DOSIMETRIC COMPARISON OF DOSE TO CONTRALATERAL BREAST IN POSTMASTECTOMY PATIENTS TREATED USING DIFFERENT RADIOTHERAPY TECHNIQUES

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Introduction

• Breast cancer is the most common cancer among women worldwide contributing about 25% of the total number of cases diagnosed.
• It estimated 1.67 million new breast cancer cases diagnosed in 2012 with annual incidence of 1,44,000 in India. (WHO Globocon 2012)
• Breast cancer incidences varies in India from 5 to 30 per 100,000 female population per year in rural and urban areas respectively.
• Overall, breast cancer is second most common cancer among women in India contributing 21% incidence. However, breast cancer is more common in urban female than after cancer cervix. (ICMR 2015)
• Post operative radiotherapy reduces the risk of loco-regional failure and improves disease free survival. However, contralateral breast (CB) dose is cause of concern.
• The present study aimed to assess the dose to CB in different radiotherapy techniques.
Materials and methods

- Randomized, single blind study in 50 post mastectomy radiotherapy breast cancer patient, dose prescription of 50 Gy/ 25 #.
- Patients treatment divided into two arms: Bhabhatron-II Telecobalt with conventional tangential fields having asymmetric jaws and Siemens Oncor Expression 6 MV photon with 3DCRT technique.
- Dose to CB measured using OSLD nanoDot placed at the CB nipple level.
- Dose to CB assessed for 3 consecutive fractions and mean dose was calculated.
Result

- The CB dose were observed 228.5 to 386.2 cGy and 73.8 to 175.0 cGy for conventional and 3DCRT techniques respectively.
- This corresponds to 4.57 to 7.72% and 1.47 to 3.42% of the total dose delivered to tumor respectively.
- The observed MT field contribution to CB dose was observed about two times than LT field.
Conclusions

• The use of asymmetric jaws in conventional technique is the cause of high dose (approx. 2.5 times than 3DCRT) due to increased head leakage and scatter.
• The use of MLC in 3DCRT treatment showed optimized PTV coverage with reduced CB dose.
• Dose to CB should not be ignored in radiotherapy, especially in younger women (age < 45 years).
• Dose to CB should be kept as low as achievable.
• In-vivo dosimetry is a recommended procedure in breast radiotherapy.