Cost-effectiveness of botulinum toxin A versus anticholinergic medications for idiopathic urge incontinence

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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
The objective was to assess the cost-effectiveness of botulinum toxin A injection versus anticholinergic medication for idiopathic urge incontinence in women who had not responded to first-line behavioural therapy and one anticholinergic medication. The authors concluded that botulinum toxin A was cost-effective, except if patients were very compliant with anticholinergic medication or if botulinum was much more expensive. There were a few limitations to the study and the authors' conclusions should be regarded with caution.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective was to assess the cost-effectiveness of botulinum toxin A injection versus anticholinergic medication for idiopathic urge incontinence in women who had not responded to first-line behavioural therapy and one anticholinergic medication.

Interventions
The interventions were a 200-unit injection of botulinum toxin A, which could be repeated after three months, and a second anticholinergic medication, which could be followed by a third anticholinergic medication after three months.

Location/setting
USA/out-patient care.

Methods
Analytical approach:
The analysis was based on a Markov model with a two-year time horizon. The authors stated that it was conducted from a societal perspective.

Effectiveness data:
The parameter estimates for botulinum toxin A were identified in a non-systematic review of the literature. The base case estimates came from a randomised placebo-controlled trial. Most of the clinical estimates for anticholinergic medication were from a Cochrane review that compared it with placebo. The remaining estimates, including those for the ranges used in the sensitivity analyses, were from a variety of sources and assumptions.

Monetary benefit and utility valuations:
The utility estimates for the two health states, continence and incontinence, were derived from the literature.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the measure of benefit and they were discounted at 3% per year.

Cost data:
The costs included: the provision of medication and the treatment of anticholinergic complications, urinary retention, urinary tract infection, and persistent incontinence. The costs of medication included the reimbursement fee for an office visit according to a published price list. The costs of the botulinum, urinary retention, and urinary tract infection
were from published national schedules, those for anticholinergic medication were from Drugstore.com, and those for persistent incontinence were from a published study. All costs were in US dollars ($), the price year was 2008, and the discount rate was 3% per year.

Analysis of uncertainty:
One-way sensitivity analyses were conducted on all the parameters, using ranges mostly from assumptions, but also from publications.

Results
The costs per person were $4,392 for botulinum toxin A and $2,563 for anticholinergic medication. The QALYs per person were 1.63 for botulinum and 1.50 for anticholinergic medication.

The incremental cost-effectiveness ratio (ICER) for botulinum over anticholinergic medication was $14,377 per QALY.

The ICER was only over $30,000 per QALY when the cost of the botulinum toxin A, the probability of compliance with anticholinergic drugs, or the utility for urinary incontinence were varied. Variations in the other parameters did not alter the cost-effectiveness of botulinum toxin A.

Authors' conclusions
The authors concluded that botulinum toxin A injection was cost-effective compared with anticholinergic medication. They stated that anticholinergic drugs could be cost-effective if patients were very compliant with this medication or the cost of the botulinum procedure was increased substantially.

CRD commentary
Interventions:
The two comparators were relevant for the population and anticholinergic medication was the standard care, but the types of anticholinergic medication were not specified.

Effectiveness/benefits:
A review of the literature was used to identify the parameter estimates. Only one database was searched and it was not clear how the estimates were selected from those available. It was also not clear how the ranges for the sensitivity analysis were chosen. For example, these could have been the maximum and minimum reported in the literature or the confidence intervals. Only one-way sensitivity analyses were performed. QALYs were an appropriate measure of benefit and the utility estimates were referenced, but the methods used to derive them were not reported.

Costs:
The cost categories were not appropriate for the societal perspective, since they did not include the patient and carer costs and losses in productivity. The sources for the costs were reported, but not separately for the medications and office visits. The cost adjustment methods were well reported.

Analysis and results:
The costs and benefits were reported clearly and an incremental analysis was conducted. QALYs were appropriately used to measure benefit, but if other relevant alternatives were included the ICERs could change. The cost categories were not consistent with the economic perspective, the sensitivity analyses were limited, and little justification was provided for the ranges used.

Concluding remarks:
There were a few limitations to the study and the authors' conclusions should be regarded with caution.

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