SNMMI Honors Contributors, Recognizes Scientific Excellence at 2022 Annual Meeting

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during its 2022 Annual Meeting, held in Vancouver, Canada, from June 11 to 14, SNMMI recognized contributions to the society and to the field of nuclear medicine, as well as excellence in scientific abstracts and posters. Several award ceremonies were held in plenary and other sessions to recognize service, scientific contributions, and the valuable roles SNMMI members play in advancing the diagnosis and treatment of cancer, heart disease, neurologic, and other conditions.

SNMMI Presidential Distinguished Service Awards

SNMMI Presidential Distinguished Service Awards are given annually to individuals who have made significant impacts within SNMMI during the tenure of each society president. The 9 individuals recognized in 2022 by 2021–2022 President Richard Wahl, MD, have been instrumental in SNMMI outreach efforts, including in virtual education innovations during the pandemic. They were each praised for their “significant contributions to the field of nuclear medicine and molecular imaging.” Awardees included: Daniel Lee, MD (Ochsner Medical Center; New Orleans, LA), for extraordinary leadership as cochair of the SNMMI Therapy Strategic Planning Task Force and president of the SNMMI Therapy Center of Excellence; John Sunderland, PhD (University of Iowa Carver College of Medicine; Iowa City), for outstanding efforts on The Journal of Nuclear Medicine dosimetry supplement (J Nucl Med. 2021;62[suppl 3]); Phillip Koo, MD (Banner MD Anderson Cancer Center; Gilbert, AZ), for extraordinary service as cochair of the SNMMI Theranostics Symposia and chair of the SNMMI Quality Committee; Bonnie Clarke for outstanding service as Senior Director of Research and Discovery and Quality at SNMMI; Arman Rahimim, PhD (University of British Columbia; Vancouver, Canada), and Ronald Boellaard, PhD (VU University Medical Center; Amsterdam, The Netherlands), for their service as cochairs of the SNMMI Artificial Intelligence Task Force; Pat Zanzonico, PhD (Memorial Sloan Kettering Cancer Center; New York, NY), for extraordinary service as cochair of the SNMMI Dosimetry Task Force; and George Sgouros, PhD (Johns Hopkins Medicine; Baltimore, MD), for outstanding service as cochair of the SNMMI Dosimetry Task Force. Harvey Ziessman, MD, received the SNMMI Presidential Distinguished Educator Award, which recognizes SNMMI members who have demonstrated outstanding service and dedication to the field of nuclear medicine through their educational efforts. He was commended for his commitment to global education and training of nuclear medicine professionals, from residents to senior leaders.

International Best Abstract Award Winners

In recognition of the increasing representation of physicists, scientists, and others from the global community at its Annual Meeting, SNMMI created the International Best Abstract Awards, given to the highest scoring accepted abstracts from each country. For 2022, the awardees included:

- Australia: Jackson et al., “Real-world lesion and renal dosimetry for peptide receptor radionuclide therapy (PRRT)”;
- Austria: Beheshi et al., “Predictive value and accuracy of PET response criteria for immunotherapy in patients with advanced melanoma”;
- Azerbaijan: Novruzov et al., “Head to head comparison of 68Ga-FAPI-46 PET/CT and 18F-FDG PET/CT in breast carcinoma staging: A clinical trial update from Azerbaijan”;
- Belgium: D’Huyvetter et al., “Preclinical endoradiotherapy using a radiolabeled single-domain antibody targeting fibroblast activation protein”;
- Brazil: Minozzo et al., “Radionuclides used in nuclear therapeutic medicine: A brief history, properties and main relevant studies of radionuclides with mass number less than 100”; Canada: Lin et al., “Effects of replacing Glu in the PSMA-targeting Lys-urea-Glu pharmacophore of 68Ga-HTK03041 with a close derivative on the uptake of tumor xenograph, kidneys and salivary glands”; China: Song et al., “Non-invasive visualization of liver fibrosis with gallium-68-labeled fibroblast activation protein inhibitor”;
- Denmark: Carlsen et al., “Prospective phase II trial of prophylactic by 68Ga-NODAGA-E[RGDyK]2 PET/CT for integrin alpha v beta 3 imaging in patients with neuroendocrine neoplasms”; Egypt: Nasr et al., “The value of 18F-FDG PET/CT in detection of osteomyelitis in patients with stage IV pressure ulcers”; France: Gauthe et al., “Phase III study of 18F-PSMA-1007 versus 18F-fluorocholine PET to compare the detection rate of prostate cancer lesions in patients with biochemical recurrence after previous definitive treatment for localized prostate cancer”; Herrmann et al., “Multi-cycle dosimetry of 177Lu-PSMA-617 for the treatment of metastatic castration-resistant prostate cancer: results from the VISION trial sub-study”; Koutsikos et al., “The role of lymphoscintigraphy in breast cancer recurrence”; Hong Kong:

In addition, the Education and Research Foundation for Nuclear Medicine and Molecular Imaging/SNMMI this year presented a Best COVID-19 (Physician/Scientist) Award to Khandekwal et al. (Lucknow, India) for “A prospective study to investigate the implementation of semiquantitative inflammatory load in post-COVID-19 lung disease (PCLD) to strategize therapy” and a Best COVID-19 (Technologist) Award to Vyas et al. (Auckland, New Zealand) for “A model for remote installation of radiochemistry synthesiser; Trasiswa—AllInOne: One step forward to beat Covid-19 pandemic.”

