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POSITION STATEMENT

The efficacy of hypofractionated radiotherapy to treat cancer

Standard radiation therapy delivers a dose of 2 Gy to the tumour at each fraction, 5 times a week during several weeks. This traditional fractionation regimen is aimed at maximising the local control of the tumour while minimising the toxicity to other healthy tissues based on radiobiology models. However, such fractionation regimen might not be beneficial for all tumours, in which case the dose per fraction can be increased without lowering the quality of the treatment[1].

Hypofractionated radiotherapy[2] is increasingly being used to treat cancer. For this radiation treatment, the total dose of radiation is divided into large doses and treatments are given once a day or less often. Hypofractionated radiotherapy is given over a shorter period of time than standard radiation therapy. This makes it more convenient for the patient as there are fewer appointments to attend. Also, there is less demand on staff and equipment time, making it a very resource efficient treatment while providing the same outcome for the patient.

However, there are different levels of hypofractionation depending on the type of cancer. For prostate cancer for example, standard radiotherapy is given daily for 37 fractions. However, a recent trial[3] on Conventional or Hypofractionated High dose intensity modulated radiotherapy for Prostate cancer (CHHiP), demonstrated that this could be reduced to 20 daily fractions. This is moderate hypofractionation.

Research is ongoing to work out how low the fractions can go, but still be effective and safe. There is an on-going trial Prostate Advances in Comparative Evidence (PACE)[4], which is working out if this can be safely reduced to 5 fractions for certain types of prostate cancer. This is profound hypofractionation. Such External Beam Radiotherapy (EBRT) treatments that accurately deliver a high irradiation dose in one or few treatment fractions are referred as SRS (Stereotactic Radiosurgery) when treating cranial targets, and as SBRT (Stereotactic Body Radiotherapy) or SABR (Stereotactic Ablative Body Radiotherapy) when treating extracranial target[5].

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[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4465964/
[2] https://www.cancer.gov/publications/dictionaries/cancer-terms?cdrid=558902
[3] http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(16)30102-4/abstract
[4] https://clinicaltrials.gov/ct2/show/NCT01584258
[5] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3889283/pdf/66_2013_Article_450.pdf

Currently, SABR is only available at some specialised centres, often involving long journeys for the patient. The BIR would like high quality and safe SABR treatment to be available at a wider range of centres.

However, there is clinical evidence to show that SABR is not suitable for all types of tumour and may in fact increase the treatment toxicity in some cases. The BIR would like to see stronger guidance on which treatment to use, based on evidence to determine which tumours benefit from hypofractionated treatments. The Commissioning Through Evaluation (CTE) programme is currently investigating the use of hypofractionated treatments for oligometastatic disease, primary liver tumours and re-irradiation of cancers in the pelvis and spine[6].

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[6] https://www.england.nhs.uk/commissioning/spec-services/npc-crg/comm-eval/