

## NEWSBRIEFS

### NM Image Profile Ready for Testing

The SNM Digital Imaging and Communications in Medicine (DICOM) working group, in collaboration with nuclear medicine and picture archiving and communications (PACS) vendors, has finalized a set of specifications to facilitate seamless connectivity and interoperability between nuclear medicine systems and PACS. The Nuclear Medicine Image Profile was developed in coordination with the Integrating the Healthcare Enterprise (IHE) initiative and was released to the industry for implementation in May, with testing scheduled for January 2005.

SNM members and industry representatives attended a 20-minute presentation on the new profile on June 21 during the SNM annual meeting in Philadelphia, PA. The presentation was part of the SNM Computers and Instrumentation Council business meeting.

The IHE initiative is designed to advance the state of data integration in health care. Sponsored by the Radiological Society of North America and the Healthcare Information and Management Systems Society, it brings together medical professionals and representatives from the health care informatics and imaging industry to agree upon, document, and demonstrate standards-based methods of sharing information in support of optimal patient care.

### ACR Honors Maynard and Welch

The American College of Radiology (ACR) honored 2 SNM past presidents, C. Douglas Maynard, MD, and Michael Welch, PhD, on May 9 during the ACR's 81st Annual Meeting in Washington, DC. Maynard, chair of radiology at Wake Forest University (Winston-Salem, NC) and SNM president in 1978 and 1979, was awarded the ACR Gold Medal. "Doug Maynard played a vital role in the establishment of the

National Institute for Biomedical Imaging and Bioengineering," noted James E. Youker, MD, professor and chair of radiology at the Medical College of Wisconsin (Milwaukee) in the *Journal of the American College of Radiology*. "Doug believed that a strong research presence for radiology was required and, working with his local congressman and other ACR members, coordinated the effort that ultimately led to the creation of the NIBIB." Michael Welch, PhD, codirector of the Division of Radiological Sciences at the Mallinckrodt Institute (St. Louis, MO), was named an ACR honorary fellow. Welch was SNM president in 1984–1985. A press release noted that Welch is widely known "as a preeminent radiation chemist who has been highly productive in advancing the field of radiochemistry and, more important, creatively expanding the experimental field of the discipline, including newer approaches to the use of radio-nuclides clinical medicine."

*American College of Radiology*

### CMS Proposes FY 2005 Hospital Changes

The Centers for Medicare & Medicaid Services (CMS) announced on May 15 a proposed rule that would implement major payment and policy changes for acute care hospitals, required by the comprehensive Medicare modernization legislation signed into law on December 8, 2003. "The proposed inpatient payment rule that we are announcing today includes many specific changes created by the Medicare modernization legislation, such as updating the labor markets that are used to determine hospital payment rates in fee-for-service Medicare," said CMS Administrator Mark B. McClellan, MD, PhD. "The bottom line, particularly for rural hospitals, is significant increases in hospital payment rates."

CMS projects that the combined impact of the inflation update and other proposed changes will yield an average 4.7% increase in payments for urban hospitals in fiscal year (FY) 2005 and that rural hospitals will see an average increase of 6.0%. In FY 2005, Medicare payments to approximately 3,900 acute care hospitals under the inpatient prospective payment system are projected to be \$105 billion, up from a projected \$100 billion in FY 2004.

Among many other items, the proposed rule includes several important changes that would affect payments to teaching hospitals for direct and indirect medical education (IME). CMS is proposing to implement a provision of the Medicare Modernization Act that redistributes unused residency slots to teaching hospitals for purposes of calculating both direct and indirect graduate medical education (GME) payments. The additional slots will be allocated first to rural hospitals, then to hospitals in other-than-large urban areas, and then to hospitals using the slots to train residents in a program that is the only program in that specialty in the state. Hospitals that have been training fewer residents than their GME resident cap would have their caps reduced.

The proposed rule also discusses and invites public comment on a possible change in the way CMS pays a hospital for residents pursuing specialty residencies. The proposal discusses allowing the hospital to receive full payment for the duration of specialty residencies when a resident matches simultaneously to a generalized, preliminary year of training and a subsequent specialty training program. The proposed rule also would eliminate the requirement that a hospital have a written agreement with a nonhospital site if the hospital wants to count the time a resident spends in the nonhospital

site in its IME and direct GME full-time equivalent count.

