TITLE: **Magnetic Resonance Imaging for Pituitary Adenoma Detection in Patients with Hyperprolactinemia: Clinical Utility, Cost-Effectiveness, and Guidelines**

DATE: 30 June 2016

RESEARCH QUESTIONS

1. What is the clinical utility of using magnetic resonance imaging (MRI) for tumour detection in patients presenting with hyperprolactinemia?

2. What is the cost-effectiveness of using MRI for tumour detection in patients presenting with hyperprolactinemia?

3. What are the evidence-based guidelines regarding appropriate indications and clinical criteria for conducting MRI screening on patients presenting with hyperprolactinemia?

4. What are the evidence-based guidelines regarding the clinical evaluation and diagnostic assessment of patients presenting with hyperprolactinemia?

KEY FINDINGS

One non-randomized study was identified regarding the clinical utility of using MRI for tumour detection in patients presenting with hyperprolactinemia. In addition, two evidence-based guidelines were identified relating to the appropriate clinical evaluation and diagnostic assessment of patients presenting with hyperprolactinemia.

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. For research questions 1-3 no methodological filters were used to limit results by study type. For research question 4 methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, 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 June 23, 2016. 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

Population	Adult patients with hyperprolactinemia
Intervention	Q1, 2 and 3: MRI Q4: Clinical evaluation and diagnostic approaches to detect pituitary adenomas
Comparator	Q1 and 2: No imaging; Alternative clinical evaluation or diagnostic procedures (including alternative diagnostic imaging modalities) Q3 and 4: No comparator
Outcomes	Q1: Rate of detection of pituitary adenomas, rate of provision of treatment Q2: Cost-effectiveness Q3 and 4: Evidence based guidelines regarding: • Appropriate clinical evaluation and diagnostic approaches following presentation with hyperprolactinemia • Appropriate indications and criteria (e.g., prolactin cut-off values) for the conduct of MRI screening in upon presentation with hyperprolactinemia
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

MRI = magnetic resonance imaging.

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 non-randomized study was identified regarding the clinical utility of using MRI for tumour detection in patients with hyperprolactinemia. In addition, two evidence-based guidelines were identified relating to the appropriate clinical evaluation and diagnostic assessment of patients presenting with hyperprolactinemia. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or economic evaluations were identified. In addition, there were no relevant evidence-based guidelines regarding appropriate indications and clinical criteria for conducting MRI screening on patients presenting with hyperprolactinemia.

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies

1. Famini P, Maya MM, Melmed S. Pituitary magnetic resonance imaging for sellar and parasellar masses: ten-year experience in 2598 patients. J Clin Endocrinol Metab [Internet]. 2011 Jun [cited 2016 Jun 30];96(6):1633-41. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3100749
PubMed: PM21470998

Economic Evaluations
No literature identified.

Guidelines and Recommendations

2. Melmed S, Casanueva FF, Hoffman AR, Kleinberg DL, Montori VM, Schlechte JA, et al. Diagnosis and treatment of hyperprolactinemia: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2011 Feb;96(2):273-88.
PubMed: PM21296991

3. Seidenwurm DJ, Wippold FJ II, Cornelius RS, Berger KL, Broderick DF, Davis PC, Douglas AC, Frey KA, Germano IM, Mechtler LL, Smirniotopoulos JG, Vogelbaum M, Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria® neuroendocrine imaging. [Internet]. Reston (VA): American College of Radiology (ACR); 2012 [cited 2016 Jun 30]. Available from: https://acsearch.acr.org/docs/69485/Narrative
See: Section "Variant 5: Hyperprolactinemia"

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