CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Chest Immobilization and Positioning Devices for Patients Receiving Radiotherapy Treatment: Clinical and Cost-Effectiveness and Guidelines
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Acknowledgments:

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.
Research Questions

1. What is the clinical effectiveness of chest immobilization and positioning devices for patients receiving radiotherapy treatment?

2. What is the cost-effectiveness of chest immobilization and positioning devices for patients receiving radiotherapy treatment?

3. What are the evidence-based guidelines regarding the use of chest immobilization and positioning devices for patients receiving radiotherapy treatment?

Key Findings

Two randomized controlled trials and four non-randomized studies were identified regarding the clinical effectiveness of chest immobilization and positioning devices for patients receiving radiotherapy treatment. No economic evaluations or evidence-based guidelines were identified.

Methods

A limited literature search was conducted on key resources including PubMed, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD), Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2013 and November 13, 2018. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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| **Comparator** | Q1-2: Any other chest immobilization device  
Q3: No comparator |
| **Outcomes** | Q1: Clinical effectiveness (e.g., accuracy of treatment, safety, quality of life [patient comfort], ease of use)  
Q2: Cost-effectiveness  
Q3: Guidelines |
| **Study Designs** | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines |
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines.

Two randomized controlled trials and four non-randomized studies were identified regarding the clinical effectiveness of chest immobilization and positioning devices for patients receiving radiotherapy treatment. No relevant health technology assessments, systematic reviews, economic evaluations, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

Two randomized controlled trials\(^1,2\) and four non-randomized studies\(^3,6\) were identified regarding the clinical effectiveness of chest immobilization and positioning devices for patients receiving radiotherapy treatment.

The authors of one randomized controlled trial compared chest jigs or vacuum bags to no immobilisation and concluded that there were no benefits gained on set-up errors, local control, and overall survival with immobilisation.\(^1\)

A second randomized controlled trial reported on three immobilisation devices (Q fix arm shuttle, BodyFiX without wrap, and BodyFiX with wrap) and the authors observed that BodyFiX without wrap was favoured for its clinical accuracy, efficiency in set up and set down time, in addition to being preferred by staff and being acceptable to patients.\(^2\) This contrasts with a non-randomised study comparing full-length BodyFiX immobilisation to a thermoplastic S-frame whose authors observed no difference in local control; however, initial setup was more consistent with the S-frame method.\(^5\)

The authors of a second non-randomised study concluded that adequate setup accuracy could be achieved with either the Elekta Body Frame or the Civco Body Pro-Lok if image guidance is used.\(^5\)

A third non-randomised study reported that the Body Pro-Lok system improved setup accuracy and minimised tumour movement due to respirations compared to using simple vacuum cushion immobilisation.\(^4\) This is in agreement with another non-randomised study that measured the accuracy of patient immobilisation using vacuum couch with low pressure foil in comparison with abdominal compression (technique not further described). The authors observed that the latter was favoured.\(^3\)

No relevant, economic evaluations or evidence-based guidelines were identified; therefore, no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.
Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials


Non-Randomized Studies


Economic Evaluations
No literature identified.

Guidelines and Recommendations
No literature identified.
Appendix — Further Information

Non-Randomized Studies

Alternative Population – Treatment Location Undefined


Alternate Population – Alternative Intervention Sites


Intervention Undefined


Alternative Intervention – Full Body Immobilization Device


Alternative Outcome


Clinical Framework Study

No Comparator


Qualitative Studies


Clinical Practice Guidelines

Methods Not Systematic


Unspecified Methods


Draft Guidance Document


Review Articles


Additional References