The proposed rule was published in the May 18 *Federal Register*. Comments will be accepted until July 12, and a final rule will be published later in the year. The proposed rule can be viewed at: [www.cms.hhs.gov/providers/hospital.asp](http://www.cms.hhs.gov/providers/hospital.asp).

*Centers for Medicare & Medicaid Services*

## Physician Perceptions of Teratogenic Risks in Imaging

Results of a study published in the May issue of the *American Journal of Roentgenology* (2004;182:1107) indicate that family physicians and obstetricians perceive the risk of major deformation to developing fetuses as a result of abdominal radiography or CT scans to be much higher than any evidence suggests. Savithiri Ratnapalan, MD, and colleagues from the Hospital for Sick Children (Toronto, Canada) and the University of Toronto sent structured questionnaires to 400 family physicians and 100 obstetricians across Ontario. The physicians were informed about the 1%–3% baseline risk for major malformations and were asked about their perceptions of the risk to the fetus associated with an abdominal radiograph and an abdominal CT scan during early pregnancy and whether they would recommend a therapeutic abortion after such exposure.

Of the 55% of the target group who responded to the questionnaire, 44% of family physicians and 11% of obstetricians estimated the risk associated with an abdominal radiograph to be 5% or greater, and 61% of family physicians and 34% of obstetricians estimated the risk associated with an abdominal CT scan to be 5% or greater. Among family physicians, 1% would recommend an abortion if the fetus were exposed to radiation from radiography and 6% would do so after fetal exposure to radiation

from CT. Corresponding figures for obstetricians were 0% and 5%.

Ratnapalan noted that the widespread misconception about the risks involved in routine radiography and CT “is important to dispel, because it can lead to increased anxiety among pregnant women inadvertently exposed to diagnostic imaging and unnecessary terminations of otherwise wanted pregnancies. In addition, not having certain types of imaging performed could hinder diagnosis for some illnesses, delaying needed treatment to the patient.” She added that education is necessary to correct such misconceptions. “Review articles in general medical journals may be the most practical and efficient way of communicating with a large group of physicians,” she said. “Discussing radiation doses and effects in seminars and rounds may also be necessary to consolidate the knowledge.”

*American Journal of Roentgenology*

## BIRN Develops Data Sharing Infrastructure

The Biomedical Informatics Research Network (BIRN), a consortium of 14 university and 22 research groups supported by funding from the National Institutes of Health and the National Science Foundation (NSF), is establishing a cyberinfrastructure, or integrated information technology configuration, to facilitate health care research for large-scale data sharing and analysis in neuroscience, physics, and other fields. When completed, the infrastructure will allow participants to share and compare massive data sets, such as MR brain scans or high-resolution electron microscopy images, in the investigation of Alzheimer’s disease, depression, schizophrenia, multiple sclerosis, and other disorders.

“The BIRN has great promise to provide a collaborative working environment that promotes the growth of interdisciplinary science as well as an advanced biomedical cyberinfrastructure,” said Mark Ellisman,

director of the BIRN Coordinating Center. “The NSF middleware layer is essential to providing many of the underlying mechanisms critical to achieving this integrated environment.” By emphasizing open-source solutions that simplify resource sharing, the middleware is making it easier for scientists, engineers, and educators to work with colleagues on a worldwide scale through high-speed networks. The integrated tools facilitate collaborations across organizations, information technology architectures, operating systems, and security policies.

Since 2002, NSF has issued twice-yearly releases of software, services, and documentation supporting the effective use of information technology for research and education. The newest was issued on May 24 and consists of contributions from a wide range of middleware developers.

For more information on open source software in medical informatics and the BIRN initiative, see [www.cise.nsf.gov/](http://www.cise.nsf.gov/) and search for “NML.”

