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Precisely targeted radiation controls sinus cancer with fewer side effects

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Treating paranasal sinus cancer with three-dimensional radiation that conforms to the shape of the tumor—a technique that minimizes side effects such as severe dry mouth and vision problems—is safe and effective, research at Fox Chase Cancer Center shows. Aruna Turaka, M.D., radiation oncologist at Fox Chase, will present the results on November 2nd at the annual meeting of the American Society for Radiation Oncology.

Located on either side of the nose, the paranasal sinuses are hollow, air-filled chambers lined with mucus-producing cells. Various types of cells in the sinuses can become malignant, and risk factors for the disease include being exposed to dust or certain chemicals in the workplace, smoking cigarettes.

"Due to the location of the sinuses, treating with radiation therapy by standard, conventional techniques is a challenge because it can cause side effects to the eyes and optic apparatus that eventually may lead to long-term complications," says Turaka. "Another concern is dry mouth due to radiation damage to the salivary glands."

Turaka and colleagues wanted to see if treating patients with intensity-modulated radiation therapy (IMRT)—a method in which multiple beams of varying intensities are used to precisely radiate tumors while minimizing exposure to healthy, adjacent tissues—is as effective as treating with standard radiation therapy. They studied a group of 31 patients with paranasal sinus cancers treated with IMRT at Fox Chase

between May 2001 and June 2008. The patients did not receive additional radiation treatments to the lymph nodes, because paranasal sinus cancer usually does not spread to the lymph nodes.

The researchers found that IMRT controlled paranasal cancer just as well as regular radiation therapy, but with fewer serious side effects.

"In these patients, we did not see detrimental visual complications," Turaka says. "There were only minor side effects, such as dry eyes, which can be managed with tear supplements."

Similarly, patients treated with IMRT did not develop severe dry mouth.

"These results lead us to conclude that IMRT appears to be a safe and effective treatment for paranasal tumors," Turaka says.

Provided by Fox Chase Cancer Center

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