ABOUT US

The Angeles Clinic and Research Institute was established by a group of physicians who came from academic backgrounds who sought to establish an environment where world-class patient care was the top priority. The Clinic's physicians include widely recognized oncologists and leaders in cancer medicine who, together with expert radiology services, radiation oncology, specialized oncologic nurses, and a dedicated support staff, have created a state-of-the-art center for oncology in the Los Angeles area. In addition to superb clinical care, our physicians are known for their world-class clinical research. The Institute has earned an international reputation for developing new cancer therapies, providing the best in traditional and experimental treatments, and expertly guiding and training the next generation of clinicians and researchers.

OUR PHYSICIANS

Ani Balmanoukian, MD
Peter D. Boasberg, MD
Ali R. Borghaei, MD
Cathie T. Chung, PhD, MD
Kevin Drake, MD
Omid Hamid, MD
David C. Khan, MD
Daniel J. Lieber, MD
Silvana Martino, DO
Lawrence D. Piro, MD
Daniel C. Schiffner, MD
Melani P. Shaum, MD

INTRODUCING DR. ANI BALMANOUKIAN

The Angeles Clinic and Research Institute is proud to announce the addition of Ani Balmanoukian, MD to our staff. Dr. Balmanoukian adds to our expertise in cancers of the central nervous system and upper aero-digestive malignancies including lung, esophageal and gastric cancers. Her clinical areas of research include novel targeted agents, immunotherapeutics and early drug development. Her extensive experience and expertise will enhance our patients’ experience and options in the Phase One program available at The Angeles Clinic and Research Institute and thus ensure maximum benefit from recent breakthroughs in cancer research.

Dr. Balmanoukian earned a Bachelor of Science degree in Physiological Science and a Bachelor of Arts degree in Art History from the University of California, Los Angeles. She was on the Provost’s Honor List and graduated Cum Laude. She received her medical degree from New York Medical College School of Medicine in Valhalla, New York, graduating Alpha Omega Alpha. Dr. Balmanoukian completed a residency in internal medicine at Johns Hopkins Hospital in Baltimore, Maryland. She subsequently completed a fellowship in both hematology and medical oncology at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins Hospital, and was awarded a T32 Research Training Grant in neuro-oncology. Dr. Balmanoukian is board certified in Internal Medicine, Hematology and Medical Oncology.

Prior to joining our faculty, Dr. Balmanoukian served as Assistant Clinical Professor in the division of Hematology/Oncology at the University of California, Irvine School of Medicine in Orange, California. Her research has been presented at meetings of the American Society of Clinical Oncology.

Her first contributions to The Angeles Clinic and Research Institute will be to implement a screening program for those at high risk for developing lung cancer; as well as developing a focus on the issue of lung cancer in women, an underappreciated national problem.

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LUNG CANCER SCREENING

BY ANI BALMANOUKIAN, MD

CO-DIRECTOR, PHASE 1 PROGRAM

AERO-DIGESTIVE TUMORS (LUNG/GI)

Lung Cancer is the leading cause of cancer related death among men and women in the United States. For the year 2012, the American Cancer Society predicted that there would be over 220,000 new cases of lung cancer diagnosed and approximately 160,000 lung cancer-associated deaths in the U.S. Yearly, three times more men die from this disease than from prostate cancer, and more women die of lung cancer each year than from the combined total of breast, uterine, and ovarian cancers.

Unfortunately, most patients with lung cancer present with symptoms that are due to advanced or metastatic disease and are not curable by present therapeutic options. Clinical outcome for non-small cell lung cancer is directly related to stage at the time of diagnosis ranging from over 60 percent five year survival rates for stage I disease to less than 5 percent for stage IV or metastatic disease.

Many characteristics of lung cancer have suggested that screening might be valuable. These include the high morbidity and mortality of the disease, its significant prevalence, and evidence that therapy is more effective at an early stage of the disease. These observations have triggered interest in developing lung cancer screening programs using imaging techniques for asymptomatic, high-risk individuals, to identify and treat the disease at an early stage.