Award-Winning Posters

More than 800 posters were on display in the Exhibit Hall at the SNMMI Annual Meeting in Vancouver, with multiple ask-the-author sessions and point-of-display discussions. Winning posters and e-posters were selected from the top 10 candidates in each scientific track, based on visual appearance/quality, content, and original scientific contribution.
Posters are available on the website of The Journal of Nuclear Medicine at: https://jnm.snmjournals.org/content/snm-annual-meeting-abstracts. Poster awardees included:

Cardiovascular Track: First place, Diekmann et al., “Cardiac molecular PET-imaging of fibroblast activation in patients with aortic stenosis undergoing transcatheter aortic valve implantation (TAVI)”; second place, Thorn et al., “Early cardiac gated blood pool imaging with “hotspot” agent provides simultaneous assessment of left ventricular function in an ischemia-reperfusion model”; and third place, Miller et al., “Development and external validation of ischemia risk scores.”

Educational Track: First place, Suthar et al., “18F-FDG PET/CT imaging features of parotid lesions: Case based pictorial review and its multi-modality correlation”; second place, Schroeder et al., “Cue up the video: Visual learning for efficient orientation of trainees to their nuclear medicine rotations”; and third place, Ali et al. “Renal scintigraphy following kidney transplantation: ATN, rejection, and more.”

General Clinical Specialties Track: First place, Bini et al., “Liver and brain levels of 11β-hydroxysteroid dehydrogenase type 1 enzyme in obesity: Preliminary results from PET imaging studies”; Paravastu et al., “Quantitative analysis of 18F-NaF-PET/CT imaging: Evaluation of denosumab treatment in fibrous dysplasia”; and third place, Lawrence et al., “99mTc-macroaggregated albumin (MAA) stability when used in the SNMMI Procedure Guideline for Adult Solid-Meal Gastric-Emptying Scintigraphy.”


Oncology: Clinical Therapy and Diagnosis Track: First place, Nabavizadeh et al., “18F-fluciclovine PET and multiparametric MRI to distinguish pseudoprogression from tumor progression in post-treatment glioblastoma”; second place, Hotta et al., “Outcome of patients with PSMA-PET/CT screen failure by VISION criteria and treated with 177Lu-PSMA therapy: A multicenter retrospective analysis”; and third place, Hotta et al., “PSMA PET tumor-to-salivary glands ratio (PSG score) to predict response to Lu-177 PSMA radioligand therapy: An international multicenter retrospective study.”

Physics, Instrumentation, and Data Sciences Track: First place, Woolley et al., “Development of a dynamic lung phantom for use in lung ventilation studies”; second place, Cai et al., “An ultrahigh energy resolution SPECT system for quantitative hyperspectral imaging of targeted alpha therapy”; and third place, Pan et al., “Data-driven gated (DDG) CT: An automated respiratory gating method to enable DDG PET/CT.”

FIGURE 3. More than 800 posters, including e-posters, were available in the Scientific Exhibit Hall at the 2022 SNMMI Annual Meeting.
Full Steam Ahead for Nuclear Medicine Therapy

Munir Ghesani, MD, SNMMI President

Nuclear medicine therapies have been around for decades but have recently come into their own in a big way. Advances have contributed to treatments for prostate cancer, neuroendocrine tumors, meningiomas, and lymphoma, with more on the horizon. At an SNMMI strategic planning meeting held in April 2022, society leadership identified radiopharmaceutical therapy (RPT) as a one if its top priorities for the next 5 years. Discussions at the meeting centered around ways to expand research, promote the use of therapy, and make it accessible to patients, among other topics.

SNMMI has several therapy-focused efforts in progress and many more planned. Last year the society introduced the Radiopharmaceutical Therapy Centers of Excellence (RPT COEs), in which sites utilizing RPTs could apply to earn designation as a clinical or comprehensive RPTCOE. This designation shows that the site meets strict regulatory, training, qualification, experience, and performance criteria. To date, 34 applications have been received from 22 comprehensive sites, 8 clinical sites, and 4 basic therapy sites. Twenty-two sites have received designation.

The Lu-177 Dosimetry Challenge demonstrated a great interest in personalized RPT dosimetry and a need to train more personnel to perform dosimetry. Thus, the development of a dosimetry certificate program was recently approved by the SNMMI Board of Directors. The certificate program will consist of a web-based curriculum followed by an onsite practicum. It will include separate tracks for physicists, physicians, and technologists. The SNMMI Board of Directors has also approved funding for 2 nuclear oncology fellowships. Applications for certificate programs and fellows will open soon. For technologists, SNMMI is creating an RPT badging program, which will include training materials on the components of therapy delivery. Although the badging program is not a certification or credential, it can be added to CVs to demonstrate proficiency in RPT.

On the education front, SNMMI has created a Nuclear Medicine University with educational content on RPTs and diagnostic procedures designed for residents. In addition, SNMMI is conducting a curriculum review to ensure that all necessary content is available to properly train nuclear medicine physicians to administer therapies.

