Photon Boost after Lumpectomy in Breast Cancer and Acute Toxicities in NWGH & RC

Muhammad Aqeel, Khurram Shehzad

Department of Radiation Oncology
Northwest General Hospital & Research Centre
Introduction

• One of the common methods in radiation therapy of Breast cancer is whole breast irradiation followed by tumor cavity boost (TCB) with electron. The tumor cavity boost following whole Breast Irradiation (WBI) is well-defined and there are numerous delivery methods of radiation therapy. In our institution we don’t have the facility of electron, so our study comprised of experiencing the TCB with photons. Although photon boosts have been discouraged because of normal tissue toxicity. In our study we have analyzed acute skin reactions and lung doses
Methods & Materials

- 19 Patients of post-lumpectomy unilateral breast with mean age 47 year.
- 50 Gy for the whole breast followed by TCB irradiation of 10 Gy.
- Mean volume of breast and cavity were 1000 cm³ and 60 cm³ respectively.
- All of these patients were observed for skin toxicity weekly during radiotherapy as per RTOG skin toxicity criteria.
- Lung doses were also monitored in total plan.
Results

- V20 for lung was 10%
- 75% patients had grade-II skin reaction
- 25% patients had grade-I skin reaction.
- Mean heart dose for 60 Gy plans was 100 cGy conformality, dose homogeneity index (DHI) and Tumor cavity coverage up to 95%.

<table>
<thead>
<tr>
<th>Organ</th>
<th>Volume (cm³)</th>
<th>Min. Dose (cGy)</th>
<th>Max. Dose (cGy)</th>
<th>Mean Dose (cGy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>2273</td>
<td>0</td>
<td>6221.6</td>
<td>540</td>
</tr>
<tr>
<td>Heart</td>
<td>334</td>
<td>10.8</td>
<td>6162.6</td>
<td>176.3</td>
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</tbody>
</table>

Dose Volume Histogram
Conclusion

• In the adjuvant treatment of breast cancer therapy, whole breast radiation followed by conformal photon boost seems to be acceptable in focus of the skin toxicity, TCB dose distribution and OAR doses