*National Science Foundation*

## PET Cost Effective for NSCLC in Canada

A study published in the May issue of the *Medical Science Monitor* (2004;10:MT73–80) indicated that not only is PET/CT more accurate than CT alone in staging non-small cell lung carcinoma (NSCLC) but that (at least in Canada) it is more cost effective. The study by Sloka et al. from Memorial University of Newfoundland (St. Johns) used quantitative decision tree modeling and sensitivity analysis to assess the cost effectiveness of both a CT- and a PET/CT-based management strategy for staging NSCLC. A survey of recent literature was used to construct a metaanalysis of available studies for the accuracies of CT and PET in staging NSCLC. Life expectancies were determined from recent Canadian statistics, and life expectancies with disease were calculated from published

survival rates. Management costs were determined from estimates of the installation cost of PET facilities in Canada, management costs from Canadian institutions, and recently published Canadian cost estimates of various procedures. The authors identified cost savings of \$1,455 per person with the PET/CT strategy, along with a very small increase in life expectancy (3.1 days) when compared with CT alone.

*Medical Science Monitor*

### From the Literature

*Each month the editor of Newsline selects articles on therapeutic, diagnostic, research, and practice issues in nuclear medicine 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 monthly window on the broad arena of medical and scientific endeavor in which nuclear medicine now plays an essential role.*

### Diagnosis

#### Value of CT in PET/CT for Colorectal Carcinoma

Kamel et al. from the Johns Hopkins Hospital (Baltimore, MD) reported on May 27 ahead of print in *Abdominal Imaging* on a study designed to assess the contribution of separate CT interpretation to the accuracy of PET/CT imaging in patients with suspected primary or metastatic colorectal carcinoma. The study included 90 patients (50 women, 40 men; mean age, 63 years) who had undergone a collective total of 100  $^{18}\text{F}$ -FDG PET/CT scans covering the skull base to the mid thigh. CT scans were separated out retrospectively to be read independently by consensus of 2 readers and were evaluated for primary disease, local recurrence, and distant metastases before comparison with the original PET/CT report. Both sets of reports were compared with outcomes

at clinical and imaging follow-up, surgery, or biopsy. The sensitivity, specificity, and accuracy of the PET/CT reports were 0.914, 0.633, and 0.830, respectively; for the combined PET/CT with dedicated CT interpretation, 0.986, 1.000, and 0.980, respectively. The authors concluded that the CT portion of PET/CT provides "valuable anatomic and pathologic information to the functional information provided by PET and helps improve the overall accuracy of the combined study."

*Abdominal Imaging*

#### In Vitro Evaluation of Radiolabeled Bone Seekers

Researchers from the Medical University of Vienna (Austria) reported in the May issue of *Bone* (2004;34:835–844) on a study designed to devise a new method to rate the influence of various factors on the uptake of phosphonates in bone and to evaluate new radiolabeled bone seekers. In what was described as a "pre vivo" study by Mitterhauser et al., a series of radioactive-labeled diphosphonates and  $^{18}\text{F}$ -fluoride were added to vials containing hydroxyapatite, collagen, or amorphous calcium phosphate in a salt solution. After incubation and filtering, radioactivity was measured and the percentage of irreversibly bound radioactivity was calculated as uptake. Among the findings, which ranked a number of radiolabeled bone-seekers in order of binding,  $^{18}\text{F}$  and  $^{99\text{m}}\text{Tc}$ -methylene-diphosphonic acid showed the greatest uptake increase over time. The collagen solutions showed very low uptake. The authors concluded that their method "is rapid and feasible to examine the adsorption of radioactive-labeled substances on bone components."