SNMMI is also ensuring that appropriate use criteria and procedure standards are in place to describe when RPTs should be performed and identify the most important elements of a high-quality procedure. The society is also taking an active role in ensuring that other specialties are educated about RPTs via educational workshops (“road shows”) and satellite symposia at related specialty meetings focused on prostate-specific membrane antigen imaging and therapy.

The society will launch a new therapy-specific clinical trials network, the Therapy Clinical Trials Network. The goal of this initiative is to establish a network of investigational sites with the capability of conducting clinical trials of RPTs, similar to ARTnet in Australia and New Zealand. SNMMI Clinical Trials Network database expertise will be utilized to create the new network, and it is anticipated that many of the RPTCOEs will be involved.

As the applications of nuclear medicine therapy continue to grow, ensuring a robust workforce pipeline of both physicians and technologists is always a concern. SNMMI is developing a physician survey to identify physician workforce needs going forward. Understanding that there is currently a shortage of therapy-focused technologists, SNMMI is also working on both short- and long-term solutions to grow the technologist workforce.

SNMMI will host its third annual Therapeutics Conference November 17–19 at the Gaylord National Resort in Washington, DC (www.snmmi.org/TC2022). Following the footprint of previous conferences, the event will explore the latest innovations and clinical applications in RPT. Sessions on radiopharmaceutical delivery, dosimetry, and more will be included in the conference.

At the 2022 Annual Meeting in Vancouver, Canada, SNMMI initiated its Mars Shot fund to radically transform the nature of disease treatment, prevention, diagnosis, and prognosis using visionary nuclear medicine procedures, RPTs, and research projects. By supporting training pathways and fellowships, our hope is to allow nuclear medicine physicians to integrate into patient management teams as key members, rather than as outlying suppliers of imaging and treatment.

Look for more on therapy in future issues of The Journal of Nuclear Medicine, and be sure to check out the September issue of the Journal of Nuclear Medicine Technology, which focuses on this topic. It is an exciting time for nuclear medicine therapies, and we look forward to what’s to come in the future.
CMS Reopens NCD for β-Amyloid PET in Dementia and Neurodegenerative Disease

On June 16, the Centers for Medicare & Medicaid Services (CMS) began a formal reconsideration process for its National Coverage Determination (NCD) for Beta-Amyloid (β-Amyloid) PET in Dementia and Neurodegenerative Disease (CAG-00431R). The current NCD 220.6.20 covers 1 β-amyloid PET scan per patient in CMS-approved studies under coverage with evidence development (CED). CMS opened the NCD analysis based on stakeholder feedback, including public comments received during and after the April 7 finalization of the NCD for Monoclonal Antibodies Directed Against Amyloid for the Treatment of Alzheimer’s Disease. The purpose of the NCD reconsideration is to determine whether the current policy of 1 scan per patient per lifetime should be revised.

In a statement released after the April 7 NCD finalization, SNMMI noted that, “unfortunately, the decision included no additional coverage for β-amyloid PET scans; they will continue to be subject to the current policy, which covers them only as required by clinical trial protocol, and, even then, only 1 per patient per lifetime. In stark contrast, the decision explicitly covers other tests for detection of β-amyloid (e.g., cerebral spinal fluid) without limitation, despite the fact that β-amyloid PET is the standard of care—and, in fact, the only test approved by the U.S. Food and Drug Administration—for detecting β-amyloid.”

The 30-day public comment period for the formal reconsideration ended on July 15, during which period SNMMI submitted additional comments. The proposed decision by CMS is expected by December 16, with finalization by March 16, 2023.

SNMMI
Centers for Medicare & Medicaid Services

CMS Releases CY 2023 Medicare Physician Fee Schedule Proposed Rule

The Centers for Medicare & Medicaid Services (CMS) released on July 7 its 2023 Medicare Physician Fee Schedule (MPFS) Proposed Rule, along with a 2023 MPFS fact sheet. Unlike the CY2021 and CY2022 MPFSs, which included significant changes for PET (particularly nononcologic PET), the CY 2023 proposed rule included few changes. The removal or retirement of national noncoverage for amyloid PET or retiring national noncoverage for NaF PET were not mentioned in the new rule.

An SNMMI release on July 14 noted that the society had held multiple meetings with CMS and submitted formal comments on the negative impact of national noncoverage determinations for both NaF and amyloid tracers and would continue to advocate for associated changes in coverage.

SNMMI pointed out several items of interest to the nuclear medicine community in the new rule, including proposed changes related to:

Conversion factors: A preliminary summary of the proposed rule proposes a 3.0775 PFS conversion factor in 2023, which is a $1.53 decrease from the 2022 PFS. CMS estimates the overall impact of the MPFS proposed changes to radiology and nuclear medicine to be a 3% decrease and to radiation oncology and radiation therapy centers a 1% decrease, if the rule is finalized.

Clinical labor changes: CMS proposes continuing to move forward with y 2 of the 4-y transition to updated clinical labor input values. CMS proposed updated wages for a few clinical staff types based on information submitted by stakeholders. The agency will continue to consider public comment related to wage updates for clinical staff during the remainder of the 4-y phase-in.

Practice expense (PE) data collection and calculation methodology: CMS is seeking public comment on strategies for updates to PE data collection and methodology. The agency plans to move forward to a standardized and routine approach to valuation of indirect PE and has asked for feedback from stakeholders on what this might entail. The agency plans to propose the new approach to valuation of indirect PE in future rulemaking. A survey on indirect PE may be disseminated in the future. In the current methodology, nuclear medicine is “cross-walked” to radiology for the purposes of indirect PE.

