Medical Xpress

Combining CT, FDG-PET provides more accurate treatments for head and neck cancer patients

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Combining computerized tomography (CT) with fluorodeoxyglucose positron emission tomography (FDG-PET) images results in significantly more defined tumor outlines and potentially different treatment options in head and neck cancer patients compared to using CT alone, according to research presented today, at the Cancer Imaging and Radiation Therapy Symposium in Atlanta. This symposium is co-sponsored by the American Society for Radiation Oncology (ASTRO) and the Radiological Society of North America (RSNA).

CT is the standard method for determining tumor delineation before deciding head and neck cancer treatment—typically intensity modulated radiation therapy. However, FDG-PET is an imaging method that uses a radioactive product combined with sugar and can produce better defined outlines of the tumor.

Researchers sought to determine the significance of combining CT and FDG-PET when determining tumor delineation and treatment for head and neck cancer patients.

In this trial, 327 patients were treated with IMRT for head and neck cancer. Based on the combined approach of the CT-scan and FDG-PET, the researchers noticed a change in the delineation of the tumor in one out of three patients, resulting in 10 percent of patients' treatment being changed and 33 percent of patients having their treatment adjusted.

In 17 percent of the patients, the primary tumor was not visible on the CT-scan alone, mostly due to dental inlays.

"We expected there to be an improved delineation of the tumor," Homan Dehnad, MD, a study author and radiation oncologist at Utrecht University Medical Center in Utrecht, Netherlands, said. "However, we never expected it to have such an influence on the treatment options for patients. Each dedicated institute dealing with head and neck cancer should be equipped with multi-imaged facilities."

More information: The abstract, "Significance of the Use of FDG-PET Combined with CT for Tumour Delineation in Primary Radiotherapy for Head and Neck Cancer," will be presented at 4:30 p.m. Eastern time on April 29, 2011.

Provided by American Society for Radiation Oncology