NHS England

Clinical Commissioning Policy Proposition:

The use of Stereotactic Ablative Radiotherapy (SABR) in the treatment of Prostate Cancer

Reference: NHS England B01X14

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1 Executive Summary

Policy Statement

NHS England proposes to not routinely commission Stereotactic Ablative Radiotherapy in the treatment of prostate cancer.

In creating this policy proposition NHS England has reviewed a number of clinical conditions and the options for treatment. It has considered the place of this treatment in current clinical practice, whether scientific research has shown the treatment to be of benefit to patients, (including how any benefit is balanced against possible risks) and whether its use represents the best use of NHS resources.

Equality Statement

NHS England has a duty to have regard to the need to reduce health inequalities in access to health services and health outcomes achieved as enshrined in the Health and Social Care Act 2012. NHS England is committed to fulfilling this duty as to equality of access and to avoiding unlawful discrimination on the grounds of age, gender, disability (including learning disability), gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, gender or sexual orientation. In carrying out its functions, NHS England will have due regard to the different needs of protected equality groups, in line with the Equality Act 2010. This document is compliant with the NHS Constitution and the Human Rights Act 1998. This applies to all activities for which NHS England is responsible, including policy development, review and implementation.

Plain Language Summary

The policy proposition aims to confirm NHS England's commissioning approach to the use of Stereotactic Ablative Radiotherapy (SABR) in the treatment of prostate cancer.

Stereotactic body radiotherapy refers to the use of highly targeted radiation therapy to structures outside the brain and skull.

2 Introduction

This document describes the evidence that has been considered by NHS England in formulating a proposal to not routinely commission Stereotactic Ablative Radiotherapy in the treatment of prostate cancer.

For the purpose of consultation NHS England invites views on the evidence and other information that has been taken into account as described in this policy proposition.

A final decision as to whether NHS England will continue to routinely commission SABR in the treatment of prostate cancer is planned to be made by NHS England by May 2016 following a recommendation from the Clinical Priorities Advisory Group.

3 Proposed Intervention and Clinical Indication

For the purpose of this policy SABR refers to hypo-fractionated treatment of not more than 8 fractions.

Commissioning arrangements for fractionated treatments utilising a larger number of fractions are beyond the remit of this policy.

This policy concerns the use of SABR in the treatment of prostate cancer.

4 Definitions

Stereotactic body radiotherapy (SABR) refers to the precise irradiation of an image defined extra cranial lesion and is associated with the use of a high radiation dose delivered in a small number of fractions. The technique requires specialist positioning equipment and imaging to confirm correct targeting. It allows sparing of the surrounding healthy normal tissues.

Stereotactic radiation therapy has been used for benign and malignant lesions in the brain for many years. Stereotactic radiosurgery (SRS) is a single fraction of stereotactic directed radiation of a limited volume in the brain or other structure of the skull base, whereas stereotactic radiotherapy (SRT) has been defined as a fractionated stereotactic directed radiation of a limited volume in the brain. Stereotactic Ablative radiotherapy (SABR) refers to the use of stereotactically directed radiation therapy to structures outside the brain and skull.

Extra-cranial malignant disease

Extra-cranial malignant disease is a catch all term for all malignancies excluding cerebral metastases, which is the subject of a separate policy.

Prostate Cancer

Prostate cancer is the commonest cancer among British males. It affects about one in twelve men over a lifetime, giving rise each year to about 30,000 new cases and 10,000 deaths. Prostate cancer is particularly common among older men; two-thirds of those who die from prostate cancer are over the age of 75 years. Prostate cancer may be diagnosed when men are investigated for benign prostate disease, also a common condition in elderly men.

The disease varies widely in its clinical course, tending to be more aggressive in younger men. Sometimes prostate cancers grow so slowly that they pose no threat to health or longevity – autopsies in men over eighty years of age show that most have malignant tissue in their prostate glands, but they died with prostate cancer, not of it. Survival rates are better than for many other cancers.

External beam radiotherapy is widely used to treat prostate cancer. Compared with external beam radiotherapy, SABR offers the potential advantages of delivering a higher dose to the tumour with less collateral damage to normal tissue, and of requiring fewer fractions.

5 Aims and Objectives

This policy proposition considered:

Whether there is sufficient robust evidence of clinical and cost- effectiveness and safety to support the use of SABR in the treatment of patients with prostate cancer.

The objectives were:

To identify whether the evidence is sufficiently robust and what criteria should be used to identify suitable patients to be considered for SABR.

