TITLE: Radiotherapy for Cancer Patients with Cardiac Implantable Electronic Devices: Guidelines

DATE: 25 April 2016

RESEARCH QUESTIONS

1. What are the evidence-based guidelines regarding screening and identification of cancer patients with cardiac implantable electronic devices who require radiotherapy?

2. What are the evidence-based guidelines regarding the use of radiotherapy for cancer patients with cardiac implantable electronic devices?

3. What are the evidence-based guidelines regarding the post-procedure monitoring and management of cancer patients with cardiac implantable electronic devices who have received radiotherapy?

KEY FINDINGS

Three evidence-based guidelines regarding the use of radiotherapy for cancer patients with cardiac implantable electronic devices 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) databases, ECRI, Canadian and major international health technology agencies, as well as a focused Internet search. Filters were applied to limit the retrieval to health technology assessments, systematic reviews and meta-analyses, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2011 and April 14, 2016. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

SELECTION CRITERIA

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

<table>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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<tbody>
<tr>
<td><strong>Population</strong></td>
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<tr>
<td>Cancer patients (of any age) who have a cardiac implantable electronic device (CIED) (e.g., pacemaker [PPM], implantable cardioverter defibrillator [ICD], or cardiac resynchronization therapy [CRT] devices)</td>
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<tr>
<td><strong>Intervention</strong></td>
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<td>Radiotherapy</td>
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<td><strong>Comparator</strong></td>
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<tr>
<td>No comparator required</td>
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<td><strong>Outcomes</strong></td>
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<tr>
<td>Evidence-based guidelines regarding:</td>
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<tr>
<td>Q1: Screening and identification of patients</td>
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<td>Q2: Use of radiotherapy (e.g., appropriate dose, duration of treatment)</td>
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<tr>
<td>Q3: Post-procedure monitoring and management</td>
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<td><strong>Study Designs</strong></td>
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<tr>
<td>Evidence-based guidelines</td>
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</table>

RESULTS

Three evidence-based guidelines regarding the use of radiotherapy for cancer patients with cardiac implantable electronic devices were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The recommendations indicate that radiotherapy can safely be used for patients with cardiac implantable electronic devices (CIEDs) with a few considerations. Radiotherapy can cause damage to CIEDs if the devices are too close to the field of radiation; therefore, if CIEDs are too close to the focus of radiation, they should be covered with a lead shield or surgically relocated. Patients with CIEDs receiving radiotherapy should be categorized according to their risk of device failure based on the radiation dose received by their device. The categories of risk are: low (less than two grays [Gy]), medium (two to 10 Gy), and high (greater than 10 Gy).
REFERENCES SUMMARIZED

Guidelines and Recommendations


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APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-analyses


Clinical Practice Guidelines – Methodology Not Specified

See: Radiotherapy, page 7


See: 3.9.4 Therapeutic Radiation, page 1121

Additional References
