorded, as well as histological subtypes. Results: Median follow-up of 41 cases "remaining cases have missing survival dates" (was 7.07 months and median OS was 19.28 months. OS rate at I years = 70.1%. By ROC curve analysis of 18F-PET/CT for primary site; SUVmax (p =0.030), SUVpeak (p =0.023), SUVmean (p —0.019) and TLG (p —0.010) were significantly associated with prediction of disease progression. ROC curve analysis of 18F-PET/CT for primary/liver ratio; only TLG (p =0.038) was significantly associated with prediction of disease progression. Univariate OS analysis in relation to 18F-PET/CT for primary site; SUVmean (P=O.002) SUVpeak (P =0.026) and TLG (P= 0.006) were significantly associated with OS. Multivariate analysis showed (P= 0.005), was independently predicting OS (P= 0.005), . Univariate analysis in relation to demographic, pathologic and clinical characteristics of patients; Age (P= 0.005), site (P= 0.037), M stage (P= 0.004) and Mass max. diameter (P= 0.031) were significantly associated with OS. Multivariate analysis showed only age group (p =O.OI 5) and max diameter (p =0.026), were independently predicting OS.

Conclusions: 18F-FDG PET/CT parameters that take into account functional volume (SUVmean and SUVpeak, SUVmax and TLG) show significant associations with survival in patients with MPM and are worthy of further evaluation to determine their ability to stratify patients in clinical trials.

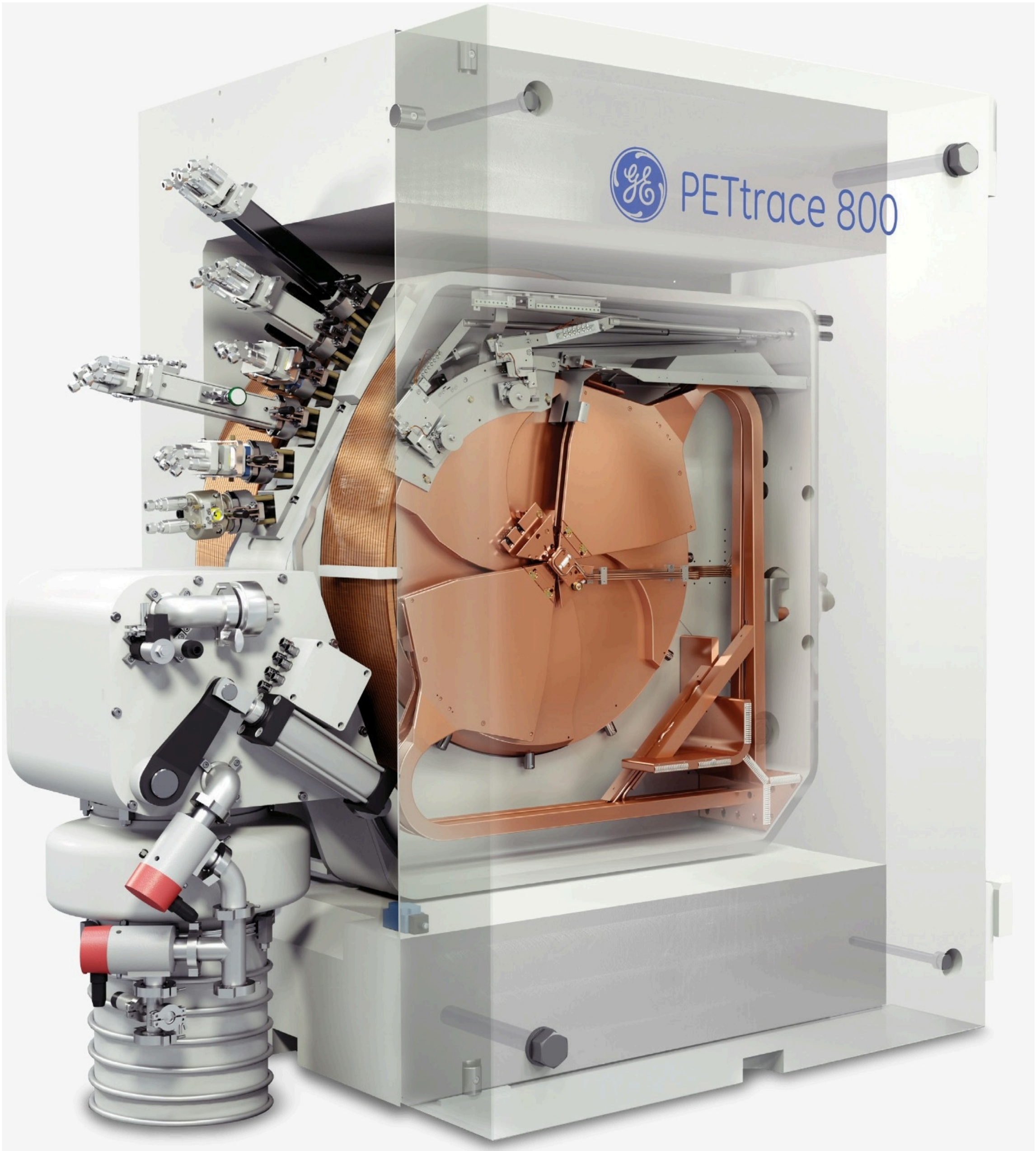
Evaluating the Diagnostic Performance of PET/CT in Triple-Negative Breast Cancer

