



NIH-FUNDED STUDY HARNESSES ELEKTA TECHNOLOGIES TO EXPLORE LUNG TUMOR MOTION

PRESS RELEASE

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Lung tumors have been difficult to treat with radiation therapy because patient breathing causes tumors to move around. This uncertainty about the tumor's exact position has made it challenging to target the tumor with radiation beams while simultaneously avoiding normal tissues with these same treatment beams.

The National Institutes of Health (NIH) has funded a study by William Beaumont Hospital (WBH, Royal Oak, Mich.) investigators to examine how lung tumors move and to refine ways to compensate for breathing-induced tumor motion. WBH researchers led by clinical physicist Geoffrey Hugo, Ph.D., are using two Elekta technologies, Elekta Synergy[®], an advanced multifunctional Cancer Treatment Delivery system with intensity modulated radiation therapy (IMRT) and image-guided radiation treatment (IGRT) system using a patient breathing control device, Elekta Active Breathing Coordinator[™] to conduct the study.

"This study attempts to measure lung tumor movement in patients with different stages of non-small cell lung cancer [NSCLC] and also tumor motion in the same patients during their treatment course," says Dr. Hugo and continues "The ultimate goals are to better target lung tumors and allow use of smaller treatment margins based on how each patient's tumor moves during the breathing cycle and even adapt the patient's treatment throughout the treatment course."

Strategies that improve the ability to target cancer and avoid normal tissues also enable clinicians to employ more aggressive treatments, such as using higher doses over fewer treatment sessions, he adds. Both Elekta's IMRT and IGRT system, Elekta Synergy, and Elekta's Active Breathing Coordinator have been used individually to improve the effectiveness of radiation therapy through better targeting. The WBH study presents an opportunity to combine both technologies to improve lung cancer treatments.

The technologies

Elekta Synergy is an advanced multifunctional linear accelerator equipped with imaging equipment that enables doctors to acquire images of the patient with the patient in the treatment position. Clinicians can then use the imaging data to fine-tune the patient's position immediately prior to treatment. Elekta's Active Breathing Coordinator is designed to help patients suspend their breathing at a precise point, thereby freezing the target's motion to facilitate radiation therapy.

In the William Beaumont study, Elekta's Active Breathing Coordinator will be used to measure respiratory-induced tumor motion and what sort of breath hold (i.e., shallow, deep, on exhalation, on inhalation) will result in the least variability in tumor position.



"Our theory is that combining Elekta Synergy IGRT techniques and Active Breathing Coordinator-controlled breath holding will enable us to define how tumors are moving and in turn help us reduce the uncertainties about tumor position related to the patient's breathing," Dr. Hugo says.

"We hope this work will result in methods to tailor breath hold radiation therapy per patient that results in the smallest variability in lung tumor position from treatment to treatment," he continues. "We can convert those findings into smaller treatment margins for lung tumors that maximize treatment of the tumor itself while minimizing exposure of normal surrounding tissues. In turn, that could facilitate higher doses and fewer treatment sessions," concludes Dr. Hugo.

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About Elekta

Elekta is an international medical-technology Group, providing meaningful clinical solutions, comprehensive information systems and services for improved cancer care and management of brain disorders. All of Elekta's solutions employ non-invasive or minimally invasive techniques and are therefore clinically effective, gentle on the patient and cost-effective.

Clinical solutions include among others Leksell Gamma Knife® for non-invasive treatment of brain disorders and Elekta Synergy® for image guided radiation therapy (IGRT). Following the acquisition of IMPAC Medical Systems Inc. in April 2005, the Elekta Group is the world's largest supplier of oncology software.

Elekta's systems and solutions are used at over 4,000 hospitals around the world to treat cancer and manage clinical operations as well as to diagnose and treat brain disorders, including tumors, vascular malformations and functional disorders.

With approx. 2,000 employees, Elekta's corporate headquarter is located in Stockholm, Sweden and the company is listed on the Stockholm Stock Exchange under the ticker EKTA. For more information about Elekta, please visit www.elekta.com.