PET accurately identifies esophageal cancer patients' positive responses to chemotherapy

Molecular imaging opens door to tailoring treatment based on cancer tumor biology, report researchers at SNM's 54th Annual Meeting June 2 in Washington, D.C.

WASHINGTON, D.C. early metabolic imaging with positron emission tomography (PET) accurately identifies patients responding to chemotherapy for esophageal cancer, noted German researchers at the 54th Annual Meeting of SNM, the world's largest society for molecular imaging and nuclear medicine professionals.

"This is the first study to apply PET results from early metabolic response assessment to clinical decision making in the treatment of common solid tumors," said Ken Herrmann, a resident in the department of nuclear medicine at Technical University in Munich, Germany. "The outcome for metabolic responders turned out to be remarkably favorable compared to metabolic non-responders. Our results show that PET helps select patients who are benefiting from chemotherapy," he noted. "Based on our early response assessment, the course is set for tailoring multimodality treatment on the basis of tumor biology," explained Herrmann.

In addition, PET-response-guided treatment "helped circumvent the administration of inefficient chemotherapy to patients with no metabolic response without compromising their outcome," added Herrmann.

Less well-known than lung cancer but no less serious esophageal cancer starts in the inner layer of the esophagus, the 10-inch long tube that connects your throat and stomach. Adenocarcinoma is esophageal cancer that begins in cells that make and release mucus and other fluids. In this country, more than 14,000 persons are expected to die from the disease, and more than 15,000 new cases will be diagnosed this year.

The MUNICON trial, conducted from May 2003 through August 2005, was the first study conducted to apply PET results from early metabolic response assessment to clinical

decision-making in the treatment of common solid tumors, said Herrmann. "This clinical trial delineated how response-guided treatment algorithms may be applied to clinical practice, serving as a model for other malignant diseases like lung, head and neck or ovarian cancer and providing information to alter treatment and patient management," he explained. "The results of our study delineate how response-guided treatment algorithms can be applied in clinical practice in the future," said Herrmann.

PET is a powerful medical imaging procedure that noninvasively demonstrates the function of organs and tissues. When PET is used to image cancer, a radiopharmaceutical (such as fluorodeoxyglucose or FDG, which which is a radioactive analog of sugar) is injected into the vein of a patient. Cancer cells metabolize sugar at higher rates than normal cells, and the radiopharmaceutical is taken up in higher concentrations to cancerous areas. PET scans show where FDG is by tracking photons given off by the radioactive tracer. PET scanning provides information at a molecular level not available through other procedures about the body's chemistry, metabolic activity and body function.

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This study was done in cooperation with Florian Lordick, the main initiator of the MUNICON trial at Technical University's Department of Surgery.

Scientific Paper 93: K. Herrmann, H. Wieder, W. Weber, B. Krause, M. Schwaiger, nuclear medicine; F. Lordick, C. Peschel, internal medicine III; K. Ott, J. Siewert, surgery; K. Becker, H. Hoefler, pathology, all at Technical University in Munich, Germany, "Metabolic Response-Guided Treatment Individualization in Neoadjuvant Therapy of Locally Advanced Adenocarcinoma of the Esophagogastric Junction (AEG)," SNM's 54th Annual Meeting, June 2 , 2007.

About SNM's advancing Molecular Imaging and Therapy

SNM is holding its 54th Annual Meeting June 2 at the Washington Convention Center in Washington, D.C. Session topics for the 2007 meeting include brain amyloid imaging, hybrid imaging, molecular imaging in clinical drug development and evaluation, functional brain imaging in epilepsy and dementia, imaging instrumentation, infection imaging, lymphoma and thyroid cancer, cardiac molecular imaging, general nuclear medicine, critical elements of care in radiopharmacy and more.

SNM is an international scientific and professional organization of more than 16,000 members dedicated to promoting the science, technology and practical applications of molecular and nuclear imaging to diagnose, manage and treat diseases in women, men and children. Founded more than 50 years ago, SNM continues to provide essential resources for health care practitioners and patients; publish the most prominent peer-reviewed journal in the field (the Journal of Nuclear Medicine); host the premier annual meeting for medical imaging; sponsor research grants, fellowships and awards; and train physicians, technologists, scientists, physicists, chemists and radiopharmacists in state-of-the-art imaging procedures and advances. SNM members have introduced and continue to explore biological and technological innovations in medicine that noninvasively investigate the molecular basis of diseases, benefiting countless generations of patients. SNM is based in Reston, Va.; additional information can be found online at http://www.snm.org.