Treatment planning challenges for prosthesis prostate cancer patients in radiation therapy

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Dear Editor,

In Volume 3, Issue 1 of the South Asian Journal of Cancer, an article entitled "a dosimetric study of volumetric modulated arc therapy (VMAT) planning techniques for treatment of low-risk prostate cancer in patients with bilateral hip prostheses" was published.[1] The results in the study[1] demonstrated the number of arcs in the case of VMAT can affect the quality of the treatment plan. Hence, the four-arc technique was determined to provide good radiation dose distributions in the prostate cancer plans with bi-lateral hip prostheses. However, the paper[1] is limited to one treatment modality in the form of VMAT.

Currently, there is an increasing interest in using proton therapy for the prostate cancer treatment. Proton therapy is considered as one of the most advanced radiotherapy techniques. Recent studies have shown the feasibility of using proton therapy for the prostate cancer patients with metallic hip prosthesis. In the article[2] published by Journal of Applied Clinical Medical Physics (JACMP), authors have shown the lateral proton fields along with the oblique proton fields can be used to treat the prostate cancer patients who have a metallic prosthesis. Additionally, authors have shown that proton therapy is significantly better than VMAT as proton plans had better target coverage and reduced dose to the rectum and bladder. One of the differences between the papers published in South Asian Journal of Cancer (SAJC)[1] and JACMP[2] is the number of metallic hip prosthesis. The paper in SAJC involved two metallic hips, whereas the paper in the JACMP includes one metallic hip. For a single prosthesis, proton therapy was found to be better than VMAT,[2] and it would be interesting to compare the dosimetric quality of these two latest technologies (proton therapy and VMAT) for bi-lateral hip prostate cases. The RapidArc VMAT prostate plans can also be planned using flattening filter-free beams[3] and more accurate dose calculation algorithm such as Acuros XB.[4]

N. Adhikari, Dinesh Babu Pandey
Department of Physics, Tri Chandra College, Kathmandu, Nepal
Correspondence to: Dr. Dinesh Babu Pandey,
E-mail: dbpandey5015@gmail.com

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