The National Lung Cancer Screening Trial (NLST) sponsored by the National Cancer Institute (NCI) compared annual screening by low-dose chest computed tomography (CT) scanning versus chest x-rays in 53,454 high risk persons at 33 U.S. medical centers. Participants in the study were men and women between the ages of 55 to 74 with a history of at least 30 pack years of smoking and included current smokers and those who had discontinued smoking within the previous 15 years. Patients underwent either a chest x-ray or a low-dose chest CT yearly for 3 years. The trial results demonstrated a statistically significant benefit for CT scanning. There was a 20% decrease in lung cancer mortality and a 7% decrease in all-cause mortality with CT scanning, leading to the recommendation of using low-dose chest CT for lung cancer screening in this selected population.

In view of these important findings, The Angeles Clinic and Research Institute has established a lung cancer screening program. Men and women between the ages of 55 to 74 who have a history of heavy smoking including 1 pack of cigarettes per day for 30 years or 2 packs of cigarettes for 15 years, and those who were heavy smokers but quit during the past 15 years are eligible. This program will offer comprehensive screening, including low-dose chest CT with immediate clinical evaluation and discussion of results and appropriate follow up with each patient. Results and recommendations will also be discussed with and provided to the referring physician. With this program, The Angeles Clinic and Research Institute will continue to expand its commitment to build diagnostic and treatment programs that will continue to fight cancer.

CLINICAL TRIALS SPOTLIGHT

Please visit our website, www.theangelesclinic.org, for a complete list.

PHASE 1 TRIALS FOR LUNG CANCER AND SELECTED OTHER TUMORS

- Phase I, open-label, dose-escalation study of the safety and pharmacokinetics of MPDL3280A Administered intravenously as a single agent to patients with locally advanced or metastatic solid tumors or hematologic malignancies.
- Phase I Study of Single Agent MK-3475 in Patients with Progressive Locally Advanced or Metastatic Carcinoma, Melanoma, and Non-Small Cell Lung Carcinoma
- Phase I, First-in-Human Study Evaluating the Safety, Tolerability, and Pharmacokinetics of AMG 337 in Adult Subjects with Advanced Solid Tumors
- Phase Ib, open-label, dose-escalation study of the safety and pharmacology of GDC-0980 in combination with either paclitaxel and carboplatin (with or without bevacizumab) or pemetrexed and cisplatin in patients with solid tumors

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INTEGRATING PET-CT INTO THE RADIATION ONCOLOGY TREATMENT PLANNING PROCESS AT THE ANGELES CLINIC & RESEARCH INSTITUTE

BY DANIEL C. SCHIFFNER, MD
CHAIRMAN, DEPARTMENT OF RADIATION ONCOLOGY
THE ANGELES CLINIC & RESEARCH INSTITUTE

A key goal in the delivery of high-quality, state-of-the-art radiation therapy is to focus the radiation dose on the tumor while avoiding the adjacent normal structures. By delivering this highly conformal, precise, and accurate radiation therapy to treat cancers, the probability of tumor control and cure is increased, while the likelihood of treatment-related morbidity is decreased. The delivery of modern radiation therapy relies on three-dimensional (3D) computer-based treatment planning. Typically, the treatment planning process begins with the patient undergoing a CT scan to provide 3D anatomic images. Using specialized treatment planning software, the radiation oncologist identifies and contours the cancerous tissues as well as the critical adjacent normal structures. Radiation beams are then designed to tightly conform the radiation dose to the cancer-bearing targets while carefully avoiding the normal organs.