*Bone*

#### Differentiating Dementia with Lewy Bodies and Parkinson's Disease

Increasing understanding of neurodegenerative disease and the promise of

future targeted therapies are lending urgency to the need for differentiating among a number of conditions that share physical symptoms but stem from different underlying physiologic mechanisms. In the May 11 issue of *Neurology* (2004; 62:1568–1472), Walker et al. from University College (London, UK) reported on such a study of nigrostriatal pathways in patients with dementia with Lewy bodies (DLB) and patients with Parkinson's disease (PD). Each patient underwent SPECT scanning after administration of the dopaminergic presynaptic ligand  $^{123}\text{I}$ -2 $\beta$ -carbomethoxy-3 $\beta$ -(4-iodophenyl)-*N*-(3-fluoropropyl) nortropine ( $^{123}\text{I}$ -FP-CIT) and SPECT to assess similarities or differences between DLB and PD. The authors found that the DLB and PD groups had lower  $^{123}\text{I}$ -FP-CIT binding in all striatal areas than the healthy individuals, and that patients with DLB also had significantly lower binding in the caudate nucleus than did the PD patients. Most significant was the fact that patients with DLB did not have the characteristic selective degeneration of ventrolateral nigral neurons seen in patients with PD. The authors noted that this might explain some of the clinical differences between the 2 groups of patients and concluded that evaluation of  $^{123}\text{I}$ -FP-CIT uptake with SPECT is useful in investigating differences in neurodegenerative disease patterns.

*Neurology*

#### SPECT in Cardio-Asymptomatic Diabetes

The value of screening stress testing in diabetic patients with no clinically apparent cardiac disease was investigated by Miller et al. from the Mayo Clinic (Rochester, MN) and reported in the May issue of the *American Heart Journal* (2004;147: 890–896). In a large retrospective study, results of stress SPECT were compared for 4 groups of patients with no previous myocardial infarction or coronary revascularization:

asymptomatic diabetic patients (1,738), symptomatic diabetic patients (2,998), asymptomatic nondiabetic patients (6,215), and symptomatic nondiabetic patients (16,214). The authors found abnormal scans in almost equal percentages of asymptomatic and symptomatic diabetic patients (58.6% and 59.5%, respectively). Both percentages were higher than those in asymptomatic and symptomatic nondiabetic patients (46.2% and 44.4%, respectively). Those scans identifying individuals at high risk were also found in almost equal percentages of asymptomatic and symptomatic diabetic patients (19.7% and 22.2%, respectively). The authors concluded that the fact that almost 1 in 5 asymptomatic diabetic patients has a high-risk scan suggests “a potentially more widespread application of screening stress SPECT” in these individuals to identify those with severe coronary artery disease.

*American Heart Journal*

### **<sup>99m</sup>Tc-MIBI and Functional Significance of Coronary Stenosis**

Morishima et al. from Tokyo Medical University (Japan) reported in the April issue of the *Journal of Cardiology* (2004;43:155–163) on a study evaluating the correlations between fractional flow reserve (FFR) and myocardial direct counts of <sup>99m</sup>Tc-sestamibi in assessing the functional severity of coronary artery stenoses. The study included 20 patients who underwent 2-day protocol <sup>99m</sup>Tc-sestamibi SPECT imaging. Visual assessment of counts in myocardial imaging showed that reversibility of <sup>99m</sup>Tc-sestamibi perfusion defects was correlated with an FFR < 0.75 (functionally significant stenosis). The authors concluded that these and other results “suggest that quantitative analysis of <sup>99m</sup>Tc-sestamibi scintigraphy enables the assessment of the magnitude of functional significance of coronary stenosis.”

*Journal of Cardiology*

### **Dynamic <sup>123</sup>I-BMIPP SPECT in Congestive Heart Failure**

In an effort to investigate the mechanisms behind progression of disease in patients with congestive heart failure (CHF), Takeishi et al. from the Yamagata University School of Medicine (Yamagata, Japan) used dynamic SPECT to examine the kinetics of <sup>123</sup>I-β-methyliodophenylpentadecanoic acid (<sup>123</sup>I-BMIPP) kinetics soon after tracer injection. The study, published in the April issue of *Clinical Cardiology* (2004;27:294–210), included 26 patients with CHF and 8 healthy individuals. The washout rate of radioactivity was examined by 2-minute dynamic imaging in each patient during the first 30 minutes after injection. The authors found that the washout rate of <sup>123</sup>I-BMIPP from the myocardium was faster in patients with CHF than in healthy individuals and correlated positively with left ventricular (LV) end-diastolic volume index and inversely with LV ejection fraction. The patient participants in the study were put on candesartan, an angiotensin II type-1 receptor antagonist, for 6 months and then returned for repeated dynamic SPECT imaging. After the drug therapy, the enhanced washout rate of <sup>123</sup>I-BMIPP in CHF was reduced. The authors concluded that not only is dynamic SPECT imaging of <sup>123</sup>I-BMIPP washout in the early phase a potential new method for evaluating the severity of CHF, but that “improvement in fatty acid metabolism may represent a new mechanism for beneficial effects of angiotensin II receptor blockade on cardiac function and survival in patients with heart failure.”

