Cabergoline or Quinagolide versus Bromocriptine for Hyperprolactinemia with or without Prolactinoma: Clinical Effectiveness, Cost-Effectiveness, and Guidelines
Authors: Yan Li, Lory Picheca


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 do not necessarily reflect the views of Health Canada, Canada’s provincial or territorial governments, other CADTH funders, 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.

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

Questions or requests for information about this report can be directed to requests@cadth.ca
Research Questions

1. What is the clinical effectiveness of cabergoline versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma?

2. What is the cost-effectiveness of cabergoline versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma?

3. What is the clinical effectiveness of quinagolide versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma?

4. What is the cost-effectiveness of quinagolide versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma?

5. What are the evidence-based guidelines regarding medication therapy for patients with hyperprolactinemia with or without prolactinoma?

Key Findings

Four systematic reviews (three with meta-analyses), one randomized controlled trial, and five non-randomized studies were identified regarding the clinical effectiveness of cabergoline versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma. One evidence-based guideline was identified regarding medication therapy for patients with hyperprolactinemia.

Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE ALL via Ovid, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were Cabergoline or Quinagolide and Hyperprolactinemia. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses, randomized controlled trials, controlled clinical trials, or any other type of clinical trial, economic studies and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and September 11, 2019. 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>
<th>Patients of all ages diagnosed with hyperprolactinemia, with or without prolactinoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>Q1-2: Cabergoline</td>
</tr>
<tr>
<td></td>
<td>Q3-4: Quinagolide [dopamine agonist for hyperprolactinemia with or without prolactinoma]</td>
</tr>
<tr>
<td></td>
<td>Q5: Any medication therapy</td>
</tr>
<tr>
<td>Comparator</td>
<td>Q1-4: Bromocriptine</td>
</tr>
<tr>
<td></td>
<td>Q5: No comparators</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Q1&amp;3: Clinical effectiveness (e.g., serum prolactin level, amenorrhea/oligomenorrhea in women, galactorrhea, pregnancy, gonadal function, serum testosterone level, pituitary tumour mass, visual abnormalities, tumour-related headaches)</td>
</tr>
<tr>
<td></td>
<td>Q2&amp;4: Cost-effectiveness</td>
</tr>
<tr>
<td></td>
<td>Q5: Guidelines</td>
</tr>
<tr>
<td>Study Designs</td>
<td>Health technology assessment, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, and 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.

Four systematic reviews (three with meta-analyses),\(^1\)\(^-\)\(^4\) one randomized controlled trial,\(^5\) and five non-randomized studies\(^6\)\(^-\)\(^10\) were identified regarding the clinical effectiveness of cabergoline versus bromocriptine as a first-line medication therapy for patients with hyperprolactinemia with or without prolactinoma. No systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified regarding the clinical effectiveness of quinagolide versus bromocriptine. One evidence-based guideline was identified regarding medication therapy for patients with hyperprolactinemia.\(^11\) No relevant health technology assessments 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

   PubMed: PM29546691


Randomized Controlled Trials


Non-Randomized Studies


Economic Evaluations

No literature identified.

Guidelines and Recommendations

   PubMed: PM21296991
Appendix — Further Information

Systematic Reviews – Alternative Outcome


Non-Randomized Studies

No Comparator


Outcomes Not Specified


Review Articles

