Cost saving of 5-day therapy with cefpodoxime proxetil versus standard 10-day beta-lactam therapy for recurrent pharyngotonsillitis in adults


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
Pharmaceutical treatment for recurrent pharyngotonsillitis in adults. Specifically cefpodoxime proxetil, phenoxybenzylpenicillin (Penicillin V) and amoxicillin-clavulanic acid were examined.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients aged 15 years or older with a number of symptoms of bacterial tonsillitis including fever greater than 38 Celsius, pharyngeal pain on swallowing, erythema of the tonsils and pharynx and tender submaxillary lymph nodes in the absence of a common cold, conjunctivitis, cough or laryngitis. Study subjects included had experienced 2 episodes of tonsillitis in the previous 12 months. Patients were excluded from the study if they had sinusitis, allergy to beta-lactam antibacterials, had used anti-bacterials in the previous 24 hours and used allopurinol.

Setting
The study was conducted in 204 general practices throughout France. The economic study was conducted in Montrouge, France.

Dates to which data relate
Resource and effectiveness data were collected between March 1992 and January 1993. 1993 prices were used.

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

Link between effectiveness and cost data
Costing was undertaken prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
A total of 575 patients were enrolled in the study. Of these, 188 were randomised to the cefpodoxime group, 187 to the penicillin V group and 200 to the amoxicillin-clavulanic acid group. The mean age of patients in the three groups was 33.4 years (+/- 12.3, range: 15 - 78), 34.0 years (+/- 12.8, range: 15 - 78) and 33.6 (+/- 12.8, range: 13 - 78), respectively. There were 116 women (62%) in the cefpodoxime group, 127 (67%) in the penicillin V group was 127
(67%) and 129 (65%) in the amoxicillin group. Overall 70% of patients were in employment. The sample size was not determined by power calculations.

Study design
This was a multi-centre randomised control trial. The study was conducted at 230 GP centres and the length of follow up was 6 months following treatment. Overall, 5 patients were lost to follow up (0.8%).

Analysis of effectiveness
The analysis of effectiveness was based on intention to treat. The primary health outcome was the number of days free from recurrence of pharyngotonsillitis, with the counting beginning with the inclusion in the trial and continuing until a new occurrence of pharyngotonsillitis. Adverse events were also recorded. All groups were comparable in terms of demographic and prognostic features.

Effectiveness results
The number of days free from recurrence for the three groups was 161 (+/- 4.45) for cefpodoxime, 143 (+/- 5.2) for penicillin V and 154 (+/- 4.37) for amoxicillin. These differences "were not statistically significant" according to the authors, although they stated that a "statistically significant difference" was found for those who were successfully treated using cefpodoxime compared with the other two therapies. Two patients (1%) experienced adverse events in the cefpodoxime group compared with 16 (9%) and 46 (23%) in the penicillin V and amoxicillin groups. These differences were reported as "not statistically significant".

Clinical conclusions
Patients treated with cefpodoxime tend to have a lower relapse rate than patients treated with the other two treatment options.

Measure of benefits used in the economic analysis
The benefit measures were days free of recurrence of symptoms and adverse events avoided.

Direct costs
Quantities of resource use were reported separately from the costs. The costs of consultation, therapy, adjuvant medication, treatment of adverse events, laboratory tests and specialist consultations were estimated. The cost of medicines purchased over the counter was derived from the April 1993 edition of the French National Formulary. The portion of cost of prescription medicines covered by the health insurance fund was separated from co-payment by patients. The costs of visits to GPs and specialist consultations were taken from the 1992 Journal Official de la Republique Francaise. Reimbursement rates from the General Payment Scheme of the Union of National Social Security Funds were used to determine the cost of laboratory diagnostic procedures. 1993 prices were used for all costs and costs were not discounted given that they fell within a one-year time period. All costs generated after the assessment following a treatment failure, recurrence of pharyngotonsillitis or development of intercurrent infection were excluded from the analysis.

Indirect Costs
Quantities of resource use were reported separately from the costs. Lost production was calculated for the period when a patient received a sickness certificate. The costs were estimated using the French hourly minimum wage rate at July 1992. All costs generated after the assessment following a treatment failure, recurrence of pharyngotonsillitis or development of intercurrent infection were excluded from the analysis.

Currency
Sensitivity analysis
No sensitivity analyses were conducted as the costs used in the analysis are fixed by French law.

Estimated benefits used in the economic analysis
Using cefpodoxime the number of days free from recurrence of the disease was 18 more than for penicillin V and 7 more than for amoxicillin. There were 14 fewer adverse events in the cefpodoxime group than in the penicillin group and 44 fewer than in the amoxicillin group.

Cost results
The total direct mean costs of treatment per patient were FF 274.57 for the cefpodoxime group, FF 322.20 for the penicillin group and FF 447.46 for the amoxicillin group. Lost productivity costs were estimated to be FF 308.70, FF 384.04 and FF 363.05 respectively for the cefpodoxime, penicillin V and amoxicillin groups. The overall costs to society were FF 583, FF 706 and FF 810 for the three groups respectively.

Synthesis of costs and benefits
An incremental cost effectiveness was not performed as the cefpodoxime strategy was demonstrated to be dominant over the other two strategies.

Authors' conclusions
The authors concluded that the use of cefpodoxime proxetil was less costly than, and as equally well tolerated as, a standard 10 day course of therapy for the treatment of recurrent bacterial pharyngotonsillitis. The authors noted, however, that their results are not generalisable to countries other than France. They point out that the level of dosage in different countries varies, and this in turn may have an effect, not only on costs, but also on the level of recurrence. In addition the remuneration systems for physicians may be different from the fee per consultation service which exists in France and, unlike France, generic prescription may be permitted.

CRD COMMENTARY - Selection of comparators
A well designed study which clearly demonstrates the dominance of cefpodoxime therapy over standard therapy from a societal perspective.

Validity of estimate of measure of benefit
The clinical study was well conducted, and controlled for prognostic factors and differences in patient characteristics whilst analysing the results in a way consistent with the study question.

Validity of estimate of costs
The costs analysis was clearly described and the most relevant cost items were included in the analysis. The costs incurred after assessments resulting in diagnosis of end points were excluded from the analysis.

Other issues
The study restricted its analysis to the French setting, and the authors made clear that their results are unlikely to be generalisable to other countries.

Implications of the study
Well designed clinical and economic evaluations should be conducted in countries with different clinical practice and cost structures than those of France.

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