*Clinical Cardiology*

### **SPECT and CT in Spondylolysis**

Gregory et al. from Queen’s Medical Center (Nottingham, UK) reported on April 30 ahead of print in the *European Spine Journal* on a retrospective study to assess the

quality and quantity of diagnostic information supplied by SPECT and reverse gantry CT in the investigation of spondylolysis. The study included 118 patients (ages 8–44 years) who had been imaged for low back pain. SPECT showed increased scintigraphic uptake in 80 patients, and spondylolysis was identified by CT in 53, yet subsequent analysis showed that there was little agreement between the 2 results. The authors concluded that SPECT and CT yielded mutually exclusive information, a fact that led to the establishment of 4 diagnostic categories for additional investigation: (1) those with increased scintigraphic activity on SPECT and spondylolysis on CT, for whom rest from provoking activities was prescribed; (2) those with increased scintigraphic activity but no spondylolysis on CT, which was classified as a bone stress response requiring rest; (3) those with no increased activity on SPECT and no spondylolysis identified on CT, a group that might need additional investigation, such as MRI; and (4) a small group of patients with no increased activity on SPECT but in whom bilateral, chronic-appearing spondylolyses were identified on CT, a group that could need surgery if physical therapy fails. The authors concluded that SPECT and reverse gantry CT provided complementary information that assisted in both diagnosis and selection of appropriate therapy.

*European Spine Journal*

### **Stress MPI in Asymptomatic Stent Evaluation**

Sugi et al. from Hamamatsu University School of Medicine (Hamamatsu, Japan) reported in the May issue of *Circulation Journal* (2004;68:462–466) on a multicenter study comparing follow-up coronary angiography with stress SPECT myocardial perfusion imaging (MPI) in the evaluation of restenosis in coronary-stent implanted patients who were asymptomatic. The study included

103 patients who underwent both SPECT and coronary angiography 4–9 months after stent implantation. Sensitivity, specificity, positive and negative predictive values, and accuracy of SPECT as verified against angiography were 65%, 78%, 41%, 91%, and 76%, respectively. Accuracy was lower in territories with prior myocardial infarction (71%), in the left circumflex artery (58%), and individuals with 3-vessel disease (63%). The authors concluded that stress SPECT imaging is a useful tool for follow-up in patients with coronary stent implantation and that “follow-up coronary angiography could be omitted in patients with negative SPECT imaging, no prior myocardial infarction, 1- or 2-vessel disease, and sufficient stress loading.”

*Circulation Journal*

### Exploring SLN Mapping Failures

Sener et al., from Evanston Northwestern Healthcare (IL), reported in the May issue of the *Journal of the American College of Surgeons* (2004;198:732–736) on a retrospective study designed to identify patient and tumor characteristics associated with failure in sentinel lymph node (SLN) mapping as an alternative to axillary dissection for staging of breast cancer. The study included 1,094 patients with breast cancer who underwent <sup>99m</sup>Tc-sulfur colloid imaging to identify SLNs. The first 80 patients then underwent axillary dissection. Beginning with the 81st patient, the standard technique consisted of radiolabeled colloid injection in a peritumoral distribution 16–24 hours before SNL, followed by sentinel lymphadenectomy alone for node-negative patients. The mapping procedure failed in 62 (5.7%) patients. Failures were associated with both anatomic and pathologic factors and included patients with more than 10 involved lymph nodes, and, among node-negative individuals, patients who were elderly. The authors suggested that decreased breast density in postmenopausal women might provide an anatomic explanation for mapping failure.