[1]Rawan Sherra, [2]Tarek ElMaghraby, [1]Maha Mehesen, [1]Dina Deif

[1]Nuclear Medicine Unit, NCI, [2]Nuclear Medicine Unit Faculty of Medicine Cairo University, Egypt.

Background and aim of work: This study aimed to investigate the role of positron emission computed tomography (PET/CT) in the initial staging of triple negative breast cancer (TNBC). Methods: This is a combined retrospective and prospective observational study conducted to include 40 adult patients with pathologically proven TNBC for initial assessment by the standard ^{18}F-FDG PET/CT. Among them, 13 patients were enrolled in a prospective sub-study and underwent both ^{18}F-FDG PET/CT and ^{18}F-PSMA PET/CT within a one-week interval for comparative analysis. Results: ^{18}F-FDG PET/CT demonstrated superior performance, causing stage migration in 37.5% of patients by detecting distant metastases in 17 versus only 12 with CT. It identified nodal metastases in 82.5% of patients (vs. 52.5%), including crucial extra-axillary sites. Prognostically, high TLG predicted lymphatic spread, while high MTV indicated systemic dissemination. Tumor grade correlated strongly with metabolic activity, with Grade III tumors exhibiting nearly double the SUVmax of Grade II tumors (14.1 vs. 7.7). Exploratory PSMA PET/CT in 13 patients showed preferential, higher uptake in osseous metastases (SUVmax 9.7 vs. 6.6 for FDG) and potential for detecting brain lesions, indicating a complementary role for future theranostic strategies.

Conclusions: ^{18}F-FDG PET/CT is critical in the management of TNBC, as it accurately defines true disease extent, detects occult metastases, and quantifies metabolic tumor burden—enabling precise staging, reliable prognostic stratification, and informed personalized treatment planning. Meanwhile, PSMA PET/CT demonstrates promising potential in identifying specific metastatic patterns, supporting its complementary role and warranting further investigation for future tailored therapeutic strategies.


PETtrace 800

Clinical-based Machine-Learning Model for Prostate Cancer Stage Prediction

Abdelhamid Elhendy[1], Ahmed Kandeel[1], Mohammed Houseni[2], Hussam Zawam[1] and Ahmed Badawy[1]

[1]Department of Clinical Oncology and Nuclear Medicine, Faculty of Medicine, Cairo University.

[2]Radiology department, National Liver institute, Menoufia University, Egypt.

Background: PSMA PET/CT is a powerful diagnostic tool for prostate cancer staging. Clinical data such as Grade Group and PSA are the cornerstone of prostate cancer risk stratification. Our aim is to use the PSMA PET/CT results to train and evaluate a clinical-based machine-learning model that can discriminate between non-metastatic versus metastatic prostate cancer patients.