The MPFS proposed rule does not mention the Appropriate Use Criteria Program or Clinical Decision Support implementation. However, CMS published a statement saying that the associated payment penalty phase will not begin on January 1, 2023, even if the Public Health Emergency for COVID-19 ends in 2022. Until further notice, the educational and operations testing period will continue. CMS added that they are unable to forecast when the payment penalty phase will begin.

SNMMI indicated that the society will continue to review the proposed rule and will provide formal comments. A chart comparing important nuclear medicine services in the CY 2022 and CY 2023 MPFSs is available at: http://www.snmmi.org/IssuesAdvocacy/content.aspx?ItemNumber=6502&navItemNumber=24949.

SNMMI
Centers for Medicare & Medicaid Services

COVID-19–Triggered Immune Response and Neurologic Damage

In a study published on July 5 ahead of print in Brain, Lee et al. from the National Institute of Neurological Disorders and Stroke (NINDS; Bethesda, MD), the Uniformed Services University of the Health Sciences (Bethesda, MD), the Defense Health Agency (Silver
COVID patients, resulting in neuronal injury," said Nath. “There could be a small indolent immune response that is continuing, which means that immune-modulating therapies might help these patients. So these findings have very important therapeutic implications.”

**National Institute of Neurological Disorders and Stroke**

**IAEA Partners with GE Healthcare in Global Training**

The International Atomic Energy Agency (IAEA) announced on July 14 a partnership with GE Healthcare to train professionals in medical imaging under Rays of Hope, the IAEA’s initiative to address global inequity in access to life-saving cancer diagnosis and treatment. It is the first such agreement with a private company under Rays of Hope. Under a 1-y partnership with GE Healthcare, radiologists and nuclear medicine professionals from Africa and Latin America will receive in-person and online training in diagnostic techniques. “A well-trained workforce is a must for a functioning medical sector. Our work together with GE Healthcare will provide these professionals with the necessary skills and knowledge to help save lives,” said IAEA Director General Rafael Mariano Grossi during the partnership launch at IAEA headquarters in Vienna. “As part of the IAEA’s determined efforts under Rays of Hope to address global imbalances in access to cancer care, we are reaching out to potential partners also in the private sector, which has an indispensable role to play. Our partnership with GE Healthcare is a milestone in this respect and it will be followed by others.”

The traditional source of IAEA funding is from its Member States. Earlier this year, 6 countries, including France, Japan, Monaco, the Republic of Korea, Sweden, and the United States, pledged more than $9 million to the program. “I’m very encouraged by the generous support we have received from our Member States and from the private sector. Much more will be needed in the coming months and years to deliver on our pledge to reduce the global gap in access to cancer care, but this is a very promising start,” said Grossi.

As a part of the partnership, cutting-edge training will be provided at Zurich University Hospital in Switzerland, the GE Healthcare’s partner institution with expertise in PET imaging. The first medical professionals from Kenya will begin their 4-wk training session in September, focusing on PET/CT and PET/MR imaging.

**International Atomic Energy Agency**

**U.S. Life Expectancy, 2000–2019**

In an article published on July 16 in *The Lancet* (2022;400[10345]:P25–P38), experts from the Institute for Health Metrics and Evaluation (IHME) at the University of Washington School of Medicine (Seattle), in collaboration with researchers from the National Institutes of Health (NIH), reported that overall life expectancy in the United States increased by 2.3 y in the decade from 2000 to 2019 but that this increase was not consistent among racial and ethnic groups or by geographic area. The study included results at the county level in each state. Most of the gains in life expectancy appear to have been achieved before 2010.

“These varied outcomes in life expectancy raise significant questions. Why is life expectancy worse for some and better for others? The novel details in this study provide us the opportunity to evaluate the impact of social and structural determinants on health outcomes in unprecedented ways. This in turn allows us to better identify responsive and enduring interventions for local communities,” said Eliseo J. Pérez-Stable, MD, coauthor and director of the NIH National Institute on Minority Health and Health Disparities.

Among the key findings at the national level, between 2000 and 2019, life expectancy increased most for the Black population (3.9 y), the Asian population (2.9 y), and the Latino population (2.7 y). At the same time, the increase in life expectancy for the white population was more moderate (1.7 y). No improvement in life expectancy was noted for American Indian and Alaskan
Native (AIAN) populations. In 2019, overall life expectancy was 85.7 y for Asian, 82.2 y for Latino, 78.9 y for white, 75.3 y for Black, and 73.1 y for AIAN populations. At the county level, 88% of U.S. counties saw an increase in life expectancy during the 20-y study period; however, most of these gains were from 2000 to 2010. Almost 60% of U.S. counties saw a decrease in life expectancy in the study’s second decade. The range of life expectancy varied widely among counties, ranging from <65 y in some to >90 y in others.

In an accompanying press release, NIH emphasized the importance of this study in establishing a baseline for the 2 decades preceding the COVID-19 pandemic and providing context for subsequent changes in mortality and disparities. Provisional estimates for 2020 show substantial declines in life expectancy overall, with declines larger in the Latino and Black populations. “The pandemic exposed stressors and weaknesses in local and national systems that continuously put our most vulnerable populations at risk. These findings offer county, state, and federal leaders a unique look at the pervasiveness of health disparities in their respective communities,” said Laura Dwyer-Lindgren, PhD, lead author and assistant professor of health metrics at the IHME.

