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Task force develops new radiation guidelines for brachytherapy

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Radiation dose delivered to the prostate and nearby organs in every brachytherapy procedure should be carefully analyzed using post-implant CT or MRI and uniformly documented in every patient, according to a new guideline co-authored by Yan Yu, Ph.D., director of Medical Physics in the department of Radiation Oncology at Thomas Jefferson University.

The guideline was issued by a task group commissioned by the American Association of Physicists in Medicine (AAPM), and will be published in the November 2009 issue of *Medical Physics*.

With the widespread use of image-guided dosimetry, there is a need for developing a consensus methodology for dose prescription and reporting for prostate brachytherapy. The dosimetric parameters used for evaluating an implant are dependent on physician's delineation of the prostate, rectum, bladder and urethra on post-implant imaging such as CT. Many research groups have reported that such delineation can be quite variable.

With the intent of providing consistent and reproducible dosimetric information without increasing healthcare costs, the AAPM Task Group 137 issued new recommendations and guidelines on the timing, imaging techniques, dose planning criteria and dose evaluation parameters that should be followed in documenting each brachytherapy treatment.

"This is a timely update of the original AAPM Task Group 64 report,

which was instrumental in defining the early standards of practice when brachytherapy became widespread in the treatment of prostate cancer," said Dr. Yu, who also chaired the original Task Group 64 in 1998-1999. "Sophisticated brachytherapy techniques such as real-time planning, image-guided robotic implantation and dynamic dose verification are either here or imminent. The field requires a higher level of standardization, which is exactly what Task Group 137 was commissioned to address."

Based on recent brachytherapy literature, the new AAPM Task Group report recommended guidelines for dose prescription from a physics perspective for routine patient treatment, clinical trials, and for treatment planning software developers. It continues to follow the current recommendations on using D90 and V100 as the primary quantities, with more specific guidelines on the use of the imaging modalities for post-implant evaluation and the optimum timing of the imaging for specific radionuclides. In addition, the new report encourages the use of a radiobiological model with a specific set of parameters to facilitate relative comparisons of treatment plans reported by different institutions using different loading patterns or radionuclides.

Source: Thomas Jefferson University (news : web)