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Abstract

Stereotactic Ablative Body Radiotherapy (SABR) for Oligometastatic Breast Cancer

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Objectives: We report on clinical outcome, disease control and toxicity in patients with oligometastatic breast cancer (OBC) treated with SABR.

Methods: Patients were treated at The Harley Street Clinic for OBC with SABR delivered by robotic radiosurgery (Accuray, Sunnyvale, CA). Toxicity and clinical outcome data were prospectively collected and the clinical appropriateness of dose escalation to potentially improve local control (LC) of intracranial targets explored. Dose-response modelling was performed using DVH Evaluator software (DiversiLabs, Huntingdon Valley, Pa, USA). Primary endpoint: LC at treatment site. Secondary end-points: Toxicity, Progression-free (PFS) and Overall Survival (OS).

Results: Between May 2009 and Jan 2017, 113 consecutive patients with OBC were treated; 40(35%) had intracranial metastases, 76(67%) had extracranial metastases, 3 patients had intra- and extracranial targets. 20 patients (18%) had received prior radiotherapy to the target site. Median age=53 yrs (range 25-80 yrs). At median follow-up of 15 months, clinical outcome data was available for 104 patients (92%). 9 were lost to follow-up (8%). PFS=48%. 19 patients have died giving a crude OS rate of 82%.Intracranial targets: 90 targets were treated, all tracked with 6D Skull. Median CTV-PTV margin=1.3 mm (range 0.5-3.75). Dose/fractionation regimes used were 15-30Gy in 1-5#, Median BED= 60Gy10 (range 19.5-87.5). Prescription dose was prescribed to the median 57% isodose. Follow up was available for 82 targets. LC was achieved in 72/82 (88%). Median BED in those that progressed locally was 50.4Gy10 vs 60Gy10 BED in those with ongoing LC. Treatment was well tolerated. G3+ acute toxicity occurred in 1 patient (seizures) and G3+ late toxicity occurred in 1 further patient (radionecrosis). Extracranial targets: 99 targets were treated; Bone(69), Lymph node(21), Liver(7), Lung(1), Adrenal(1). Median CTV-PTV margin=2mm (range 0-5.1). Dose/fractionation regimes used were 12-54Gy in 1-5#, Median BED 51.3Gy10 (range 16.8-151.2). Prescription dose was prescribed to the median 63% isodose. Follow up was available for 93 targets. 89 targets (96%) had ongoing LC. Median BED of those that progressed locally was 54Gy10 vs 55.4Gy10 BED in those with ongoing LC. Treatment was well tolerated. G3+ acute toxicity occurred in 1 patient (skin ulceration) and G3+ late toxicity occurred in 1 patient.

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Conclusions: SABR is a feasible and well-tolerated treatment for patients with OBC. LC rates in this series are good: 96% for extracranial targets, 88% for intracranial targets.

For intracranial targets, treating to ⩾BED60Gy10, equivalent to 30Gy/3#, was associated with a LC rate of 98% with an acceptable G3+ toxicity rate of 6%.

For extracranial targets, treating to ⩾BED72Gy10, equivalent to 36Gy/3# or 40Gy/5#, was associated with a LC rate of 99% with an acceptable G3+ toxicity rate of 3%.