Methods: 210 patients with prostate cancer who underwent F-18 PSMA PET/CT for initial staging were categorized into non-metastatic (N0M0) and metastatic (either N0M0 or M1) groups. These results were used to train and evaluate a model, using Grade Group and PSA (free and total). Using Python 3.10, the dataset was divided into training/validation (85%) and test (15%) sets, the former was stratified into 4-folds for training and cross-validation. Missing data were imputed using the median of the training fold. Multiple machine learning models were used for training and cross-validation. The model that showed balanced performance across different validation folds was trained over the whole training/validation dataset and tested over the test set. Results: The XGBoost model showed balanced performance metrics and least standard deviation across validation folds with overall AUC = 0.83 (0.80 – 0.87), F1 = 0.78 (0.73 – 0.82), accuracy = 0.79 (0.75 – 0.82), precision = 0.82 (0.77 – 0.89), sensitivity = 0.75 (0.68 – 0.82) and specificity = 0.83 (0.77 – 0.93). The final XGBoost model trained over the complete training dataset, when tested over the test set had an AUC = 0.78, F1= 0.77, accuracy = 0.78, precision = 0.80, sensitivity = 0.75 and specificity = 0.81.

Conclusion: The current clinical-based machine-learning model demonstrated a promising stable and balanced performance. Large-scale external validation is recommended to determine its potential clinical applications.

The Added Value of F-18 Fluorodeoxyglucose Positron Emission Computed Tomography PET/CT in Assessment of Pleural Metastases in Breast Cancer Patients

[1]Mayada Ashraf, [1]Esraa El-Kholy2, [1]Salma Abdelaziz AbdelAzim Badr2, [2]Ahmed Abdelsamie Kandeel[1]

[1]Nuclear Medicine Unit, National Cancer Institute, [2]Nuclear Medicine Unit, Faculty of Medicine, Cairo University, Egypt

Aim of work: This study aimed to investigate the feasibility of F-18 fluorodeoxyglucose (FDG) positron emission computed tomography (PET/CT) in identifying the pleural invasion of breast cancers and its relationto patient's outcomeand survival. Methods: A retrospective study was conducted to include 537 patients with pathologically proven breast cancer who had undergone PET/CT scan in different disease stages. 115 patients showing a different array of pleural lesionswhich were then confirmed/ ruled out by the cytological evaluation and/or follow up either by another post therapy PET/CT scan or by other conventional radiological CT or MRI. Thes results were then correlated with prognosis and OS of these patients. Results: All of 115 patientswere female with a mean age of 53±12. Nightynine (86.1%) patientshad other distantmetastatic sites. Different patterns of pleuralinvolvement were analysedincluding effusion, nodular thickening, diffuse thickening, or even a combination of these patterns simultaneously with a percent of 40%, 22%, 33.3%and 4.7 % respectively. Metastatic disease was diagnosed in the pleura of 81 (%) and ruled out in 32 (%) of the patients. The sensitivity and specificity of PET/CT in detecting pleural metastases associated with breast carcinoma was calculated as 92.5%and 94.1%. PET/CT also indicated a false negative rate of 5.3%, a false positive rate of 1.8% and an overallaccuracy rate of 93%. The presence of pleural metastases was related to the site of primary mainly associated with LIQ lesions ($p<0.001$), also it greatly affected the prognosis and over-all survival ($p<0.001$), even worsening when associated with other distant metastases ($p<0.001$).

Conclusions: The simultaneous presence of sizable and FDG avid pleural lesions is a sensitive marker to suspect pleural metastases. PET/CT qualitative and quantitative assessment while reporting a suspicious pleural lesion is beneficial as it can affect and help map out the treatment approachto enhance the over- all prognosis and survival.