Detailed county-level results are available from the IHME at www.healthdata.org/data-visualization/us-health-map.

The Lancet
National Institutes of Health

Safe and Equitable Health Care for All: SNMMI Position on the Doctor–Patient Relationship

On July 8, SNMMI leadership released the following statement:

SNMMI believes that physicians must be able to provide safe, effective, and accessible evidence-based health care to patients without the threat of nonmedical outside interference. We condemn any interference with the doctor–patient relationship outside of public health measures and acknowledge that such interference can disproportionately impact historically and economically marginalized and disadvantaged populations. Physicians, legislators, regulators, and patients must work together to ensure safe and equitable health care for all.
Each month the editor of Newsline selects articles on diagnostic, therapeutic, research, and practice issues from a range of international publications. Most selections come from outside the standard canon of nuclear medicine and radiology journals. These briefs are offered as a window on the broad arena of medical and scientific endeavor in which nuclear medicine now plays an essential role. The lines between diagnosis and therapy are increasingly blurred, as radiolabels are used as adjuncts to treatment and as active agents in therapeutic regimens, and these shifting lines are reflected in the briefs presented here. We have also added a small section on noteworthy reviews of the literature.

**Preclinical Biomarkers of Alzheimer Disease**

Long et al. from the Washington University School of Medicine in St. Louis (MO) reported on July 22 ahead of print in *Brain* on a study designed to determine whether amyloid PET imaging and/or cerebrospinal fluid (CSF) biomarkers accurately predict cognitive outcomes in Alzheimer disease (AD) and neuropathologic findings at autopsy. The study included 720 individuals (age range, 42–91 y) who were cognitively normal at baseline, underwent amyloid PET imaging and/or CSF collection within 1 y of initial clinical assessment, and had subsequent clinical follow-ups. Cognitive status was assessed serially over follow-up, and biomarkers were defined by uptake cutoffs for amyloid PET imaging and CSF p-tau181/amyloid-β42 levels. Over the course of the study, 57 participants died, with subsequent post-mortem neuropathologic examination for AD-related changes. Among normal participants with PET or CSF biomarkers defined as positive, 34.4% developed cognitive impairment, compared to only 8.4% with negative biomarkers. Preclinical AD biomarker status, APOE ε4 carrier status, polygenic risk score, and age were identified as significant factors influencing risk of developing cognitive impairment. Among individuals with autopsy results, 90.9% of those who were biomarker-positive and 8.6% of those who were biomarker-negative had AD neuropathologic changes. The combination of the preclinical biomarkers yielded a sensitivity of 87.0%, specificity of 94.1%, and positive- and negative-predictive values of 90.9% and 91.4%, respectively, for subsequent detection of AD neuropathology. As individual predictors, CSF and amyloid PET at baseline were also predictive of AD neuropathologic changes, as well as Thal phase and Braak stage of pathology at autopsy. Of note, participants who were biomarker-negative and went on to develop cognitive impairment were more likely than other participants to exhibit non-AD pathology at autopsy. The authors concluded that “detection of preclinical AD biomarkers is strongly predictive of future cognitive impairment and accurately predicts presence of AD neuropathology at autopsy.”

*Brain*

**18F-Florozolotau PET in Multiple System Atrophy Parkinsonian Subtype**

In an article published on July 21 ahead of print in *Movement Disorders*, Lin et al. from Huashan Hospital/Fudan University (Shanghai) and APRINOIA Therapeutics Co., Ltd. (Suzhou; both in China) and representing the Progressive Supranuclear Palsy Neuroimaging Initiative reported on a study investigating localization and uptake volume of 18F-florozolotau (previously known as 18F-APN-1607) on PET in patients with the parkinsonian subtype of multiple system atrophy. The study included 31 such patients, 24 with Parkinson disease, and 20 age-matched healthy controls. Uptake in the striatum was visually assessed as positive or negative, and regional binding was evaluated as SUV ratios. In both assessments, patients with the parkinsonian subtype of multiple system atrophy showed elevated tracer uptake in the putamen, globus pallidus, and dentate compared with patients with Parkinson disease. This increased signal was significantly associated with the core clinical symptoms of the parkinsonian subtype of multiple system atrophy. In those patients with the subtype cerebellar ataxia, tracer uptake was elevated in the cerebellar dentate. The authors concluded that “18F-florozolotau tau PET imaging findings may reflect the clinical severity of parkinsonian subtype of multiple system atrophy and can potentially discriminate between this condition and Parkinson disease.”