*Journal of the American College of Surgeons*

### Dynamic Scintigraphy in Gastric Banding

Adjustable gastric banding is an increasingly common procedure used to treat morbid obesity and is a preferred alternative to more drastic gastric reduction surgery in most patients. In the April issue of *Obesity Surgery* (2004;4:520–523), Susmallian et al. from Kaplan Hospital (Rehovot, Israel) reported on a unique method of adjustment analysis using dynamic radioisotope scintigraphy. The study included 40 patients who had undergone laparoscopic adjustable gastric banding and were divided into 2 equal groups. In 1 group, the results of adjustment were analyzed using the conventional method of fluoroscopic image and barium swallow. In the other, dynamic radioisotope scintigraphy with <sup>99m</sup>Tc-phytate-labeled plain yogurt was used. After 6 months, the conventional assessment method group had lost 12.34% of their initial weight and 95% needed band readjustment, whereas the scintigraphy group had lost 20.34% of their initial weight and only 25% needed readjustment. Vomiting as a result of poor adjustment was more frequent in the conventional than the scintigraphic group. The authors concluded that dynamic scintigraphy is a “more physiologically friendly and accurate method” of assessing gastric banding adjustment than the conventional barium swallow adjustment.

*Obesity Surgery*

### <sup>131</sup>I Scan and Tg Levels as Prognostic Indicators

Two recent studies cast doubt on the prognostic value of <sup>131</sup>I whole-body scans in differentiated thyroid cancer and endorsed the use of thyroglobulin serum values (Tg) alone. In a study published in the April issue of *Thyroid* (2004;14:301–306), Menendez Torre et al. from the Hospital de Navarra (Pamplona, Spain) reported on a study of 194 patients who had undergone near-total thyroidectomy and <sup>131</sup>I ablation for differentiated thyroid carcinoma and who

underwent evaluation and scanning at 6–12 months after ablation. They found that serum Tg levels obtained after thyroid ablation had good prognostic value and permitted the selection of patients for additional diagnostic studies, whereas diagnostic <sup>131</sup>I whole-body scans performed at the same time did not correlate with Tg results and provided only minimal additional information.

Taylor et al. from the Royal Marsden Hospital (Surrey, UK) reported in the May issue of the *European Journal of Endocrinology* (2004;150:649–653) on a similar retrospective analysis of 153 patients with differentiated thyroid cancer. The majority (117 patients) had negative scans, and all patients with positive scans and subsequently proven disease were also identified by rising serum Tg values. The authors concluded that diagnostic <sup>131</sup>I whole-body scans “add little extra information and, in our experience, do not influence patient management.” They suggested that the scans should be reserved for patients in whom serum Tg levels are unreliable because of the presence of antibodies or when there is clinical suspicion of tumor.

*Thyroid*

*European Journal of Endocrinology*

### Treatment

### Functional Imaging Data in Dose Distribution Evaluation

A method for incorporation of <sup>18</sup>F-FDG PET tumor imaging data with SPECT perfusion data for critical structures into a dose function histogram for distribution evaluation in intensity-modulated radiation therapy (IMRT) was published by Miften et al. from Duke University (Durham, NC) in the May 7 issue of *Physics in Medicine and Biology* (2004;49:1711–1721). The method combines tumor/critical structure heterogeneous functionality in the generalized

concept of equivalent uniform dose (EUD). As an example, calculated and “functional” lung dose distributions in 2 patients with non-small cell lung cancer who had undergone 3-dimensional conformal external-beam radiotherapy were compared. In each patient, differences of up to 50% were observed between the calculated and functional lung EUDs. In a separate example, 2 sample IMRT plans were generated for a patient with non-small cell lung cancer. Each was generated based on the CT,  $^{18}\text{F}$ -FDG-PET, and SPECT treatment planning images using dose-volume objective functions. One plan was designed to use this data to increase sparing of critical structures. The authors found that the use of functional data did not enhance the target volume delivery but did provide significant critical structure function sparing. They concluded that “incorporating functional data in the calculation of EUD is important in evaluating the biological merit of treatment plans.”

