

- Title** Review of the indications of stereotactic body radiation therapy (SBRT) in patients with primary tumours and oligometastases
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Aim

To undertake a systematic review of the literature containing published reports of treatment with stereotactic body radiation therapy (SBRT), and provide a general overview of SBRT's current status in terms of efficacy, safety and cost-effectiveness.

Data-sources: Leading biomedical databases specialised in systematic reviews, such as Health Technology Assessment, Database of Abstracts of Reviews of Effectiveness, NHS Economic Evaluation Database and Cochrane Library Plus, as well as general databases, such as Medline, Embase and ISI Web of Knowledge.

Conclusions and results

SBRT would appear to be widely used for treatment of a variety of types of cancer. Comparative studies are needed to provide evidence to show that the theoretical advantages of SBRT versus other treatments are to be seen in the clinical setting.

Of the over 1500 abstracts yielded by the search, 20 were included; these were made up of systematic reviews and primary prospective or retrospective studies. The NHS review that served as the starting point for this paper addressed the following sites, i.e., prostate, pancreas, liver (primary tumour and metastasis), kidney, spine and lung (primary tumour and metastasis); the studies in the update focused mainly on the lung and spine; and three other reviews analysed different tumour localisations.

Reported outcomes included tumour control, toxicity and overall survival, among other things. Compared to conventional RT or surgery, use of SBRT was found to be favourable by most of the studies, depending on the site. The most frequent adverse events were pain, asthenia, nausea, haemorrhage and diarrhoea, all of which disappeared across follow-up.

Recommendations

Currently, the use of SBRT can only be recommended in stage I non-small-cell lung tumours, among patients with contraindication of surgery and isolated pulmonary oligometastasis. For the remaining sites, this technique can only be recommended in protocols of clinical trials or in

those cases where there is no other alternative that has shown greater clinical efficacy.

Methods

The systematic review conducted by the National Health Service (NHS) was updated until 7 April 2013 in the above-mentioned databases. The following were included: any clinical study that had used a comparison group undergoing another treatment, whether surgery or radiotherapy, that had included more than 10 patients with extracranial tumours, and that had been published in English, French, Italian, Portuguese or Spanish; and any other study that had reported different results or an enhancement in safety, even though the level of evidence might be lower.

Variables such as tumour type, study size and type, comparative treatments, follow-up time and type of radiation were summarised, as were outcome variables such as tumour control, survival, toxicity and adverse effects.

Further research/reviews required

High quality comparative studies (preferably randomized controlled trials) are recommended to provide additional evidence on the benefits of SBRT in comparison to conventional RT for all localizations, except for lung.

Written by

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