*Movement Disorders*

**PET/CT of Cranial Arteries in Giant Cell Arteritis**

Thibault et al. from Dijon University Hospital, the Centre Georges François Leclerc, and the Université Bourgogne Franche-Comté, INSERM (all in Dijon, France) reported on July 22 ahead of print in *Rheumatology* (Oxford) on a study of the performance of cranial PET/CT in the sometimes challenging diagnosis of giant cell arteritis (GCA). The investigation was part of a clinical trial designed to evaluate the sensitivity and specificity of PET of the cephalic arteries for diagnosis of GCA and compare these with results from echo Doppler and MR imaging of the temporal arterials. A total of 70 adults with suspected GCA were enrolled in the study and underwent baseline cranial artery evaluation with PET/CT before or immediately (within 72 h) after starting glucocorticoid treatment. Cranial PET/CT was considered positive if at least 1 arterial segment showed hypermetabolism similar to or greater than liver uptake. The diagnosis of GCA was retained after ≥6 mo of follow-up when no other diagnosis was considered and the patient had gone into remission after ≥6 consecutive mo of treatment. Cranial PET/CT sensitivity, specificity, and positive- and negative-predictive values were 73.3%, 97.2%, 91.7%, and 89.7%, respectively. Corresponding values for extracranial PET/CT diagnostic performance were 66.7%, 80.6%,
Neuronal damage may manifest as a decrease in central benzodiazepine receptors in patients with cerebral infarction and internal carotid artery or middle cerebral artery disease, which may be associated with frontal lobe dysfunction."

**Rheumatology (Oxford)**

**11C-Flumazenil PET and Neuronal Alterations After Cerebral Infarction**

In an article in the July 6 issue of *Stroke*, Yamauchi et al. from Kyoto University and Shiga Medical Centre Research Institute (Moriyama; both in Japan) reported on a study using 11C-flumazenil PET to explore whether secondary thalamic neuronal damage may manifest as a decrease in central benzodiazepine receptors in patients with cerebral infarction and internal carotid artery or middle cerebral artery disease. The retrospective study included data from 140 patients with unilateral cerebral infarction ipsilateral to internal carotid artery or middle cerebral artery disease. All patients underwent 11C-flumazenil PET/CT in the chronic stage, with quantitative measurements of tracer binding potential, cerebral blood flow, and cerebral metabolic oxygen rate. The authors found that in the thalamus ipsilateral to infarcts, these parameter values were significantly lower than those in the contralateral thalamus, with significant correlations between ipsilateral-to-contralateral ratios. Patients with corona radiata infarcts and striatocapsular infarcts had significantly lower ipsilateral-to-contralateral binding ratios in the thalamus than those without. The ipsilateral-to-contralateral ratio of binding in the thalamus was significantly correlated with the ipsilateral-to-contralateral cerebral metabolic rate of oxygen ratio in the frontal cortex and was negatively correlated with lower performance on cognitive tests. The authors concluded that “secondary thalamic neuronal damage may manifest as a decrease in central benzodiazepine receptors in patients with cerebral infarction and internal carotid artery or middle cerebral artery disease, which may be associated with frontal lobe dysfunction.”

**Stroke**

68Ga-FAPI vs 18F-FDG in Newly Diagnosed NSCLC

Wu et al. from the Affiliated Hospital of Southwest Medical University, the Nuclear Medicine and Molecular Imaging Key Laboratory of Sichuan Province, and Academician (Expert) Workstation of Sichuan Province (all in Luzhou, China) reported on July 4 ahead of print in *Frontiers in Oncology* on a study comparing 68Ga-fibroblast-activation protein inhibitor (68Ga-FAPI) and 18F-FDG PET/CT in evaluation of newly diagnosed non–small cell lung cancer (NSCLC). The prospective study included 28 patients (15 women, 13 men; median age, 60.5 y; age range, 35–78 y) with new and histopathologically confirmed NSCLC. All participants underwent both 68Ga-FAPI and 18F-FDG PET/CT imaging, and the performance of the tracers was compared by visual assessment, rates of cancer detection, and semiquantitative parameters for both primary tumors and metastases. The 2 tracers were found to have similar detection performance in primary tumors. 68Ga-FAPI PET/CT was more effective than 18F-FDG PET/CT in evaluation of most metastases, including those in lymph nodes (53 vs 49), pleura (8 vs 7), liver (4 vs 1), and bone (41 vs 35). SUVmax and tumor-to-background ratio values for 68Ga-FAPI were significantly superior to those with 18F-FDG in lymph node, pleural, and bone metastases. SUVmax assessments for the tracers were comparable in hepatic metastases, but 68Ga-FAPI produced a significantly higher tumor-to-background ratio than 18F-FDG. 68Ga-FAPI PET/CT showed excellent staging accuracy (80% of N and 92.9% of M stage disease). The authors concluded that 68Ga-FAPI PET/CT is excellent for evaluation of newly diagnosed NSCLC and “improves the detection rates of most metastases, facilitating the superior staging of patients with newly diagnosed NSCLC, relative to that achieved by 18F-FDG PET/CT.”