Fluorine-18 fluorodeoxyglucose (FDG) PET scanning has a higher sensitivity in detecting most tumors than CT scanning because FDG-PET imaging detects the elevated glucose uptake in cancerous tissues compared with the much lower background glucose uptake of the adjacent normal tissues. Combined PET-CT scanners allow the combination of the anatomic images provided by CT scanning with the molecular and functional information provided by FDG-PET scanning. As such, PET-CT scanning plays a critical role in cancer diagnosis, staging, assessing tumor response, cancer surveillance and oncologic decision-making. The incorporation of PET imaging into the radiation treatment planning process as an adjunct to CT scanning has also revolutionized the field of radiation oncology by helping the radiation oncologist more accurately target the tumor-bearing tissues with the radiation beam (i.e. tissue that is FDG-avid), exclude normal structures from the radiation field (i.e. tissues that are not FDG-avid), and thus increase the tumor control probability and diminish the likelihood of treatment-related morbidity. The integration of PET-CT imaging into the radiation treatment planning process is especially valuable in treating cancers of the lung, head and neck, cervix, lymphoma, and gastrointestinal system, as well as any tumor that is not easily seen on a CT scan.

At the Department of Radiation Oncology at The Angeles Clinic and Research Institute, our radiation therapy planning CTs are performed on our state-of-the-art combined PET-CT scanner housed in the Department of Diagnostic Radiology at our Wilshire office. In scenarios when it is difficult to identify the tumor with CT scanning alone, we combine a fused PET scan with our CT scan. In these situations, our radiation oncologist works closely with our diagnostic radiologists to carefully identify the tumor using data from both the PET scan and the CT scan. This permits the most accurate targeting of the cancerous tissues and best sparing of the critical normal structures in these difficult scenarios. The following challenging case is an illustrative example of how this integrated approach can be applied to the great benefit of cancer patients.

CASE STUDY: Mr. DR is a 75 year-old male with Stage IIIIB squamous cell carcinoma of the right lung presenting with total right lung collapse due to an obstructing mass in the right mainstem bronchus. Figure 1 shows the treatment planning CT scan with collapse of the right lung and...
mediastinal shift. The exact location of the obstructing cancer within this mass of collapsed tissue cannot be identified. Without the information provided by FDG-PET imaging, the radiation oncologist would be required to treat the right hemithorax generously to ensure coverage of the cancer. However, this would typically come at the cost of excessive lung dose and a high probability of developing radiation pneumonitis, a potentially fatal complication of thoracic radiotherapy. In the case of Mr. DR, we obtained a combined PET-CT for radiation treatment planning purposes. Figure 2 shows the fused PET image which clearly demonstrates the FDG-avid cancer (bright) against the background of normal collapsed lung and other uninvolved thoracic structures.

Using our treatment planning software (Figure 3), the radiation oncologist and diagnostic radiologist work closely together to delineate the tumor (red outline) on the fused CT scan (left) and PET scan (right). Customized conformal radiation beams are designed to target the tumor with appropriate safety margin while maximally sparing the ipsilateral collapsed lung as well as the contralateral lung (Figure 4). After a dose of 30 Gy, the patient’s right lung had re-expanded (Figure 5). Mr. DR was able to complete his course of definitive chemoradiotherapy without complication or the development of radiation pneumonitis. Our ability to successfully control the patient’s tumor while avoiding complications in this case was due in large part to our use of PET-CT imaging in the radiation treatment planning process to more accurately define the tumor, target it with radiation therapy, and spare the adjacent normal lung from unnecessary and potentially harmful radiation dose.

Integrating PET-CT Cont’d …

Figure 2. PET imaging obtained using combined PET-CT for radiation therapy planning purposes. The patient’s cancer is nicely visualized and intensely FDG-avid (bright).

Figure 3. In our radiation therapy planning software, the tumor is identified and contoured (red) on the PET scan (right), and these contours are automatically transposed to the fused CT scan (left).

Figure 4. Customized conformal radiation beams are designed to adequately cover the tumor while sparing the adjacent ipsilateral and contralateral lung.

Figure 5. After a dose of 30 Gy, the patient’s right lung had re-expanded, and he was able to complete his course of concurrent chemoradiotherapy without complication or pneumonitis.