6 Epidemiology and Needs Assessment

For prostate cancer, a systematic review Tan et al (2014), was identified:

- The authors found no controlled trials of the effectiveness of SABR for prostate cancer. 14 uncontrolled studies which reported a total of 1472 participants were identified and included. Biochemical progression-free survival was more than 81% in all the studies, after median follow-up of 11 to 60 months.
- The systematic review reported that the commonest form of acute toxicity was urinary, with grade 1 (least severe) adverse effects reported in 20% to 74% of participants. Grade 1 acute rectal toxicity occurred in 3% to 75% of participants.
- The review included four studies reporting quality of life, three uncontrolled and one controlled. Of the three which were uncontrolled, two reported that quality of life declined in the first few months after SABR but then returned to baseline levels (King et al 2013, Friedland et al 2009), and one reported no overall changes (Chen et al 2012).
- The fourth study (Katz et al 2012) compared radical prostatectomy with

SABR. It reported that the men who had SABR had smaller and briefer declines in quality of life related to urinary symptoms, and avoided the loss of sexual quality of life that followed prostatectomy. There was a larger and more prolonged decline in bowel quality of life after SABR than after surgery. This study is unreliable because of marked confounding between the two groups.

- A controlled study (Katz et al 2014) reporting oncological outcomes published since the search date of the systematic review, was also identified. It compared SABR with or without external beam radiotherapy in men with high-risk non-metastatic prostate carcinoma, and reported that five-year biochemical disease-free survival was 68% overall, which was similar in the two groups. This study may suggest that SABR alone is as effective SABR plus external beam radiotherapy, but needs to be interpreted with caution due to methodological caveats including the non-randomisation of the study, and lack of power calculation to determine clinically significant result threshold.
- A controlled study Yu et al (2014) reported that SABR was associated with more genito-urinary and gastro intestinal adverse events than IMRT

Three studies relating to cost effectiveness of SABR for prostate cancer were identified:

- Hodges et al (2012) used Markov modelling to estimate the cost effectiveness of SABR and IMRT for organ-confined prostate cancer in a man of 70 years. The authors assumed the two treatments were equally efficacious in terms of progression-free survival, and produced equal quality of life; the latter assumption is not compatible with the subsequent findings of Yu et al (2014).[Costs were based on the US health care system in 2010. IMRT cost $29,530 (£19.400) and SABR $14,315 (£9400).

- It followed from these assumptions that the lower cost of IMRT yielded a lower cost per quality-adjusted life-year (QALY) (IMRT $35,431 (£23,300) versus $22,152 (£14,600) for SABR). Hodges et al varied their assumptions using sensitivity analysis, but SABR had an incremental cost effectiveness ratio of less than $50,000 in 66% of iterations.

- Sher et al's (2014) approach was similar to that of Hodges et al (2012). They derived their estimates of treatment efficacy and toxicity from published sources; it is not clear how they reconciled disparate results. Costs were from the 2012 Medicare tariff. The base case analysis indicated that IMRT yielded slightly more QALYs than SABR, but was also more expensive, with costs per QALY of $3,400 (£2200), compared with $2600 (£1700) for robotic SABR and $1700 (£1100) for non-robotic SABR. Sensitivity analysis indicated that SABR was cost-effective under most sets of parameter assumptions.

- Parthan et al (2012) also published a similar analysis, which also included proton beam therapy. They based their assumptions about treatment efficacy on uncontrolled studies, which they meta-analysed without assessing heterogeneity. Costs were based on the US Medicare tariff.

- Like Hodges et al (2012), Parthan et al (2012) concluded that SABR was the

most cost effective treatment, with a cost per QALY of $3100 (£2000). IMRT and proton beam therapy had incremental costs per QALY versus SABR of $8195 (£5400) and $46,560 (£30,600). Sensitivity analysis made little difference, with SABR more cost-effective than IMRT and proton beam therapy in 75% and 94% of simulations respectively.

These studies relating to cost-effectiveness reach similar conclusions: that the lower costs of SABR (related to the lower number of fractions) lead to it to have better apparent cost effectiveness that IMRT. However it should be noted that:

- All studies were based on US healthcare costs, which differ from those in the NHS
- It is unclear how extra capital costs of SABR equipment has been modeled in these studies
- Data on efficacy and toxicity are derived from uncontrolled non-randomised studies
- Analyses only compare SABR with other forms of radiotherapy, and do not account for efficacy of other treatments for example hormone treatment and active monitoring.

7. Evidence Base

The evidence regarding the effectiveness and safety of SABR for treating patients with prostate cancer has been used as a basis for this commissioning policy. The evidence base indicates that there is insufficient evidence to routinely commission SABR for this cohort of patients.

This policy will replace the current published clinical commissioning policy statement on this topic.

NHS England commissioned an evidence review (Solutions for Public Health, 2015) in relation to the clinical indication outlined in this policy.

8. Documents That Have Informed This Policy Proposition

National Radiotherapy Implementation Group Report. Stereotactic Body Radiotherapy Guidelines for Commissioners, Providers and Clinicians in England 2011. Available from: http://www.ncat.nhs.uk/sites/default/files/NRIG%20SBRT%20Final%20June%2011.p df. Accessed September 2012.

National Radiotherapy Implementation Group Report. Stereotactic Body Radiotherapy Clinical review of the evidence for SBRT 2011.

Yorkshire and the Humber commissioning policy Stereotactic radiosurgery/radiotherapy.

9 Date of Review

This document will lapse upon publication by NHS England of a clinical commissioning policy for the proposed intervention that confirms whether it is routinely or non-routinely commissioned (expected by May 2016).

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