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A DOSIMETRIC COMPARISON OF THE 3D-CRT PLANNING OF CHEST WALL IN POST-MASTECTOMY BREAST CANCER PATIENTS, WITH AND WITHOUT BREAST BOARD SETUP

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Purpose: Breast boards are used in breast radiation which increases normal lung and heart doses, when supraclavicular field is included. Therefore, in this study through dose volume histogram (DVHs), lung and heart doses comparison was done between two different setups i.e. with and without breast board, for the treatment of left chest wall and supraclavicular fossa in postmastectomy left breast cancer.

Material and Methods: In this study, CT-Simulation scans of ten breast cancer patients were done with and without breast board, at Shifa International Hospitals Islamabad, to investigate the differences between the two different setups of the irradiation of left chest wall in terms of lung and heart doses. For immobilization, support under the neck, shoulders and arms was used. Precise PLAN 2.15 treatment planning system (TPS) was used for 3D-CRT planning. The total prescribed dose for both the plans was 5000 cGy/25 fractions. The chest wall was treated with a pair of tangential photon fields and the upper supraclavicular nodal regions were treated with an anterior photon field. A mono-isocentric technique was used to match the tangential fields with the anterior field at the isocentre. The dose volume histogram was used to compare the doses of heart and ipsilateral lung.

Results: Both the plans of each patient were generated and compared. DVH results showed that for the same PTV dose coverage, plans without breast board resulted in a reduction of lung and heart doses compared with the plans with breast board. There was significant reductions in V20 and mean doses for lung and V<9 and mean doses for heart without breast board.

Conclusion: In comparison of both the plans, setup without breast board significantly reduced the dose-volume of the ipsilateral lung and heart in left chest wall patients.

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