Symbia Pro.specta SPECT/CT with myExam Companion

SIEMENS Healthineers

1. **HD detectors**
   Energy-independent performance via high-definition digital detectors
2. **Diagnostic spiral CT**
   32- and 64-slice CT[1]
3. **Intuitive user interface**
   Fully integrated SPECT and CT user interface
4. **myExam Prep**
   Streamlined system and patient preparation
5. **Plan&GO**
   Intuitive bed ruler for patient scan range planning
6. **Innovative bed design**
   High-weight capacity accommodates bariatric patients; rear-bed support eliminates pallet flex; fully integrated ECG for fast setup
7. **Automatic Collimator Changer (ACC) and Automatic Quality Control (AQC)**
   Spend less time with your equipment and more time with your patients
8. **Detector tilt**
   Detector configurations adjustable to any study and patient type
9. **SmartFit**
   Small room configuration

^{18}F-PSMA PET/CT Outperforms Conventional Bone Scintigraphy in Detecting Bone Metastases from Prostate Cancer

[1]Waleed Alaa El-Deen El-Hosary, [1]Abubakr Yehia ElHawary, [1]Khaled Mphamed Taalab, and Yasser Mohamed El-Sayed.

[1]Armed Forces College of Medicine, [2]Nuclear Medicine Department, Faculty of Medicine, Cairo University[4]

Introduction: Prostate cancer (PCa) is a leading cause of cancer-related morbidity, with bone being the most frequent site of metastasis. Accurate detection of bone metastases is crucial for staging, prognosis, and guiding therapy. While conventional bone scintigraphy (BS) with ^{99m}Tc-MDP has been the traditional modality, it suffers from limited specificity. Positron Emission Tomography/Computed Tomography with Fluorine-18 prostate-specific membrane antigen (^{18}F-PSMA PET/CT) offers a novel, targeted approach with potentially superior diagnostic accuracy. Objectives: This study aimed to directly compare the diagnostic performance of ^{18}F-PSMA PET/CT versus conventional ^{99m}Tc-MDP bone scintigraphy for detecting bone metastases in patients with prostate cancer. Patients and Methods: This observational cross-sectional study was conducted at the El-Galaa Military Medical Complex and included 40 male patients with histologically confirmed prostate cancer and clinical/radiological suspicion of bone metastases. Each patient underwent both ^{18}F-PSMA PET/CT and whole-body ^{99m}Tc-MDP bone scintigraphy. Images were interpreted independently by two blinded nuclear medicine specialists. Diagnostic accuracy parameters (sensitivity, specificity, positive predictive value, negative predictive value, overall accuracy) were calculated for both modalities, using a composite reference standard integrating CT morphology, follow-up imaging, and clinical data. Results: The mean patient age was 69.8 ± 9.09 years. PSMA PET/CT demonstrated significantly higher diagnostic performance. It identified bone metastases in 95% (38/40) of patients, compared to 57.5% (23/40) with bone scintigraphy. PSMA PET/CT showed superior sensitivity (96.6% vs. 82.4%), specificity (100% vs. 83.3%), and overall accuracy (90% vs. 82.5%) in predicting bone metastasis. PSMA PET/CT also detected a greater number of metastatic sites, particularly in the axial skeleton (e.g., spine: 65% vs. 37.5%), and provided comprehensive staging by identifying extra-prostatic extension (42.5%), lymph node metastases (77.5%), and visceral metastases (15%). Regression analysis confirmed that higher PSA, Gleason score, tumor stage, and prostate SUVmax were significant predictors of bone metastasis. Conclusion: ^{18}F-PSMA PET/CT is significantly more accurate than conventional 99mTc-MDP bone scintigraphy for the detection of bone metastases in prostate cancer patients. It provides superior sensitivity and specificity, enables earlier and more precise lesion localization, and facilitates comprehensive whole-body staging in a single examination. These findings strongly support the adoption of PSMA PET/CT as a first-line imaging modality for staging and restaging in advanced prostate cancer.

