Cost effectiveness of a lidocaine 5% medicated plaster compared with pregabalin for the treatment of postherpetic neuralgia in the UK: a Markov model analysis

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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 aim was to evaluate the cost-effectiveness of a lidocaine plaster compared with pregabalin for postherpetic neuralgia in the UK. The authors concluded that the lidocaine plaster was cost-effective for postherpetic neuralgia, compared with pregabalin. There were a few limitations to the study, but the methods and results were well presented. The conclusions reflect the scope of the analysis and the evidence available.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective was to evaluate the cost-effectiveness of a lidocaine plaster compared with pregabalin for postherpetic neuralgia in the UK.

Interventions
The intervention was a lidocaine 5% medicated plaster for topical application and was compared with the oral antiepileptic pregabalin.

Location/setting
UK/primary care.

Methods
Analytical approach:
The study used a state-transition Markov model to estimate the costs and effects of the use of a lidocaine plaster compared with pregabalin. The time horizon of the study was six months and the authors stated that the study was conducted from the perspective of the UK National Health Service (NHS).

Effectiveness data:
The effectiveness data primarily came from a multicentre, open-label, randomised controlled trial of 311 patients treated with either the lidocaine plaster or pregabalin. The authors stated that previous indirect comparisons might have been unreliable and so this single head-to-head comparison was used. The discontinuation rates, adverse effects, and long-term data were from additional published trials. The main clinical effectiveness estimates were the time without pain and the time without symptoms or toxicity.

Monetary benefit and utility valuations:
The utility data for pregabalin were derived from a published economic study of patients with postherpetic neuralgia or diabetic polyneuropathy. The utility data for lidocaine was estimated using a Delphi panel, which was established to validate some of the data and assumptions.

Measure of benefit:
The primary measure of benefit was the number of quality-adjusted life-years (QALYs) gained.

Cost data:
The cost categories were the costs of the lidocaine plasters and the drug pregabalin, and specialist nurse and general
practitioner consultations. Dose titration was required for pregabalin and the cost of this was included. The Delphi panel was used for the resource use data. The costs were derived using published UK tariffs and adjusted to 2009 prices using the Consumer Price Index. They were discounted at a rate of 3.5% per annum.

Analysis of uncertainty:
One-way sensitivity analyses were used to assess the impact of the uncertainty in each of the model parameters on the model results and scenarios investigated variations in the time horizon and the model data sources. Probabilistic sensitivity analysis was also performed to simultaneously vary the model inputs and assess the impact on the results.

Results
Over the six-month period, the mean QALYs per patient were 0.321 for lidocaine plasters and 0.254 for pregabalin. The mean total costs per patient were £980 for lidocaine plasters and £784 for pregabalin.

The incremental cost-effectiveness ratio for lidocaine plasters compared with pregabalin was £2,925 per QALY gained.

The probabilistic sensitivity analysis suggested that at a willingness-to-pay of £35,000 per QALY, the probability that treatment with lidocaine plasters was cost-effective was almost 100%.

Authors' conclusions
The authors concluded that the lidocaine plaster was cost-effective for the treatment of postherpetic neuralgia, in the UK, compared with pregabalin.

CRD commentary
Interventions:
The reporting was good and the interventions were well described. It appears unlikely that all the relevant comparators were included and, whilst the analysis might reflect the available head-to-head evidence, it was only a partial analysis.

Effectiveness/benefits:
The model used the only available head-to-head data for pregabalin versus lidocaine plasters, and this was a trial, with a good design, which was well described. A Delphi panel, consisting of nine general practitioners was established to produce the estimates for the model parameters, for which no published data were available. This panel improves the reliability of these assumptions. The quality of the available utility data was questionable, but the authors used the Delphi panel to validate these estimates. Despite this, the poor utility data could be considered to be a limitation of the analysis.

Costs:
The costs were relevant to the perspective stated and the study setting, but the long-term costs that might be associated with postherpetic neuralgia, do not appear to have been considered. It is not clear whether this was an influential issue. The Delphi panel appears to have been used to validate and estimate the resource use data. It was appropriate to adjust the costs to a price year, but the use of the health care component of the Consumer Price Index would have been more appropriate as health care inflation often exceeds that of the overall economy. The impact of this on the overall results is likely to have been small.

Analysis and results:
The analytic approach was described satisfactorily and a diagram of the model structure was provided. The incremental analysis was appropriate to determine the cost-effectiveness of the alternative treatment strategies. The uncertainty in the parameter estimates and model assumptions was appropriately addressed in the sensitivity analysis. The results of the base case and sensitivity analyses were adequately reported. The authors highlighted the strengths and limitations of their study. They appear to have undertaken a thorough and comprehensive analysis, which was enhanced by the appropriate use of a Delphi panel, but limited by the lack of direct evidence and issues with the use of an indirect analysis.

Concluding remarks:
There were a few limitations to the study, but the methods and results were well presented. The conclusions reflect the
scope of the analysis and the evidence available.

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