Decision-tree model for health economic comparison of two long-acting somatostatin receptor ligand devices in France, Germany, and the UK

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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 clinical and economic impact of lanreotide (Somatuline autogel) versus octreotide (Sandostatin LAR), for patients with acromegaly and neuroendocrine tumours. The authors concluded that the lanreotide device could provide substantial savings, compared with octreotide, for health care providers, in France, Germany, and the UK. The analysis was based on a simple model and relied on estimates from one study. Caution is required when interpreting the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the clinical and economic impact of two long-acting somatostatin receptor ligands, with different delivery devices, in patients with acromegaly and neuroendocrine tumours.

Interventions
The two interventions were slow-release octreotide (Sandostatin LAR), delivered by intramuscular injection of 20mg, once a month, and pre-filled syringes of lanreotide (Somatuline autogel), delivered by subcutaneous injection of 90mg, once a month.

Location/setting
UK, France, and Germany/hospital and community.

Methods
Analytical approach:
The analysis was based on a decision tree, with a one-year time horizon. The authors stated that it took the perspective of the health care payer.

Effectiveness data:
The clinical data were from a published multicentre quantitative study that investigated the time needed for the preparation and administration of the two drugs; 79 injections were given for each drug. The primary endpoint of the analysis was the number of clogging events or unsuccessful injections, and these were the inputs for the decision tree.

Monetary benefit and utility valuations:
Not considered.

Measure of benefit:
The rate of successful injection was the benefit measure. These data were from the clinical study, based on the number of clogging events.

Cost data:
The economic analysis included the costs of the drugs and their administration. The drug costs were based on their retail price from either proprietary market databases or official price lists. National wages were used for nurse time for administration. The quantities of resources were from the clinical data source study. The price year was 2010. All costs
were expressed in Euros (EUR) for the three countries; UK £ were converted to EUR using the 2010 annual average exchange rate.

Analysis of uncertainty:
Two alternative scenarios were considered reflecting the worst and the best cases for lanreotide. One-way sensitivity analyses were carried out by varying the assumptions for the rate of patients injected at hospital, versus those injected in a community setting; the risk of clogging on the first injection; and the time to prepare and administer the drugs.

Results
The risk of clogging was zero with lanreotide and 0.026 with octreotide. The average cost per successful injection, in France, was EUR 1,305.20 with lanreotide and EUR 1,340.10 with octreotide; in Germany, was EUR 2,322.30 with lanreotide and EUR 2,413.40 with octreotide; and in the UK, was EUR 875.30 with lanreotide and EUR 1,018.20 with octreotide.

Lanreotide was cheaper and remained the cheapest strategy, in the alternative scenarios, although the magnitude of the savings changed. The rate of clogging events was the key driver in the sensitivity analysis, but lanreotide remained the cheaper option.

Based on a range of patient cohort sizes in each country, the annual savings were estimated to be up to EUR 1.9 million in France, EUR 5.8 million in Germany, and EUR 7.1 million in the UK.

Authors’ conclusions
The authors concluded that the Somatuline autogel (lanreotide) device could provide substantial savings, compared with Sandostatin LAR (octreotide), for health care providers, in France, Germany, and the UK.

CRD commentary
Interventions:
The selection of the comparators was appropriate, as the authors considered the two most commonly used drugs for the management of patients with acromegaly and neuroendocrine tumours.

Effectiveness/benefits:
The clinical data were from a study that was not described; its reference was given. Insufficient information was given to judge the validity of these data, which were crucial to the model, particularly the rate of clogging events, which was the main driver of the analysis. A specific benefit measure was used and this was an intermediate outcome for the two options.

Costs:
The authors stated that the perspective of the analysis was that of the health care payer, but only the costs of the drugs and their administration were considered. The resource use came from the same clinical study that provided the rate of clogging events, while typical national sources were used for the unit costs. Some costs were varied in the sensitivity analysis and the costs were generally well described. The price year was reported, allowing reflection exercises.

Analysis and results:
The results were presented as the total costs for the two branches of the decision tree. These depended on the probability of clotting, which was included as a model input. Lanreotide resulted in cost savings and was dominant as it reduced the probability of clogging, making it more effective. The uncertainty was investigated in deterministic sensitivity analyses that focused on variations in each model input. The results of these analyses were clearly presented. The authors acknowledged that their study was based on a single quantitative study, which had some drawbacks, and this analysis should be considered to be exploratory. The findings were similar for the three European countries and could be valid for other developed countries with similar costs and procedures.

Concluding remarks:
The analysis was based on a simple model and relied on estimates from one study. Caution is required when interpreting the validity of the authors’ conclusions.
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