*Physics in Medicine and Biology*

### **$^{18}\text{F}$ -FETA PET for Tumor Hypoxia**

Barthel et al. from Hammersmith Hospital (London, UK) and the University of Leipzig (Germany) reported in the June 1 issue of the *British Journal of Cancer* (2004;90:2232–2242) on in vivo validation studies of  $^{18}\text{F}$ -fluoroetanidazole ( $^{18}\text{F}$ -FETA) as a tumor hypoxia marker for use with PET. Research included cellular transport and retention studies and biodistribution and metabolism evaluations in mice bearing human tumor xenografts. In imaging studies, tumors were adequately visualized by small-animal PET within 30–60 minutes. Additional results led the authors to conclude that  $^{18}\text{F}$ -FETA “shows hypoxia-dependent tumor retention and is, thus, a promising PET marker that warrants clinical evaluation.”

*British Journal of Cancer*

### **$^{90}\text{Y}$ -DOTATOC and Merkel Cell Carcinoma**

A case study of successful targeted radiotherapy with  $^{90}\text{Y}$ -1,4,7,10-tetra-azacyclododecan-4,7,10-tricarboxy-methyl-1-yl-acetyl-D-Phe-Tyr<sub>3</sub>-octreotide ( $^{90}\text{Y}$ -DOTATOC) in an 83-year-old woman with recurrent Merkel cell carcinoma on the left cheek was reported by Meier et al. from University Hospital Basel (Switzerland) in the May issue of *Oncology* (2004;66:160–163). The authors noted difficulties in treating these uncommon but highly malignant cancers, including the high incidence of distant metastases, the advanced age of many patients, and the high dependence of appropriate treatment on accurate staging. The patient in this study had been treated with surgery and locoregional radiotherapy for primary tumor and 2 subsequent relapses. She was treated 4 times with  $^{90}\text{Y}$ -DOTATOC, and 2 complete remissions were achieved. The fourth administration was ineffective and conventional chemotherapy was initiated. No side effects or toxicities were noted with the  $^{90}\text{Y}$ -DOTATOC. The authors concluded that because it is well tolerated, “ $^{90}\text{Y}$ -DOTATOC therapy should be evaluated further as a new therapy for somatostatin receptor-positive MCC.”

*Oncology*

### **$^{153}\text{Sm}$ -Lexidronam for Painful Bone Metastases**

In the May issue of *Urology* (2004;63:940–945), Sartor et al. from the Louisiana State University Medical Center (New Orleans, LA) reported on results from a phase III randomized trial designed to assess the effectiveness of  $^{153}\text{Sm}$ -lexidronam for palliation of bone pain in patients with hormone-refractory prostate cancer. The study included 152 men with hormone-refractory prostate cancer and painful bone metastases who were randomly assigned to 2 groups, those receiving  $^{153}\text{Sm}$ -lexidronam and those receiv-

ing nonradioactive  $^{152}\text{Sm}$ -lexidronam complexes. During a 16-week period, patients recorded daily pain and analgesic use in diaries. After 4 weeks, patients on the placebo were allowed at their discretion to switch to the  $^{153}\text{Sm}$ -lexidronam regimen. The authors found that those in the  $^{153}\text{Sm}$ -lexidronam group experienced marked pain relief within 1 to 2 weeks and reduced opioid use in the third and fourth weeks. Because of these benefits and the unblinding of the study in the fourth week, no additional statistical comparisons were made. Mild, transient bone marrow suppression was the only adverse event associated with  $^{153}\text{Sm}$ -lexidronam administration. The authors concluded that “these findings demonstrate that 1 mCi/kg  $^{153}\text{Sm}$ -lexidronam is both safe and effective for the palliation of painful bone metastases in patients with hormone-refractory prostate cancer.”

*Urology*

### **$^{186}\text{Re}$ and Radiation Synovectomy of the Ankle**

Researchers from the Medical Centre Alkmaar (Alkmaar, The Netherlands) reported in the May issue of the *Journal of Rheumatology* (2004;31:896–901) on a study designed to evaluate the effect, duration of effect, and safety of radiosynovectomy of the ankle in patients with persistent synovitis that was refractory to disease-modifying antirheumatic drugs and intraarticular glucocorticoid injections. The study by van der Zant et al. included 40 patients, 14 of whom were treated in both ankles. Radiation synovectomy was performed by injection of 75 MBq  $^{186}\text{Re}$ -colloid and 20 mg triamcinolone-hexacetonide in a volume of about 1.5 mL. A single-head gamma camera was used to image radionuclide leakage in the treated ankle joint(s), liver, and inguinal lymph nodes at 24 hours after injection. The results of the radiosynoviorthesis process were divided into 3 categories: (1) no effect (12 joints; persistent synovitis or only minimal reduction of swelling