**Frontiers in Oncology**

68Ga-FAPI vs 18F-FDG in Staging/Restaging Gastric Cancer

In an article from some of the same researchers, in the July 1 issue of *Frontiers in Oncology* (2002,12:925100), Zhang et al. from the Affiliated Hospital of Southwest Medical University (Luzhou), Nuclear Medicine and Molecular Imaging Key Laboratory of Sichuan Province (Luzhou), Southwest Medical University (Luzhou), the Fourth People’s Hospital of Chengdu, and the Clinical Hospital of Chengdu Brain Science Institute/University of Electronic Science and Technology of China (Chengdu; all in China) reported on a study comparing the diagnostic efficacy of 68Ga-fibroblast-activated protein inhibitor (68Ga-FAPI-04) and that of 18F-FDG PET/CT for primary tumors, lymph nodes, and distant metastatic lesions in gastric cancer and assessing respective results in tumor staging and restaging. The study included 25 patients (mean age, 56 ± 12 y) with pathologically confirmed gastric cancer. Patients underwent imaging with both tracers within a 1-wk period. 68Ga-FAPI-04 showed higher sensitivity than 18F-FDG PET/CT for detecting primary tumors (94.74% vs 68.42%), lymph node metastases (97.40% vs 41.56%), and distant metastases (97.17% vs 43.11%), with significantly higher uptake in tumors (median SUVmax: 10.28 vs 3.20), lymph node metastases (9.20 vs 3.15), and distant metastases (8.00 vs 4.20). 68Ga-FAPI-04 PET/CT resulted in new onologic findings in 14 of the 25 patients and corrected tumor staging or restaging in 7 patients. The authors concluded that these results highlight the potential of 68Ga-FAPI-04 PET/CT tumor staging in increasing the accuracy of gastric cancer diagnosis, “which may facilitate treatment decision making.”

**Frontiers in Oncology**
Early Revascularization, Inducible Ischemia, and Outcomes

Rozanski et al. from Mount Sinai Morningside Hospital and Mount Sinai Heart (New York, NY), the University of Calgary (Alberta, Canada), Cedars-Sinai Medical Center (Los Angeles, CA), and the David Geffen School of Medicine at the University of California, Los Angeles reported in the July 19 issue of the Journal of the American College of Cardiology (2022;80[3]202–215) on a study using stress/rest SPECT myocardial perfusion imaging (MPI) to assess the relationships between stress-induced myocardial ischemia, revascularization, and all-cause mortality in patients with normal or low left ventricular ejection fractions (LVEFs). The retrospective study included data from 43,443 patients who underwent stress/rest SPECT MPI from 1998 to 2017, with a median follow-up of 11.4 y. Myocardial ischemia was evaluated for its relationship to early revascularization and mortality. The researchers found that the frequency of myocardial ischemia varied widely depending on LVEF and angina, ranging from 6.7% in patients with LVEF ≥55% and no typical angina to 64.0% in patients with LVEF <45% and typical angina. Of the 39,883 patients with LVEF ≥45%, early revascularization was associated with increased mortality in those without ischemia and lower mortality among patients with severe (≥15%) ischemia. Of the 3,560 patients with LVEF <45%, revascularization was not associated with mortality benefits in those with no or mild ischemia but was associated with decreased mortality in those with moderate (10%–14%) and severe (≥15%) ischemia. The authors summarized their findings in this very large cohort “early myocardial revascularization was associated with a significant reduction in mortality among both patients with normal LVEF and severe inducible myocardial ischemia and patients with low LVEF and moderate or severe inducible myocardial ischemia.”

Journal of the American College of Cardiology

Optimizing Prostate Cancer Lymph Node Staging

In an article published on July 21 ahead of print in Prostate, Wang et al. from Xiangya Hospital/Central South University (Changsha City, China) reported on a study developed to explore approaches to improving the utility of 68Ga-prostate-specific membrane antigen (68Ga-PSMA) PET/CT imaging for diagnosing lymph node metastasis in prostate cancer patients through combined evaluation of inflammatory hematologic markers. The retrospective study included pretreatment data on a group of patients, including initial total prostate-specific antigen levels, hematologic findings, biopsy and surgical pathology results, and 68Ga-PSMA PET/CT findings. The researchers identified $SUV_{max}$, neutrophil/lymphocyte ratio, platelet/lymphocyte ratio, initial prostate-specific antigen levels, and clinical T stage as independent predictors of lymph node metastasis. A nomogram combining optimal cutoff values for these variables was constructed and found to be associated with good predictability. The authors concluded that “$SUV_{max}$, neutrophil/lymphocyte ratio, platelet/lymphocyte ratio, initial total prostate-specific antigen, and clinical T stage represent valuable independent predictors of lymph node metastasis in prostate cancer patients, offering an opportunity to further optimize lymph node staging.”

Prostate

Metabolic Abnormality Patterns in Lewy Body Dementia

Lu et al. from Huashan Hospital/Fudan University (Shanghai), Zhongnan Hospital of Wuhan University, and Shanghai Jiao Tong University Affiliated Sixth People’s Hospital (Shanghai; all in China) reported on July 20 ahead of print in Movement Disorders on a study designed to identify disease-specific metabolic patterns that can illuminate the question of whether dementia with Lewy bodies (DLB) and Parkinson disease (PD) dementia represent the same disease, distinct entities, or conditions within the same spectrum. Sixty-seven patients with DLB, 50 with PD dementia, and 15 healthy controls were enrolled and assigned to 2 cohorts, 1 for pattern identification and 1 for validation. The study also included 30 patients with PD without dementia for pattern discrimination and differentiation. All participants underwent 18F-FDG PET/CT, with 21 undergoing 2 serial scans. DLB-related and PD dementia–related patterns shared similarities: comparative hypometabolism in the middle temporal gyrus, middle occipital gyrus, lingual gyrus, precuneus, cuneus, angular gyrus, superior and inferior parietal gyri, cingulate, and caudate, as well as comparative hypermetabolism in the cerebellum, putamen, thalamus, precentral/postcentral gyrus, and paracentral lobule. These metabolic characteristics differed from PD-related patterns. Patients with DLB and PD dementia, however, could not be distinguished from one another successfully by any pattern, but patients with PD could be recognized easily. DLB-related and PD dementia–related pattern expression showed similar efficacies in cross-sectional disease severity assessment and, in the subset of twice-imaged patients, longitudinal progression monitoring. The authors concluded that “consistent abnormalities in metabolic patterns of DLB and PD dementia might underline the potential continuum across the clinical spectrum from PD to DLB.”

