Guidelines on radiation therapy for breast cancer during the COVID-19 pandemic

The following suggested guidance is based on contributions from international breast cancer experts who have worked together to produce a rapid publication in *Clinical Oncology* (in press): breast cancer clinical oncology consultants contributing on the RCR Clinical Oncology COVID forum webpage using a member log in; and advice from NHS England.

The following guidelines suggest that the risks and benefits are considered and discussed with patients to facilitate shared decision-making. Centres may need/choose to delay RT depending on local circumstances with reference to expert consensus following previous natural disasters[1] and also amend current systemic therapy pathways, but this is outside the remit of these guidelines.

1. **Omit RT for patients 65 years and over (or younger with relevant co-morbidities) with invasive breast cancer that are up to 30mm with clear margins, grade 1-2, oestrogen receptor (ER) positive, human epidermal growth factor receptor 2 (HER2) negative and node negative who are planned for treatment with endocrine therapy[2].**

   Trials investigating safe omission of RT can be considered if they do not impact on patients visits and resources are available. Centres may also consider omitting RT for ductal carcinoma in-situ (DCIS) depending on individual risk and benefit.

2. **Deliver RT in 5 fractions only for all patients requiring RT with node negative tumours that do not require a boost. Options include 28-30Gy in once weekly fractions over 5 weeks or 26Gy in 5 daily fractions over 1 week as per the FAST and FAST Forward trials respectively[3-5].**

   N.B. 5-year local relapse data are not yet available for FAST Forward but imminent publication is anticipated. In the meantime, 26Gy in 5 fractions has already been demonstrated to be equivalent with 40 Gy in 15 fractions with respect to 3-year normal tissue outcome. Furthermore, local control is likely to be within acceptable limits given the low local relapse rates in this patient group generally[6]. The FAST Forward protocol and RT planning packs (including nodal subgroup) are available at:
   https://www.icr.ac.uk/our-research/centres-and-collaborations/centres-at-the-icr/clinical-trials-and-statistics-unit/clinical-trials/fast_forward_page/

   Partial breast RT using 28.5-6Gy in 5 fractions over 1-2 weeks[7-8] can also be considered for selected patients if resources are available for increased complexity and/or to avoid deep inspiration breath hold (DIBH) for left-sided tumours in the upper half of the breast (if DIBH impacts on treatment time). N.B. IMPORT Low[6] has the same fractionation schedule in the control group as FAST Forward so 26Gy in 5 fractions over 1 week could also be proposed in the partial breast irradiation setting.

   If RT is required for DCIS then 5 fractions can be considered as above. DCIS was not included in the FAST Forward study, however it would be reasonable to consider 5 fractions of RT as a pragmatic solution during the COVID-19 pandemic in much the same way that 40Gy in 15 fractions was adopted as standard of care for DCIS despite not being included within the START trial.

3. **Boost RT should be omitted to reduce fractions and/or complexity in the vast majority of patients unless they 40 years old and under, or over 40 years with significant risk factors for local relapse[9].**

   Boost RT has no proven survival advantage so risks and benefits during the COVID-19 pandemic need to be re-evaluated. An example of a significant risk factor is the presence of involved resection margins where further surgery is not possible. Any boost should be either simultaneous and integrated to minimise fractions if resource permits or hypofractionated sequential, e.g. 12Gy in 4 fraction over 4 days.

4. **Nodal RT can be omitted in post-menopausal women requiring whole breast RT following sentinel lymph node biopsy and primary surgery for T1, ER positive, HER2 negative G1-2 tumours with 1-2 macrometastases[10].**

   This approach gives this group of patients the option of 5 fractions of RT and may also reduce complexity of planning/treatment.

5. **Consider delivering RT in 26Gy 5 fractions for patients requiring nodal radiotherapy who would have fulfilled the eligibility for the FAST Forward nodal subgroup study (not IMC irradiation) and where nodal RT is still considered necessary during the COVID-19 pandemic**

   Some UK Radiotherapy centres have taken the view to extend the use of 26Gy in 5F for patients who require nodal RT. This is based on the FAST Forward nodal subgroup study, which has completed recruitment, but is yet to report. It can be considered when the risk of attending hospital for 15 fractions of radiotherapy currently outweighs the risk of receiving the same treatment as an ethically approved but unreported UK trial during the COVID-19 pandemic for some patients.

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