Cost-effectiveness of sumatriptan in a managed care population
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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.

Health technology
Sumatriptan injectable in the treatment of migraine headache.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Adult patients (older than 18 years) with migraine headache who have used sumatriptan at least once.

Setting
Community. The economic study was performed in Washington, the USA.

Dates to which data relate
The effectiveness and resource use data were related to the period between January 1 1994 and December 31 1994 and were collected via a telephone survey in July 1995. The fiscal year was 1995.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were not used to determine the sample size. 220 patients were eligible for the study, of whom 17 were excluded, and 168 were contacted from the remaining 203 patients. A total of 164 patients completed the 119-question telephone survey (81% response rate). Four patients refused to participate in the study, and as a result 97.6% completed the telephone interview. The respondents had an average age of 44 years with a range from 18 to 70 years.

Study design
The study was a single centre before and after study. No loss to follow-up was reported.
Analysis of effectiveness
The analysis of effectiveness was based on intention to treat. The primary health outcome was the number of monthly migraine disability days. Patients were asked to rate the migraine severity by a three-point scale (1=mild, 2=moderate, and 3=severe).

Effectiveness results
The average (SD) severity score was 2.89 (0.31) with 89% of patients having a severe headache for the period before sumatriptan therapy versus 2.55 (0.64) with 63% having a severe headache after sumatriptan therapy, (P<0.01). The average (SD) number of monthly migraine disability days was 6.5 (5.9) for the period before the sumatriptan therapy versus 3.9 (4.9) after sumatriptan therapy (P<0.01).

Clinical conclusions
The study found decreases in clinical severity scores similar to those seen in controlled clinical trials.

Measure of benefits used in the economic analysis
The number of migraine disability-free days per month was used as the benefit measure.

Direct costs
Resource quantities were not reported separately from costs. Cost components were reported separately. The cost calculations consisted of the costs of hospital visits, emergency department visits, physician mistakes, over-the-counter products, other prescriptions, and sumatriptan prescriptions. The perspective adopted in the cost analysis was that of a third party payer. The source of resource utilisation was the patients’ self-report based on a 119-question telephone survey and actual pharmacy claims. The source of cost data was the study institution. The price date was 1995. The costs of some types of migraine-related healthcare utilisation (computed tomographic scans, MRI, and other expensive diagnostic tests) were not included. Costs were not discounted.

Statistical analysis of costs
A paired t-test was used to investigate the difference in costs between before and after sumatriptan therapy.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
A set of threshold analyses was performed on total costs, the effectiveness measure, and individual healthcare components.

Estimated benefits used in the economic analysis
The mean number of migraine disability-free days (SD) per month was 23.5 (5.9) days before sumatriptan therapy and 26.1 (4.9) days after therapy, (P<0.01).

Cost results
The total monthly cost (SD) was $286 ($398) before sumatriptan therapy and $168 ($215) after therapy, (P<0.01).
Synthesis of costs and benefits
Costs and benefits were combined by calculating the average cost per disability-free day (aggregate and patient level). The cost-effectiveness ratio in aggregate level was $12.18 before sumatriptan therapy and $6.43 afterwards. The corresponding values in patient level were $14.51 (26.95) and $8.20 (18.09), respectively, (P-value was reported to be significant). The sensitivity analysis established the relative robustness of the results to change in the study variables.

Authors’ conclusions
Patients reported fewer migraine-related disabilities, had lower migraine severity scores, and used fewer healthcare resources when taking sumatriptan. These changes resulted in a better cost-effectiveness ratio for migraine treatment.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of benefit
The internal validity of the estimates of effectiveness may be weakened by the lack of a randomised controlled design.

Validity of estimate of costs
Resource utilisation was not reported separately from the costs although adequate details of the methods of cost estimation were given. The main drawback in the cost analysis was that it relied heavily on self-reported resource utilisation data from the patients and not on prospective collection of actual data.

Other issues
Given the lack of a randomised design, the results may need to be treated with some caution. The issue of generalisability to other settings or countries was not fully addressed.

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