ONCODAILY MEDICAL JOURNAL

abstract

Dosimetric Analysis of Ultra-Hypofractionated Radiotherapy in Early-Stage Breast Cancer: Real-World Application of The Fast-Forward Protocol

Mahwish Akhter, Sehrish Abrar, Areeba Mehmood

DOI: 10.69690/ODMJ-018-3101-7162

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

abstract

Dosimetric Analysis of Ultra-Hypofractionated Radiotherapy in Early-Stage Breast Cancer: Real-World Application of The Fast-Forward Protocol

Authors: Mahwish Akhter, Sehrish Abrar, Areeba Mehmood

Affiliation: Sindh Institute of Urology and Transplant (SIUT), Karachi, Pakistan

DOI: 10.69690/ODMJ-018-3101-7162

Introduction: The FAST-Forward trial demonstrated that ultra-hypofractionated radiotherapy (26 Gy in 5 fractions over one week) is non-inferior to conventional fractionation (40 Gy in 15 fractions) for early-stage breast cancer. This approach is supported by the low α/β ratio of breast cancer, which allows safe delivery of larger doses per fraction. Implementation of this regimen offers significant benefits, including reduced treatment duration, improved patient convenience, and optimized radiotherapy resource utilization without compromising oncologic outcomes.

Methodology: Patients were recruited in accordance with the eligibility criteria of the FAST-Forward trial. Ultra-hypo fractionated radiotherapy was planned and delivered following the FAST-Forward protocol. Strict dosimetric criteria were applied to ensure treatment safety. Although 25 patients were initially evaluated, only 16 met the dosimetric criteria and were included in the final analysis. Among the included patients, six had left-sided breast cancer, while the remaining had right-sided disease, and fifteen underwent breast conserving surgery, and one underwent mastectomy. FAST-Forward dosimetric criteria included PTV V95% ≥95%, heart V7 Gy <5%, heart V1.5 Gy <30%, ipsilateral lung V8 Gy <15%, and contralateral breast V5% < 5 Gy. Nodal irradiation was excluded.

Results: All included patients met the predefined dosimetric constraints. Mean PTV V95% was 96.82%. Mean heart doses were low, with heart V7 Gy of 0.92% and heart V1.5 Gy of 9.32%. Mean ipsilateral lung V8 Gy was 13.23%, and mean contralateral breast V5% was 0.0055 Gy. The contralateral breast dose was assessed using DVH metrics. Of the nine excluded patients, six had left-sided, and three had right-sided breast cancer; exclusions were mainly due to cardiac dose constraints in left-sided cases and ipsilateral lung dose above protocol limits related to patient-specific anatomy and larger target volumes in right-sided cases.

Conclusion: This analysis highlights that, although patients may fulfill clinical eligibility as per FAST-Forward criteria. Successful implementation of

ultra-hypofractionation depends on adherence to strict dosimetric constraints.

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.