Cost-effectiveness analysis of somatostatin analogues in the treatment of acromegaly in Brazil

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study examined the cost-effectiveness of two somatostatin analogues, namely octreotide long-acting release and lanreotide slow release, for the treatment of acromegaly, from the perspective of the public payer. The authors concluded that octreotide was more effective and less expensive than lanreotide, in Brazil. More information on the clinical sources would have been useful, but the methods were robust and transparent and the authors’ conclusions appear to be robust.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the cost-effectiveness of two somatostatin analogues, namely octreotide long-acting release and lanreotide slow release, for the treatment of acromegaly.

Interventions
The initial dose of octreotide was 20mg every 28 days, and this was increased to 30mg if there was no response at three months. The initial dose of lanreotide was 30mg every 14 days, and this was increased to 60mg if there was no response at three months. A switch to cabergoline 1mg per day or its addition to the previous strategy was possible if there was no response.

Location/setting
Brazil/secondary care.

Methods
Analytical approach:
The analysis was based on a decision-analytic model with a two-year time horizon. The authors stated that the analysis was carried out from the perspective of the Brazilian public health care system.

Effectiveness data:
The clinical inputs were from a selection of relevant studies. Most of the evidence, including that the treatment effect for the two options, came from a published meta-analysis. The primary inputs were the biochemical efficacies, especially the control of growth hormone levels. The epidemiological data were from local databases and some assumptions were needed.

Monetary benefit and utility valuations:
Not considered.

Measure of benefit:
Life-years, deaths, cases of elevated growth hormone, and cases of elevated insulin-like growth factor I (IGF-I) were the summary benefit measures.

Cost data:
The economic analysis included the costs of drugs and out-patient care, such as radiotherapy, consultations, and...
biochemical assays. The costs were from official Brazilian public prices, and published data. The resource quantities were based on Brazilian guidelines. The price year was 2005 and the costs were reported in Brazilian reais (BRL), which were also converted to US dollars ($) at the official exchange rate in 2005.

Analysis of uncertainty:
One-way sensitivity analyses were carried out on the drug efficacy, drug dose, somatostatin analogue prices, and the inclusion of hospitalisations. The ranges of values were from published sources.

Results
Over two years, compared with lanreotide, octreotide saved BRL 10,448,324 ($8,089 per year), avoided 12 cases of elevated growth hormone, 17 cases of elevated IGF-I, and 0.1 deaths, and saved 0.2 life-years.

Octreotide was dominant, as it was more effective and less expensive. The dominance of octreotide held in all the sensitivity analyses.

Authors' conclusions
The authors concluded that octreotide was more effective and less expensive than lanreotide, for patients with acromegaly, in Brazil.

CRD commentary
Interventions:
A justification for the selection of the comparators was given; they were the somatostatin analogues recommended in the Brazilian guidelines for the treatment of acromegaly. These guidelines also defined the sequence of further treatment options.

Effectiveness/benefits:
No systematic review was reported to identify the relevant sources of evidence. Most of the data were from a published meta-analysis, and these are generally considered to be valid sources of data, but no information was given on its methods and results. The details of the other sources were not provided, preventing an objective assessment of the validity of the clinical inputs. The impact of the most uncertain inputs on the model outcomes was investigated in the sensitivity analysis. A number of outcome measures were considered; some were disease specific and some, such as life-years, were more generalisable.

Costs:
The cost categories were consistent with the perspective of the public payer. A breakdown of cost items was provided and the unit costs and resource quantities were given for most categories. The price year and currency conversions were explicitly reported. The data sources were described and reflected the Brazilian setting. The patterns of resource consumption were based on local guidelines. Hospitalisations were included in an alternative analysis, which did not substantially change the cost results. The economic inputs appear to have been treated deterministically. The impact of variations in selected inputs was tested in the sensitivity analyses.

Analysis and results:
The results were extensively presented. An incremental approach was used for the costs and benefits of the two strategies. An incremental cost-effectiveness ratio was not calculated, as octreotide was dominant. A more extensive sensitivity analysis could have assessed the uncertainty between variables. The authors justified their selection of the time horizon, as being long enough to assess the treatment effects for the two options. A clear description of the decision model was given. The results appear to be specific to Brazil and the authors did not discuss their transferability. It was stated that very few economic evaluations on treatments for acromegaly were available as it was a very rare disease.

Concluding remarks:
More information on the clinical sources would have been useful, but the methods were robust and transparent and the authors' conclusions appear to be robust.
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