A new radiotherapy technique significantly reduces irradiation of healthy tissue

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Researchers at the University of Granada and the university hospital Virgen de las Nieves in Granada have developed a new radiotherapy technique that is much less toxic than that traditionally used and only targets cancerous tissue.

This new protocol provides a less invasive but equally efficient cancer postoperative treatment for cases of cancer of the oral cavity and pharynx.

The study -conducted between 2005 and 2008- included 80 patients diagnosed with epidermoid cancer of the oral cavity and pharynx, who had undergone lymph node removal. The affected nodes were located by the surgeon during the intervention and classified into different risk levels. Classification allowed physicians to target the areas at a higher risk of recurrence. This way, neck areas at a lower risk of containing residual cancer cells were not irradiated. Researchers achieved both to minimize the side effects of radiotherapy, and to reduce treatment discontinuation, thus achieving the therapy to be more effective.

A Highly Toxic Treatment

Over 70% of oral and pharynx cancer treated with surgery require supplementary treatment with radiotherapy occasionally associated to chemotherapy, because of the high risk for recurrence and spread through the lymph nodes. Radiotherapy and chemotherapy are highly toxic, mainly due to the ulceration of the mucous membranes lining the oral cavity; toxicity leads may patients to stop the treatment, which significantly reduces the chances of cure.

By using the risk map obtained with the collaboration of the surgeon and the pathologist, an individualized treatment was designed and adapted to the specific risk level of recurrence in each neck area. The volume of tissue irradiated was significantly smaller than that usually irradiated with traditional techniques.

This trial was led by the radiation oncologist at the university hospital Virgen de las Nieves, Miguel Martínez Carrillo, and conducted in collaboration with the Services of Radiation Oncology, Medical Physics, Maxillofacial Surgery and Pathology of the university hospital Virgen de las Nieves, and the University of Granada Department of Radiology and Physical Medicine

After a three-year follow up, using this new technique, scientists achieved to reduce the volume of irradiated tissue in 44% of patients. By this new technique, irradiation of an average volume of 118 cc of tissue was avoided. A total of 95% of patients completed radiotherapy and presented significantly lower toxicity than patients treated with the traditional technique. Recurrence rates did not increase.

This study was coordinated by University of Granada professors Rosario del Moral Ávila and José Mariano Ruiz de Almodóvar Rivera. The results of this study will be published in the next issue of the journal *Radiation Oncology*.

Source: **University of Granada**

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