Radiotherapy planning for breast cancer

Dear Editor,

South Asian Journal of Cancer has published an article entitled "*Abnormalities by pulmonary regions studied with computer tomography and clinical correlation following local regional radiotherapy for breast cancer*"[1] in the 1st issue of volume 2. Bhadra *et al.*,[1] have correlated the abnormalities detected on computed tomography images to the pulmonary complications. This is an important finding, which could be used as an objective endpoint for pulmonary complications of the breast-cancer patients treated with radiation therapy. In addition to the encouraging results presented by Bhadra *et al.*,[1] it is important to mention that clinical results may also be correlated to the dosimetric results, which can vary depending on the treatment planning techniques. In the study by Bhadra *et al.*,[1] all the breast cancer plans were generated using a 3-dimensional (3D) technique. Since the primary goal of radiation therapy is to maximize the local control while reducing the normal tissue toxicities, breast- cancer patients may be benefitted if the treatment is done using more advanced techniques such as simultaneous integrated boost-intensity modulated radiation therapy (IMRT), which could have better dosimetric quality than that of 3D technique for the breast cancer.[2,3] The normal lung volume receiving at least 20 Gy and 5 Gy (V20 and V5) could be significantly lower in the IMRT plans than in the 3D plans.[3] Such dosimetric advantages may translate into lower probability of acute pneumonitis and sub acute/late lung fibrosis.[2] Additionally, since the breast-cancer treatment involves the low-density tissue such as the lung, it is essential to have an accurate dose calculation algorithm. In the study by Bhadra *et al.*,[1] there is no mention of dose-calculation algorithm used for the dose computations on the breast-cancer plans. Nevertheless, several researchers[4-6] have pointed out the dose prediction accuracy of photon dose calculation algorithms in radiation therapy. Hence, it is essential to have a treatment planning system with more accurate dose-calculation algorithm to avoid the overdosage of the normal tissues (e.g., lung) or the underdosage of the tumor (e.g., breast). The clinical results from Bhadra *et al.*,[1] will be more valuable to the cancer research community with a longer patient follow-up.

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