

Use of partial-arc planning technique for the treatment of prostate cancer

Sir,

I have read the article entitled “*Investigating VMAT planning technique to reduce rectal and bladder dose in prostate cancer treatment plans*”^[1] published in *Clinical Cancer Investigation Journal* with great interest. This article highlights the dosimetric quality of different types of planning techniques used in volumetric modulated arc therapy (VMAT) for the prostate cancer. The purpose of this letter is to provide an update on the VMAT planning techniques in the prostate cancer.

Rana *et al.*,^[1] showed that the double-arc (DA) techniques produced superior dosimetric quality than that of single-arc (SA) technique, and similar trend was obtained in a recent study,^[2] which compared the radiobiological impact of the DA with that of SA for the prostate cancer, with DA technique producing better results, especially for the rectum. It is also interesting to note that the partial-DA technique, which has avoidance sectors, could produce better dosimetric results for the rectum and bladder than that of full-DA technique, which typically has full gantry rotation for both the arcs.^[1] This is mainly due to the existence of the avoidance sectors in the posterior and anterior directions of the beam set up in the partial-DA technique.^[1]

Despite slightly inferior quality of the SA, busy clinics may still prefer to employ the full-SA utilizing a full gantry rotation, and this could potentially increase the rectal dose.^[2-4] Recently, research group of Rana *et al.*^[5] demonstrated the feasibility of a partial-SA technique utilizing anterior and posterior avoidance sectors, and the results from their study^[5] showed that the partial-SA was better than the full-SA in terms of sparing of the bladder and rectum without sacrificing the homogeneity of the target and conformity of the prostate treatment plans. While the partial-SA technique in VMAT appears to be a feasible

option in treating low-risk prostate cancer patients, further investigations in terms of treatment outcomes remains to be reported.

Narayan Kharel

Department of Medicine, Tribhuvan University, Kathmandu, Nepal

Correspondence to: Dr. Narayan Kharel,
Department of Medicine, Tribhuvan University, Kathmandu, Nepal.
E-mail: doc.kharelnarayan@gmail.com

REFERENCES

1. Rana SB, Cheng C. Investigating VMAT planning technique to reduce rectal and bladder dose in prostate cancer treatment plans. *Clin Cancer Investig J* 2013;2:212-7.
2. Rana S, Cheng C. Radiobiological impact of planning techniques for prostate cancer in terms of tumor control probability and normal tissue complication probability. *Int J Radiat Oncol Biol Phys* 2013;87:S694-5.
3. Sze HC, Lee MC, Hung WM, Yau TK, Lee AW. RapidArc radiotherapy planning for prostate cancer: Single-arc and double-arc techniques vs. intensity-modulated radiotherapy. *Med Dosim* 2012;37:87-91.
4. Wolff D, Stieler F, Welzel G, Lorenz F, Abo-Madyan Y, Mai S, *et al.* Volumetric modulated arc therapy (VMAT) vs. serial tomotherapy, step-and-shoot IMRT and 3D-conformal RT for treatment of prostate cancer. *Radiother Oncol* 2009;93:226-33.
5. Rana S, Cheng C. Feasibility of the partial-single arc technique in RapidArc planning for prostate cancer treatment. *Chin J Cancer* 2013;32:546-52.

Access this article online

Quick Response Code:



Website:

www.ccij-online.org

DOI:

10.4103/2278-0513.130225