Evaluation of ^{18}F-FDG-Avid Thyroid Incidentalomas

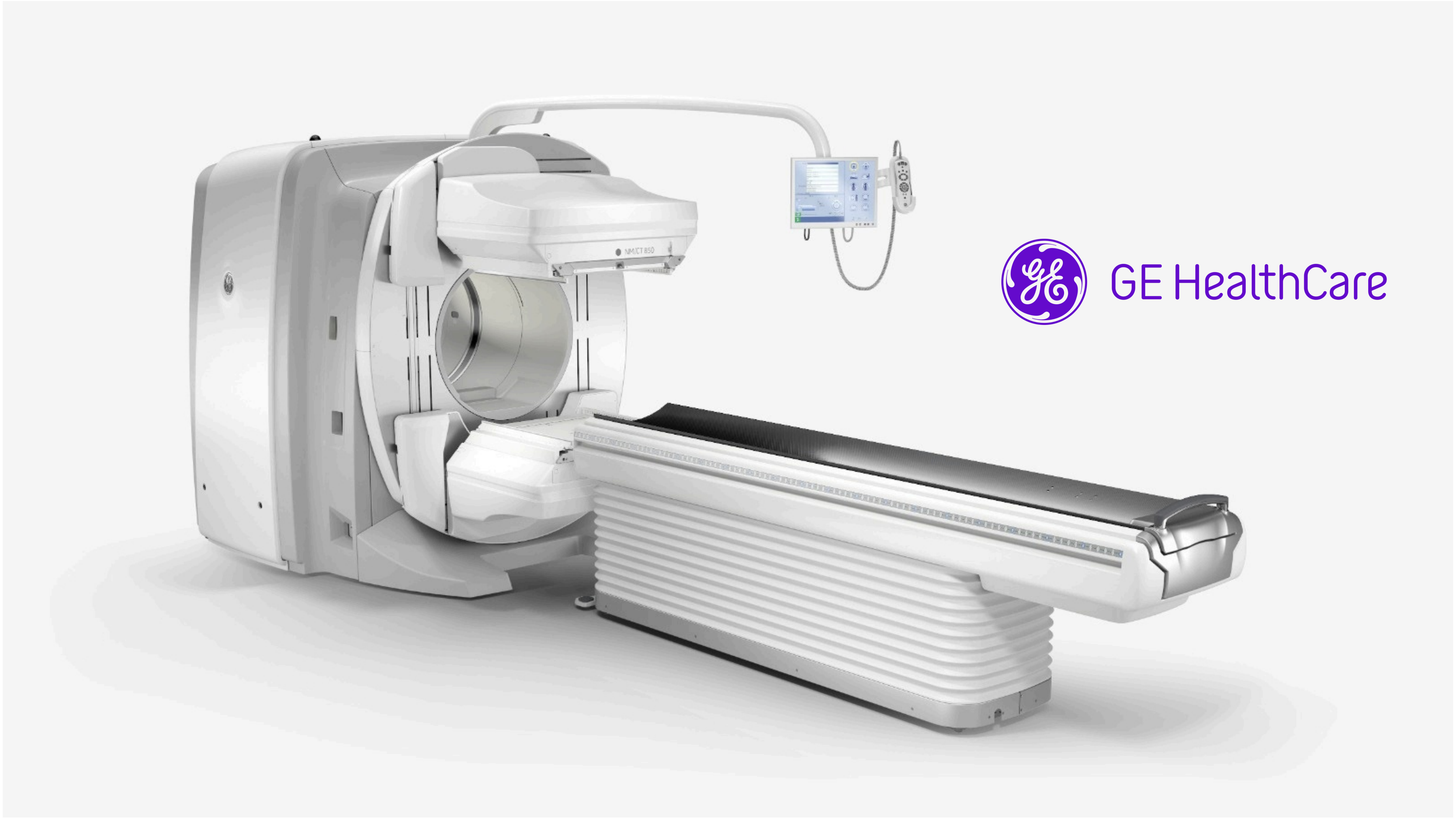
Doaa Ibrahim[1], Samar Maher[2], Ahmed Abdelrady[3], Nagwa Abd El-Sadek Ahmed[4] Mai Sayed[1]

[1] Nuclear Medicine Unit, Department of Clinical Oncology and Nuclear Medicine, University.[2] Radiology department, Sohag Oncology Center, [3] Department of Radiology, , Al zhar University, Assuit branch,.[4] Department of Pathology, Faculty of Medicine, Sohag University, Egypt.

