

Advanced Radiation Treatment Planning of Prostate Cancer

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Prostate cancer is frequently diagnosed cancer among men around the world. Although surgery is an option to manage the prostate cancer, external beam radiation therapy (EBRT) has been playing major role in the treatment of prostate cancer with excellent tumor control and reduced tissue toxicities. The Middle East Journal of Cancer published an excellent article entitled "Interpreting Radiation Treatment Planning Study Results: A Note of Caution" on radiotherapy for prostate cancer in Volume 5, Issue 4.¹ The authors have highlighted the importance of treatment planning studies on prostate cancer and described various factors which could influence the results.¹ In this article,¹ the authors have focused on the photon modalities such as intensity modulated radiation therapy (IMRT) and volumetric modulated arc therapy (VMAT). Both IMRT and VMAT produce excellent dose distributions to the target volume.² This letter has provided information on proton therapy, which was not addressed in the published article.¹ Proton therapy is another example of external beam radiation therapy that uses proton beams to deposit the dose in the target volume. A number of researchers³⁻⁶ have studied the feasibility of using proton therapy for prostate cancer. Rana et al.³ showed that proton therapy has the potential to reduce both the bladder and rectal doses compared to VMAT. Vargas et al.⁴ also reported the superiority of proton therapy over VMAT. In both studies,^{3,4} the authors used two lateral proton fields to treat prostate cancer. Researchers have also used non-lateral proton fields to treat prostate cancer. Trofimov et al.⁵ showed that oblique proton fields could further reduce the rectal dose when compared to lateral fields. More recently, Rana et al.⁶ studied metallic hip prostate cases and reported that the combination of lateral and oblique proton fields has provided better dosimetric results for prostate cancer compared to photon therapy. As many proton centers are expected to be operational in the next few years, proton therapy will be accessible to many prostate cancer patients worldwide.

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