

Stereotactic Ablative Radiotherapy for the Treatment of Oligometastatic Cancer: A Clinical Review as Part of a Health Technology Assessment

Key Messages

- The CADTH Clinical Review evaluated the evidence on the clinical effectiveness and safety of stereotactic ablative radiotherapy (or SABR) with or without standard of care (SOC) for patients with oligometastatic cancer. It found:
 - SABR in addition to SOC (compared to SOC alone) may offer a benefit in the overall survival, and progression-free survival, of oligometastatic cancer.
 - SABR alone compared to SOC may or may not offer a benefit in overall survival and progression-free survival (the findings were mixed and inconclusive).
 - There were insufficient adverse events-related data at the present time to draw conclusions regarding the safety of SABR relative to SOC alternatives.
- The CADTH Clinical Review will be updated every 3 months to ensure that the findings remain up to date as new evidence emerges.
- Additionally, CADTH is currently undertaking an Environmental Scan of implementation considerations for SABR that will further support decision-making.

Context

Oligometastatic cancer is cancer with a limited number of metastases. It represents an intermediate state between cancer confined to a single location in the body and cancer that has metastasized — or spread — more widely. The recognition of oligometastatic cancer as a distinct state may represent a paradigm shift in the treatment of cancer. While metastasized cancer had been previously thought to be incurable, the treatment

intent could be curative if a patient has a limited number of metastases that could be individually resected and/or ablated.

There are multiple treatment modalities that may be used for patients with oligometastatic cancer. The choice of treatment depends on factors such as the type of cancer, the location, and the ease of access of the metastatic tumours. Examples of treatment options include surgery, conventional radiotherapy, and various types of systemic therapy. An additional treatment option, for which there is growing interest, is stereotactic ablative radiotherapy, or SABR.

Technology

SABR is a type of radiation therapy that precisely delivers a high dose of radiation to ablate tumours at specific sites, while minimizing the radiation dose to surrounding normal tissues. SABR holds promise because of its potential to treat metastatic tumours that would be impossible to remove surgically. This, in turn, may offer a potential cure for certain types of oligometastatic cancer. (And, if not a cure, it might offer prolonged survival or, in more severe cases, palliation and symptom relief for metastatic tumours causing pain or other complications.) SABR may also be considered in patients for whom surgery is also an option because of the fact that it is less invasive and has a shorter recovery time. SABR may be used independently or alongside other treatment options in the management of oligometastatic cancer.

Issue

While interest in the use of SABR for oligometastatic cancer is high, there remain key questions. What is the clinical effectiveness and safety of SABR for patients with oligometastatic cancer? What would form appropriate patient selection criteria and what would be the optimal dose or regimen? What are key implementation considerations? The purpose of this CADTH Health Technology Assessment (HTA) was to address these questions, starting with a review of the clinical evidence, which is presented here.

Methods

CADTH conducted a systematic review of primary studies comparing the clinical effectiveness and safety of SABR with or without SOC to SOC alone for patients with oligometastatic cancer. Outcomes identified as most important by input from patients and clinical experts were overall survival, progression-free survival, and adverse events. Additional outcomes of interest included freedom from progression, health-related quality of life, lesion control, and systemic therapy use after treatment.

Because the evidence on SABR for oligometastatic cancer treatment is rapidly evolving, CADTH decided on a “living systematic review” format for the Clinical Review. This means that its status will be updated every 3 months to ensure that the findings reflect the latest up-to-date evidence on the topic.

Results

A total of 3 randomized controlled trials and 6 non-randomized studies were identified. The findings suggested that there may be overall survival and progression-free survival benefits associated with SABR plus SOC compared to SOC alone. However, the findings from the studies comparing SABR alone to SOC were mixed and deemed inconclusive. As for adverse events, it is unclear whether SABR with or without SOC is more or less harmful than SOC alone. To inform patient selection criteria, future research on the effectiveness of SABR in patients with different characteristics would help clarify who might benefit most from this treatment. Evidence on the optimal regimen or dose of SABR for the treatment of oligometastases is also needed.

Additional studies are expected to be identified during the living systematic review phase of this project. Finally, this Clinical Review represents 1 component among many that decision-makers will consider when deciding on the expanded use of SABR in Canada. CADTH is currently undertaking an Environmental Scan of implementation considerations that will contribute to this HTA to further support decision-making.

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CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

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