Introduction: The frequency of incidentally discovered thyroid nodules has risen markedly in recent years. ^{18}F-FDG PET/CT has become an important tool in oncological practice. FDG-avid thyroid incidentalomas raise clinical concern because a considerable proportion may be malignant. Methods: In this retrospective study, approximately 1000 PET/CT scans were reviewed, and 31 patients were identified with FDG-avid thyroid incidentalomas. All patients underwent thyroid US, and nodules were classified according to the Thyroid Imaging Reporting and Data System (TI-RADS) into three groups: not suspicious (TI-RADS 1 and 2), borderline (TI-RADS 3), and suspicious (TI-RADS 4 and 5). Fine needle aspiration cytology (FNAC) was performed for nodules with TI-RADS 3 classification measuring >1 cm, as well as for all nodules categorized as TI-RADS 4 and 5. Cytological results were reported using the Bethesda system.

Results: Among the 31 FDG-avid TNs, 11 were TI-RADS I–II, 7 were TI-RADS III, and 11 were TI-RADS IV–V. SUV values were higher in suspicious nodules ($p = 0.023$), with TI-RADS scores positively correlating with SUVmax ($\rho = 0.025$, $r = 0.4$). FNAC confirmed malignancy in 7 nodules (22.5%; Bethesda VI), benign pathology in 6 nodules (19.4%; Bethesda II), while 2 nodules (6.5%) yielded inconclusive results.

Conclusion: The integration of TI-RADS-based US assessment with FNAC enhances diagnostic accuracy and provides a practical strategy for risk stratification of FDG-avid thyroid incidentalomas Incorporating of SUVmax and metabolic tumor volume, PET/CT parameters may help in diagnostic precision and clinical decision-making.



GE HealthCare

Correlation between SUVmax value and Gleason Grade in Patients with Suspected Prostate Cancer by 18F-PSMA PET/CT

Mona Saeid [1], Passant Shibel [2], Hoda Anwar[1]

[1]Department of Clinical Oncology and Nuclear Medicine, [2]Department of Pathology, Faculty of Medicine, Cairo University, Egypt.

Objective: To determine whether 18F-PSMA PET/CT's SUVmax may foretell the existence of clinically relevant prostate cancer and whether the degree of uptake correlates with the grade of the prostatic cancer lesions. Methods: This study included 51 patients with clinical or radiological suspicion of prostate cancer, who underwent 18F-PSMA PET/CT in our center. SUVmax was measured over 6 ROIs in the prostate (right base, left base, right mid, left mid, right apex, left apex), and a pathological specimen was taken from the same ROIs to determine whether these specimen include cancer or not and if cancer is present, its Gleason grade. Results: The mean age of our study group was 68 years+ 7.6 SD. The highest SUVmax was found in the left base (10.9 +14.4 SD), while the lowest SUVmax was found in the right apex with SUVmax6.9 +5.7 SD. Spearman's correlative analysis found a statistically significant relationship between SUVmax and the Gleason grades in all regions, with p-values 0.005, 0.033, 0.042, 0.005, 0.017, 0.011 for the left base, for the right base for the left mid for the right mid, for the left apex, for the right apex respectively. With a sensitivity of 72%, specificity of 71%, and an overall accuracy of 72%, ROC curve analysis showed that a cut-off of 4.7 SUVmax was necessary for the prediction of prostate cancer.

Conclusion: SUVmax as detected by 18F-PSMA PET/CT can serve an in vivo marker for the identification of prostate cancer with a high clinical grade. Moreover, the magnitude of uptake as expressed by SUVmax is an indicator of the degree of aggressiveness of the tumor.

GTCO Since 1981

GAMMA TRADE CO.

