Associazione Italiana Radioterapia e Oncologia clinica
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Journal Club
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La Radiologia Medica | Original Investigation

Stereotactic boost on residual disease after external-beam irradiation in clinical stage III non-small cell lung cancer: mature results of stereotactic body radiation therapy post radiation therapy (SBRTpostRT) study

Parisi S et al. May 25, 2023
doi.org/10.1007/s11547-023-01659-w

Key Points

Purpose: *To explore the DFS, toxicity and 5-years OS of SBRT on residual disease of patients affected by a Stage IIIA or IIIB NSCLC, after a radical EBRT +/- chemotherapy.*

Method: *A prospective cohort of 23 locally advance NSCLC patients. They received a radical EBRT, with or without concurrent or sequential chemotherapy. A SBRT boost (was delivered on the residual disease within 60 days from the end of EBRT. No patient received adjuvant immunotherapy.*

Intervention:

- ***EBRT:*** *23 patients; 30x2Gy/33x2Gy*
- ***Chemotherapy :*** *13 patients; concurrent: paclitaxel 175 mg/mq d1 + carboplatin AUC 5 d2 every 21 days; sequential: gemcitabine 1250 mg/mqdd1,8 + carboplatin AUC 5 d2, every 21 days, 3–5 cycles*
- ***SBRT****: 23 patients: 12–22 Gy in 1–3 fractions*

Results: *The median follow up time was 5.35 years (range 4.16–10.16). No treatment-related mortality was observed. Radiation-related acute toxicities with a grade ≥ 2 were observed in 6/23 patients (26.1%). 4/23 (17.4%) had esophagitis with mild esophageal pain (G2). In 2/23 (8.7%) clinical radiation pneumonitis G2 was observed. Lung fibrosis was recorded in 20/23 patients, 86.95%) but resulted symptomatic in one patient only. Median DFS and OS were 27.8 (95% CI, 4.2–51.3) and 56.7 months (95%CI, 34.9–78.5), respectively. Median local PFS was 17 months (range 11.6–22.4), with a distant PFS of 18 months (range 9.6–26.4). The 5-year actuarial DFS and OS rates were 28.7% and 35.2%, respectively.*

Findings: *A SBRT boost after radical irradiation with or without systemic therapy is feasible in stage III NSCLC patients with positive data in terms of DFS and OS ar 5 years.*

Meaning: *All fit patients who have no indication to adjuvant immunotherapy with a residual disease after curative irradiation and eventual sistemic therapy, could benefit from a SBRT boost, as outcomes appear to be better than might be historically assumed.*

Radiotherapy and Oncology | Original Article

The impact of local control on widespread progression and survival in oligometastasis-directed SBRT: results from a large international database

Cao Y et al. June 27,2023
doi.org/10.1016/j.radonc.2023.109769

Key Points

Purpose: *To investigate the impact of local control (LC) on widespread progression (WSP) and overall survival (OS) in patients treated to all extracranial oligometastases (OMs) at presentation to SBRT in this retrospective review across 6 international centers*

Method: *Relationships between LC status of SBRT-directed OMs and OS and WSP (>5 new active/untreated lesions) were explored using Cox and Fine-Gray regression models, adjusting for radioresistant histology and pre-SBRT systemic therapy receipt. The association between LC and dosimetric predictors was analyzed with competing risk regression using death as a competing risk and across a wide range of simulated α/β ratios.*

Intervention: *Preoperative SRS to a median dose to 15 Gy in 1 fraction or 24 Gy in 3 fractions delivered at a median (IQR) of 2 (1-4) days before resection.*

Results: *The study recruited 404 patients with 416 resected index lesions. The 2-year cavity Local Recurrence (LR) rate was 13.7%. Systemic disease status, extent of resection, SRS fractionation, type of surgery (piecemeal vs en bloc), and primary tumor type were associated with cavity LR risk. The 2-year Meningeal Disease (MD) rate was 5.8%, with extent of resection, primary tumor type, and posterior fossa location being associated with MD risk. The 2-year any-grade Adverse Radiation Effect (ARE) rate was 7.4%, with target margin expansion greater than 1 mm and melanoma primary being associated with ARE risk. Median OS was 17.2 months (95% CI, 14.1-21.3 months), with systemic disease status, extent of resection, and primary tumor type being the strongest prognostic factors associated with OS.*

Findings: *The cavity local recurrence, meningeal disease, and adverse radiation effect rates at 2 years were 13.7%, 5.8%, and 7.4%, respectively. Several novel prognostic tumor and treatment factors after preoperative SRS were identified, including extent of resection, type of resection, fractionation, target margin expansion, and primary tumor type.*

Meaning: *The results of this cohort study suggest that preoperative SRS has a favorable risk-benefit profile. A phase 3 randomized clinical trial of preoperative vs postoperative SRS (NRG BN012) has began enrolling (NCT05438212).*

IJROBP | Clinical Investigation

Concurrent lapatinib with brain radiotherapy in HER2+ breast cancer patients with brain metastases - NRG ONCOLOGY-KROG/ RTOG 1119 phase II randomized trial

In Ah Kim et al. July 26, 2023
doi:10.1016/j.ijrobp.2023.07.0196

Key Points

Question: *Can Lapatinib plus whole brain radiotherapy (WBRT) or Stereotactic Radiosurgery (SRS) improve the intracranial complete response (CR) rate compared to either option of radiotherapy (RT) alone for patients with brain metastases from HER2–positive breast cancer?*

Method: *This a phase II study included 136 HER2+ breast cancer patients. The patients had to present ≥1 measurable, unirradiated brain metastasis. The primary endpoint was the 12-week intracranial complete response (CR) rate. The secondary endpoints included the objective response rate (ORR), the lesion-specific response, the central nervous system progression-free survival (CNS PFS), and the overall survival .*

Intervention:

- ***Experimental Group:*** *71 patients; WBRT (37.5 Gy/3 weeks) or SRS (size-based dosing) + concurrent lapatinib (1000 mg daily for 6 weeks).*
- ***Control Group:*** *65 patients; WBRT (37.5 Gy/3 weeks) or SRS (size-based dosing)*

Results: *At 12 weeks the the CR was 0% for Lapatinib + RT vs 6% for RT alone, 1-sided p=0.97. The ORR at 12 weeks was 51% for Lapatinib + RT vs. 58% for RT alone , p=0.52. CNS PFS was not significantly different between treatment arms, as well as OS.*

Findings: *No improvement in the 12-week CR rate, the 12-week ORR, the CNS PFS ,and the OS given by the addition of 6 weeks of concomitant lapatinib to WBRT/SRS.*

Meaning: *With reference to the measured outcomes, the association of Lapatinib with WBRT or SRS resulted to add no advantages in patients affected by metastases from HER2–positive breast cancer.*

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