TITLE: Human Growth Hormone Treatment for Adult Growth Hormone Deficiency: Clinical Effectiveness, Safety, Cost-Effectiveness and Guidelines

DATE: 11 February 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness and safety of human growth hormone for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older?

2. What is the cost-effectiveness of human growth hormone for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older?

3. What are the evidence-based guidelines regarding the use of human growth hormone for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older?

4. What are the evidence-based guidelines regarding discontinuing human growth hormone treatment in patients with growth hormone deficiency who have attained their final adult height?

KEY FINDINGS

One systematic review and thirteen non-randomized studies were identified regarding the clinical effectiveness and safety of human growth hormone for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older. In addition, one evidence-based guideline was identified regarding discontinuing human growth hormone treatment in patients with growth hormone deficiency that have attained their final adult height.
METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2015, Issue 2), University of York Centre for Reviews and Dissemination (CRD) databases, 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, 2007 and February 5, 2015. 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>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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<tr>
<td><strong>Population</strong></td>
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<tr>
<td>Q1-Q3: Adult patients (≥ 25 years) with severe growth hormone deficiency due to pituitary destruction</td>
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<td>Q4: Patients with growth hormone deficiency</td>
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<td><strong>Intervention</strong></td>
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<td>Q1-3: Human growth hormone treatment</td>
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<td>Q4: Discontinuation of human growth hormone treatment</td>
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<td><strong>Comparator</strong></td>
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<td>Any comparator</td>
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<td><strong>Outcomes</strong></td>
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<tr>
<td>Q1: Clinical effectiveness and safety</td>
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<td>Q2: Cost effectiveness</td>
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<td>Q3/Q4: Guidelines and recommendations</td>
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<td><strong>Study Designs</strong></td>
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<tr>
<td>Health technology assessment reports, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines.</td>
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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 systematic review and thirteen non-randomized studies were identified regarding the clinical effectiveness and safety of human growth hormone for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older. No relevant health technology assessments, meta-analyses, or randomized controlled trials regarding clinical effectiveness of human growth hormone were identified. One evidence-based guideline was identified regarding discontinuing human growth hormone treatment in patients with growth hormone deficiency that have attained their final adult height. No evidence-based guidelines regarding the use, or economic evaluations regarding the cost-effectiveness of human growth hormone were identified for the treatment of severe growth hormone deficiency due to pituitary destruction in patients 25 years of age and older.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments
No literature identified.
Systematic Reviews and Meta-analyses


Randomized Controlled Trials
No literature identified.

Non-Randomized Studies

Clinical Effectiveness


PubMed: PM20185347

PubMed: PM21510459

PubMed: PM20463152

PubMed: PM18752977

PubMed: PM18593773

PubMed: PM18837737

PubMed: PM17311545

Economic Evaluations
No literature identified.

Guidelines and Recommendations

Discontinuation of Human Growth Hormone Treatment

4.3.14, page 34.
APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-analyses – Alternate or Unclear Age Range or Disease Severity

Clinical Effectiveness


Randomized Controlled Trials - Alternate or Unclear Age or Disease Severity


PubMed: PM17280527

Economic Evaluations – Unclear Age Range and Disease Severity

PubMed: PM24079522

Guidelines and Recommendations – Unclear Age Range and Disease Severity

Use of Human Growth Hormone