For Scientific Services & Consultation

S.A.E

چاماتريس للخدمات و الإستشارات العلمية ش.م.م

چتكو منذ عام ١٩٨١

For more than 40 years, Gamma Trade Co. is serving the needs of the Nuclear Medicine and Clinical labs Fields

GRUPO RPH

Cold kits for Tc-99 labelling:

- **TRODAT-1 (brain's dopaminergic presynaptic neuronal terminal)**
- **RPHNEUROCCIX (cerebrovascular diseases and neuropsychiatric diseases)**
- **RPHTOC (Localization of somatostatin receptor-positive neuroendocrine tumors)**
- **Edotreotide (DOTATOC) Localization of neuroendocrine tumors**
- **HYNIC TYRO-OCTREOTIDE (OCTREO) Localization of neuroendocrine tumors**
- **MIBI (RPHKARDIA)**
- **MDP (RPHOSTEO)**
- **DMSA (RPHRENO)**
- **DTPA (RPHNEFRO)**
- **MAA (RPHPULMOCCIX)**
- **PYP (RPHPYRO) (sodium pyrophosphate)**
- **Tin colloid (RPHLIMPHA) (sodium phytate)**

Radiopharmaceuticals:

*** Ge-68/Ga-68 itG (Radionuclide Generator Gallium-68)**

✉ 14 ش الفتح من ش شهاب–المهندسين–القاهرة – ص.ب. : 61/12655 المهندسين– القاهرة.

☎: 3748 0997 (6 خطوط) – فاكس " 2687 3749 –. موبيل 0144144200 @ 202 / 203 3 222 012

الإسكندرية: ☎: 8371 429 (03) أسيوط : ☎ 719 2313 (088)

Email : mailbox@gammatrade.com

Tumor Sink Effect in F-18-PSMA PET/CT

Hisham Shebeta, Hoda Anwar , Maha Abd Elkareem, Marwa Maamoun

Department of Clinical Oncology and Nuclear Medicine, Faculty of Medicine, Cairo University, Cairo, Egypt

Objective: We aimed to examine the impact of the tumor burden on the biodistribution of 18F-prostate-specific membrane antigen-1007 (18F-PSMA 1007) in PET imaging by the use of quantitative measurements. Methods: This retrospective analysis included 100 males with prostate cancer who underwent 18F-PSMA PET/CT. For each prostate cancer lesion, the metabolic tumor volume (PSMA-TV) was measured via an automatic segmentation tool based on 50% threshold. Then, the "total lesion PSMA expression" (TL-PSMA) was calculated by multiplying PSMA-TV by SUVmean of each lesion. The whole-body PSMA tumor burden is the sum of TL-PSMA values of all lesions in each patient. Based on this tumor burden, patients were divided by quintiles into 5 groups. A very low (group 1, tumor burden $\leqslant$ 400), low (group 2, 401-1250), moderate (group 3, 1251 – 2500), high (group 4, 2501 - 6500), and very high (group 5, $\geqslant$ 6501) whole body total lesion PSMA-expression (TL-PSMA) or tumor burden. Different groups were compared and correlation between tumor burden and SUVmax/SUVmean of reference background organs was conducted. Reference organs for the normal background tissue uptake were the parotid glands, lacrimal glands, liver, spleen and kidneys. Results: Tumor burden showed a moderate negative correlation with the SUVmean of the right kidney ($r = -0.448$,), left-kidney ($r = -0.357$,), right parotid gland ($r = -0.4$,), left parotid gland ($r = -0.413$, $P < 0.001$), and left lacrimal gland ($r = -0.337$,) and a weak negative correlation with the SUVmean of right lacrimal gland liver and spleen. Patients with a very high tumor burden (group 5, $\geqslant$ 6500) had a significantly lower PSMA uptake in the lacrimal, salivary glands, kidneys, liver, and spleen compared to other groups ($P < 0.001$).

Conclusions: Tumor sequestration affects 18F-PSMA 1007 bio-distribution in normal organs. As tumor sink effect may occur with PSMA-targeted radio-ligand therapy (RLT), patients with very high tumor burden might benefit from higher therapeutic doses without exceeding the radiation dose limit for organs at risk.

Uncovering the Invisible:

Accurate Diagnosis with Nuclear Medicine

SERVICES

- Nuclear Medicine
- Radio Pharmaceutical
- Liver Cancer
- Molecular Imaging Solutions
- Theranostics
- Dose Calibrators

www.femtoegypt.com