Regional Chemotherapy for the Treatment of Breast Cancer: Clinical and Cost-Effectiveness and Guidelines
Authors: Casey Gray, Kaitryn Campbell


Acknowledgments:

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners’ own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein are those of CADTH and do not necessarily represent the views of Canada’s federal, provincial, or territorial governments or any third party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user’s own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian Copyright Act and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

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 regional chemotherapy for adults with any type of breast cancer of any stage?

2. What is the cost-effectiveness of regional chemotherapy for adults with any type of breast cancer of any stage?

3. What are the evidence-based guidelines associated with the use of regional chemotherapy for the treatment of adults with any type of breast cancer of any stage?

Key Findings

One randomized controlled trial, 10 non-randomized studies, and one evidence-based guideline were identified regarding the clinical effectiveness of regional chemotherapy for adults with any type of breast cancer of any stage. No health technology assessments, systematic reviews, or economic evaluations 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, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to randomized controlled trials, non-randomized studies, health technology assessments, systematic reviews, meta-analyses, economic studies, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English or German language documents published between Jan 1, 2013 and Sep 10, 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.
Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (male or female) with any type of breast cancer of any stage (Stages I to IV); including primary breast cancer and breast cancer that has metastasized to remote organs e.g., but not limited to, liver, lung, bone, brain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional chemotherapy (also termed local or intra-arterial chemotherapy - any compound or strategy), including, but not limited, hepatic artery infusion (HAI) and trans-arterial chemoembolization (TACE)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1-2: IV or oral systemic therapy (e.g., chemotherapy, targeted therapy, biologics [immunotherapy], hormonal therapy); Surgical resection; Radiation therapy; Placebo/sham procedure</td>
</tr>
<tr>
<td>Q3: No comparator</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Clinical effectiveness (e.g., but not limited to, tumour response rate, time to progression, progression rate, survival rate [progression-free and overall], quality of life and safety (e.g., toxicity, adverse events, discontinuation [both of the study and stopping the treatment])</td>
</tr>
<tr>
<td>Q2: Cost-effectiveness (e.g., cost per QALY)</td>
</tr>
<tr>
<td>Q3: Guidelines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines</td>
</tr>
</tbody>
</table>

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.

One randomized controlled trial, 10 non-randomized studies, and one evidence-based guideline were identified regarding the clinical effectiveness of regional chemotherapy for adults with any type of breast cancer of any stage. No health technology assessments, systematic reviews, or economic evaluations were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

Non-Randomized Studies


PubMed: PM29715141


PubMed: PM29434896


PubMed: PM28728935


PubMed: PM27646519


PubMed: PM28646261


PubMed: PM27268925


PubMed: PM24055389


PubMed: PM24634931


PubMed: PM24649239

Economic Evaluations

No literature identified.

Guidelines and Recommendations

Appendix — Further Information

Non-Randomized Studies

Mixed Intervention


PubMed: PM28927032

Mixed Population


PubMed: PM30182147


PubMed: PM28634727


PubMed: 28848701


PubMed: 26416053

Case Studies


PubMed: PM29487726

Review Articles
