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Purpose or Objective

To report early clinical experience about volumetric intensity modulated arc radiosurgery boost (VMAT-RCH) after 3D-conformal radiotherapy (3D-CRT) in patients with vertebral metastases

Material and Methods

Patients with vertebral metastases alone or plus < 5 visceral metastases were included in a phase I study and sequentially assigned to an established dose level of VMAT-RCH (8, 10 or 12 Gy) following 25 Gy in 10 fractions delivered to adjacent vertebrae. Herein, we report preliminary results in terms of acute toxicity (CTCAE 4.03 scale), tumor response and early local control

Results

27 lesions accounting for 24 consecutive patients (M/F: 17/7; median age: 71; range 40-85) were treated from April 2011 to April 2017. Most patients had a primary prostate (16) or breast cancer (6). Planning Target Volume was defined as the vertebral lesion + 3 mm isotropic margin. 17 patients received 8 Gy VMAT-RCH boost (total BED10: 45.7 Gy) and 7 patients received 10 Gy (total BED10: 51.3 Gy). With a median follow-up of 18 months (range 1-42), 6 (22%) patients had grade 1 acute toxicity (skin erythema: N=3, esophagitis: N=2 and nausea: N=1). Overall response rate based on CT/PET-CT was 74.1% (CI 0.95: 49.3%-89.6%) with a complete response rate of 66.7% (CI 0.95: 41.9%-84.4%). One year-actuarial local control (defined as irradiated site progression-free) was 89%

Conclusion

A VMAT-RCH boost on vertebral lesion delivered after a 25 Gy 3D-CRT to adjacent vertebrae resulted to be feasible with encouraging tumour response, local control rate and acute toxicity profile. The maximum tolerable dose has not yet been reached and the study is actually on going

EP-1696 Evaluating excellence in radiotherapy research: the UK CTRad 'Centres of Excellence' initiative

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Purpose or Objective

Establishing internationally accepted criteria for assessing the quality of multidisciplinary radiotherapy research programmes would be of value to centres,

research funders, patients and other stakeholders. To generate criteria and establish a robust process by which individual centres could be assessed, the UK Clinical and Translational Radiotherapy Research Working Group (CTRAd), part of the UK National Cancer Research Institute, undertook a 'Centres of Excellence in Academic Radiation Oncology' exercise.

Material and Methods

Five domains were identified: support from Higher Education Institute (HEI), clinical trials (CT), technical radiotherapy (TRT), radiation biology (RB) and radiation-related imaging (RRI). Criteria for Internationally Competitive (IC), Nationally Competitive (NC) and Minimum Requirement (MR) status were established for each domain and included infrastructure, clinical trial and publication indices. Criteria were refined following a pilot exercise involving 9 UK centres. For 'Centre of Excellence' status, centres were required to meet all IC criteria in HEI and at least two research domains, and all NC criteria in other domains. 'Emerging Centres of Excellence' were required to meet all NC criteria in HEI and 3 research domains, and at least half of IC criteria in at least 2 of these domains.

In 2015, 19 UK centres participated in the full exercise, submitting self-assessments for each domain for two periods (2005-2009 and 2010-2015) and providing supporting evidence. Following initial review by a multidisciplinary panel, centres were asked to submit additional or missing evidence. Final submissions were reviewed by the panel, which included two international experts (Philippe Lambin and Uulke van der Heide). Individual centres were given full details of their own outcome as well as anonymised results of the overall exercise.

Results

Three centres achieved 'Centre of Excellence' status in 2015 and a further four were defined as 'Emerging Centres of Excellence'. Considering all 5 domains across all 19 centres, between 2009 and 2015 there was improvement in 52 of 95 measures and deterioration in only 3. In 2015, 7 centres met IC criteria for HEI compared with 2 in 2009; 5 met IC criteria for CT (2 in 2009); 4 met IC criteria for RB (2 in 2009); and 2 met IC criteria for TRT and RRI (0 in 2009).

Conclusion

Defining and measuring excellence in multidisciplinary radiotherapy research programmes is feasible and is supported by the majority of radiotherapy centres and stakeholders. The domains and criteria defined in the UK CTRAd exercise provide a useful starting point for future initiatives and a benchmarking exercise with two major centres in the Netherlands is underway. For future iterations we are working to modify criteria to reduce reliance on publication impact factors and research staffing levels and to develop robust parameters relating to clinical service quality and collaboration.

EP-1697 An Assessment of a Radiation Oncology Resident Study Program Using the Logic Model of Program Theory

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Purpose or Objective

Radiation oncology residency training requires significant didactic instruction in clinical radiation oncology, radiology, medical physics, and research principles. Our study utilized logic model for program evaluation to