

ABSTRACT

In the case of Ca Mammae, which is the Three Dimensional Conformal Therapy (3DCRT) technique, the selection of gantry angles plays an important role in determining the dose distribution at target and organs at risk (OAR), especially the ipsilateral lungs. This study aims to identify the effect of gantry angle on dose distribution in ipsilateral lung in therapy planning. This study used five data on Ca Mammae dextra patients. Each patient was made two radiotherapy plans, the first was clinical planning and the second was modified treatment plan using a gantry angle configuration designed with optimal tangential geometry, in which the beam directions were aligned to achieve complete field matching. The analysis was carried out by looking at the dosimetric criteria at the target (PTV100 and PTV95) and the ipsilateral pulmonary dose parameters (V20 and V10) from both plans. The results showed that the dosimetry evaluation in the 3DCRT radiotherapy planning of ca mammae dextra, the variation of gantry angle of 1°–3° had an effect on the dose distribution in the ipsilateral lung and the irradiation target. Modification of gantry angles that designed to achieve tangential geometry with beam directions more closely aligned to the contours of the chest wall was able to reduce ipsilateral pulmonary involvement in the irradiation field, shown by a decrease in lung volume dose parameters (V20 and V10) in all patients. Therefore, it can be concluded that a gantry angle configuration that achieves a more optimal tangential geometry, with beam directions more closely aligned to the patient's anatomical contours, provides a more optimal dose distribution by reducing dose exposure to the ipsilateral lung without significantly compromising target coverage quality.

Keywords: Ca mammae, 3DCRT, gantry angle, tangential, ipsilateral lung.