ONCODAILY MEDICAL JOURNAL

abstract

Assessment of Exclusive Hypo-fractionated Post-Mastectomy Radiation in Patients with Locally Advanced Breast Cancer

Hiba Siddiqui, Atif Mansha, Qurat-ul-Ain, Asra Saeed

DOI: 10.69690/ODMJ-018-3101-6509

AMSTRO
Asia and Middle East Society of Therapeutic Radiation and Oncology
Affiliated with ASTF

abstract

Assessment of Exclusive Hypo-fractionated Post-Mastectomy Radiation in Patients with Locally Advanced Breast Cancer

Authors: Hiba Siddiqui[1], Atif Mansha[2], Qurat-ul-Ain[1], Asra Saeed[1]

Affiliation: [1]Dr. Ziauddin University Hospital
[2]DOW University of Health Sciences

DOI: 10.69690/ODMJ-018-3101-6509

Introduction: Breast cancer has a relatively low α/β ratio, estimated around 3–4 Gy. This suggests a heightened sensitivity to larger fraction sizes, thereby providing a strong radiobiological rationale for hypo-fractionation. The objective of this study is to evaluate whether a hypo-fractionated regimen of 43.5 Gy in 15 fractions (2.9 Gy/Fr) is clinically and dosimetrically equivalent to the conventional regimen of 50 Gy in 25 fractions, based on the α/β ratio of 4 Gy.

Methodology: This is a retrospective study including locally advanced breast cancer patients treated between 2022 and 2025 at our institution. Inclusion criteria were age > 18 years, diagnosed with clinically stage IIB to stage III, and underwent mastectomy followed by adjuvant radiation to the chest wall and axilla. Patients with incomplete treatment records or follow-up data were excluded from the analysis. Acute dermal toxicity and radiation-induced pneumonia were assessed with CTCAE version 6 and RTOG, respectively.

Results: A total of 45 locally advanced breast cancer patients were included in the analysis. The mean age was 55.5 years. The majority had stage II-B disease (55.5%), followed by stage III (44.4%). No skin toxicity was observed during the first week of radiotherapy (45/45, 100%). By week 2, grade 1 dermatitis developed in 25 patients (55.6%), while grade 2 dermatitis was observed in 2 patients (4.4%). Peak acute toxicity occurred during week 3, with grade 2 dermatitis reported in 32 patients (71.1%) and grade 1 dermatitis in 4 patients (8.9%). At 2 weeks post-treatment, dermatitis severity regressed, with grade 1 dermatitis persisting in 28 patients (62.2%) and grade 2 dermatitis in 17 patients (37.8%). The ipsilateral mean lung dose was 13.5 Gy (11.7–16.5), and the ipsilateral lung V20 was 28.0% (24.8–31.6%). The heart mean dose was observed to be 6.1 Gy (4.1–8.0). No radiation pneumonitis was observed during and at the 3-month post-treatment follow-up in any patient.

Conclusion: The use of the post-mastectomy radiotherapy regimen of 43.5 Gy in 15 fractions was well tolerated, with acceptable toxicity and dosimetric parameters. These findings suggest that

exclusive hypofractionation may serve as a safe and effective alternative to conventional fractionation in post-mastectomy breast cancer patients, particularly in settings where treatment efficiency and resource optimization are essential.

Conflict of interests: The authors declare no conflict of interests.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.