# Focus on PET at Madrid Symposium

On May 12 and 13, an international symposium on PET in neurology was held in Madrid, Spain, under the sponsorship of the Ramón Areces Foundation, the Complutense University of Madrid, and the Centro PET Complutense. The symposium was coordinated by Francisco J. Rubia and Miguel A. Pozo (Universidad Complutense, Madrid), who welcomed attendees at the beginning of the first day. At the first session, moderated by Rubia, presenters included Hugo Liaño (Hospital Puerta de Hierro, Madrid) on  $^{18}\text{F}$ -FDG PET in clinical practice, and Pozo on metabolic neuroimaging in the presurgical evaluation of epilepsy. All sessions included time for general discussion and exchanges of viewpoints and experience among the attendees, who came from across Europe and North America. The second session, moderated by Liaño, included presentations by Antonio Maldonado (Centro PET Complutense, Madrid) on PET in brain tumors, and Javier Arbizu (Clínica Universitaria de Navarra, Pamplona, Spain) on clinical applications of PET in Parkinson's disease. An evening roundtable discussion was moderated by Jorge Barrio (University of California at Los Angeles [UCLA]), Maldonado, and Arbizu. The next day, a session moderated by Pozo opened with a presentation by Barrio on "A Revolution at Work. Monitoring Brain Pathology in Alzheimer's Disease with PET: Diagnostic and Therapeutic Implications." Barrio's UCLA colleague, Daniel H.S. Silverman then spoke on the role of  $^{18}\text{F}$ -FDG PET in the early diagnosis of Alzheimer's disease. Both Barrio and Silverman discussed PET tracer binding of  $\beta$  amy-



At the International Symposium on PET in Neurology (left to right): Antonio Maldonado, Jorge Barrio, Mrs. Barrio, Javier Arbizu, Miguel Pozo, André Luxen, and Daniel Silverman.

loid and analyzed  $^{18}\text{F}$ -FDG detection of early, presymptomatic changes that accompany Alzheimer disease. The final presentation was made by André Luxen, who focused on PET radiopharmaceuticals for brain serotonergic system studies (University of Liège, Belgium).

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and/or pain, or the need for intraarticular glucocorticoid injection within 3 months or arthrodesis of the treated joint within 6 months); (2) moderate effect (12 joints; significant reduction of swelling, pain, and improvement of function); and (3) good effect (30 joints;

(Continued from page 33N)

accomplished in terms of actual knowledge gained and whether or not that knowledge is making its way into practice."

He praised the CME efforts of the SNM, noting that with projects like the PET Learning Center and the PET Center of Excellence, the Society has "risen to the challenge" of providing quality educational benefits for its members and others. "As CMEs and standards of practice have become even more important, the SNM has developed a forward-thinking policy to synchronize its educational efforts with ACCME guidelines and to make CMEs an integral part of the recertification process," he said.

## "Unclear" No More

Both nuclear medicine practice and education have grown exponentially since Dworkin entered the field in the

complete or almost complete remission of synovitis). The authors concluded that "radiation synovectomy of the ankle is a safe and effective treatment in persistent synovitis, although all patients eventually experienced recurrence of arthritis."

*Journal of Rheumatology*

1960s. "When I first began practice, the old scintillation scans were so sketchy that many other practitioners referred to our specialty as 'unclear medicine,'" he said. "Not only did the field change rapidly over the years, but now we stand on the brink of an entirely new era, where molecular imaging will combine with our other time-proven techniques to radically expand the range and scope of nuclear medicine applications. Our trainees and colleagues in the discipline will need entirely new sets of skills and a well-planned system for continuing education that is ready to present evolving knowledge and techniques. It's an exciting time for nuclear medicine." Nuclear medicine physicians and, indeed, all medical specialists, owe a debt of gratitude to Dr. Dworkin for his contributions to the foundations of 21st-century medical training and certification. ✿