Movement Disorders

18F-PI-2620 Tau PET Imaging in Alzheimer Disease

In an article published on July 17 ahead of print in Neuropsychopharmacology Reports, Bun et al. from Keio University School of Medicine (Tokyo), Eisai Co., Ltd. (Tokyo), and the National Institute of Radiological Sciences/National Institutes for Quantum and Radiological Science and Technology (Chiba; all in Japan) reported on a pilot study of the second-generation tau tracer 18F-PI-2620 in Alzheimer disease (AD). The study included 7 individuals with probable AD and 7 healthy
controls. Imaging variables compared between the 2 groups included SUV ratios in regions of interest in the medial temporal region and neocortex. Correlations between these uptake ratios and plasma p-tau181 and cognitive test scores were also assessed. Tracer uptake was significantly increased in AD individuals across all regions of interest. SUV ratios in these regions were significantly correlated with plasma p-tau181 levels and with cognitive scores. The authors concluded that these results “add to accumulating evidence suggesting that 18F-PI-2620 is a promising tau PET tracer that allows patients with AD to be distinguished from healthy controls.” They emphasized the importance of early identification of abnormal tau in the brain for development of new therapeutic interventions and called for larger studies.

Neuropsychopharmacology Reports

124I PET/CT and 124I PET/MR in Resected DTC

Graf et al. from University Hospital Essen/University Duisburg-Essen and University Hospital Dusseldorf (both in Germany) reported on June 21 in Cancers (Basel) (2022;14[13]:3040) on the results of a study of quantitative differences between 124I PET/CT and 124I-PET/MR findings in a group of patients after thyroidectomy for differentiated thyroid carcinoma (DTC). Thirty-five patients (23 female, 12 male; mean age, 52 y; range, 16–85 y) with a total of 43 imaging studies were included. All patients underwent whole-body (skull base to midthigh) PET/CT and a dedicated head–neck (skull base to upper lung) PET/MR examination on the same day, allowing for intraindividual comparisons of the same anatomic areas. CT-based attenuation correction in PET/CT and MR-based attenuation correction in PET/MR with bone atlas were compared. In all, 111 124I-avid lesions were detected on PET/CT and 132 on PET/MR. The median SUVmean for 98 congruent lesions measured on PET/CT was 12.3. For PET/MR, the median SUVmean was 16.6 with MR-based AC. The authors concluded that although these 2 hybrid imaging approaches in patients with resected DTC provided overall comparable quantitative results in a clinical setting (despite different patient positioning and attenuation correction methods), the number of detected lesions and average SUVmean values for congruent lesions was higher for PET/MR.

Cancers (Basel)

Reviews

Review articles provide an important way to stay up to date on the latest topics and approaches through valuable summaries of pertinent literature. The Newsline editor recommends several general reviews accessioned into the PubMed database in June and July. Parpinel et al. from the Sant’AnnaHospital/University of Turin and the Ospedale degli Infermi (Ponderano; both in Italy) published “Use of positron emission tomography for pregnancy-associated cancer assessment: A review” in the July 1 issue of the Journal of Clinical Medicine (2022;11[13]: 3820). In an overview in the July 20 issue of Expert Review of Molecular Diagnostics, Faldu and Shah from Nirma University (Ahmedabad, India) provided “Alzheimer’s disease: A scoping review of biomarker research and development for effective disease diagnosis.” Manafi-Farid et al. from Shariati Hospital/Tehran University of Medical Sciences (Iran), Massachusetts General Hospital and Harvard Medical School (Boston, MA), University Hospital Salzburg/Paracelsus Medical University (Austria), and Iran University of Medical Sciences (Tehran) reported in the June 28 issue of Frontiers in Medicine (Lausanne) on “ImmunoPET: Antibody-based PET imaging in solid tumors.” An overview of “Immune checkpoint molecules in neuroblastoma: A clinical perspective” was published by Pathania et al. from the University of Nebraska Medical Center (Omaha), the National Institutes of Biomedical Innovation, Health, and Nutrition (Osaka, Japan), Sri Rajiv Gandhi College of Dental Sciences & Hospital (Bengaluru, India), Sree Sai Dental College & Research Institute (Srikakulam, India), and Banaras Hindu University (Varanasi, India) in the July 3 issue of Seminars in Cancer Biology. Omorphou et al. from Heartlands Hospital/University Hospitals Birmingham, St. Bartholomew’s Hospital (London), Mount Vernon Cancer Centre (London), Lister Hospital (Stevenage), University of Hertfordshire (Northwood), King’s College London, Guy’s Hospital (London), and Brunel University (London; all in the UK), and Apollo Hospitals Educational and Research Foundation (Chennai, India) surveyed “The increasing indications of FDG-PET/CT in the staging and management of invasive bladder cancer” on July 5 ahead of print in Urologic Oncology.