Medical Xpress

ASTRO publishes supplement on protecting cancer patients by reducing radiation doses, side effects

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The Quantitative Analysis of Normal Tissue Effects in the Clinic (QUANTEC) review has been published in the *International Journal of Radiation Oncology*Biology*Physics*, the official journal of the American Society for Radiation Oncology (ASTRO) to update recommendations for the safe irradiation of 16 organs. For each organ, the relationship between dose/volume and clinical outcome is reviewed. These reviews replace initial recommendations published in 1991.

When physicians began using radiation therapy to treat cancer, there was limited technology available to image a tumor and then target radiation specifically to it while limiting the dose to nearby healthy tissues. In the 1980s and 1990s, the field of imaging was revolutionized through the use of computed tomography-based diagnosis and radiation therapy treatment planning, allowing for treatments to be targeted more directly to the tumor and minimizing exposure to surrounding tissues.

No radiation treatment can be given while avoiding all nearby healthy tissue, but unlike cancer cells, normal tissue cells can repair themselves after receiving radiation. The QUANTEC review was published to help the radiation oncology treatment team decide which areas of healthy tissue surrounding a tumor can most safely receive radiation and to provide guidance for selecting doses/volumes to be treated.

The review also highlights areas in which there are gaps in knowledge

and outlines future research in these areas.

"The information provided in the QUANTEC review is critical to providing cancer patients with the most effective radiation treatments to cure their cancer while minimizing side effects to normal tissue," Randall K. Ten Haken, Ph.D., one of the guest editors of the QUANTEC review and a professor at the University of Michigan Department of Radiation Oncology in Ann Arbor, Mich., said. "The field of radiation oncology is growing rapidly, and it's very important to know the limitations of the human body in receiving radiation; the QUANTEC review helps provide this information."

These reviews were produced through an extensive two-year project led by a QUANTEC steering committee comprising Dr. Ten Haken and fellow guest editor Lawrence B. Marks, M.D., a radiation oncologist at the University of North Carolina, Chapel Hill, as well as Søren M. Bentzen, Ph.D., D.Sc., University of Wisconsin in Madison, Wis., Louis S. Constine, M.D., University of Rochester in Rochester, N.Y., Joseph O. Deasy, Ph.D., Washington University in St. Louis, Avraham Eisbruch, M.D., University of Michigan in Ann Arbor, Mich., and Andrew Jackson, Ph.D., and Ellen D. Yorke, Ph.D., both from Memorial Sloan-Kettering Cancer Center in New York. Mary K. Martel, Ph.D., from M.D. Anderson Cancer Center in Houston served as an associate guest editor.

More than two dozen of the world's leading radiation oncologists, medical physicists and radiobiologists worked together on this extraordinary publication. The supplement can be found online at https://www.redjournal.org/issues.

Provided by American Society for Radiation Oncology