Economic analysis of antibiotic regimens used in the treatment pharyngitis: a prospective comparison of azithromycin versus roxithromycin


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
Azithromycin vs roxithromycin for the treatment of beta-haemolytic streptococcal pharyngitis.

Type of intervention
Secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Patients were of both sexes, between 18 and 65 years of age, with clinical signs and symptoms of pharyngitis (sore throat, erythema and purulence on examination, dysphagia and fever >38 C) and suitable to receive antibiotic therapy.

Setting
Primary care. The economic study was carried out in Paris, France.

Dates to which data relate
Effectiveness data were collected between October 1991 and July 1992. Resources used were estimated using data from 1992. 1992 prices were used.

Source of effectiveness data
A single study.

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

Study sample
Overall, 259 patients were included in the study. The number of patients randomly allocated to each of the 3 regimes were: 91 and 85 to the 3- and 5-day course of azithromycin and 83 to the 10-day course of roxithromycin. No power calculations were reported.

Study design
Randomized controlled trial. The follow up period was 4 weeks. 3 patients were excluded from the initial 262 patients since they did not meet the inclusion criteria.
Analysis of effectiveness
The analysis of the clinical study was based on treatment completers only. Health outcomes used in the analysis were compliance, speed of resolution of symptoms, and side effects. Compliance was recorded by a method based on the MEMS (Aprex Corporation) process. The time to resolution of symptoms was derived from patients' diaries based on a 10 cm visual analogue scale question and from a 2 week clinical evaluation based on semi-structured telephone interviews.

Effectiveness results
The compliance in patients using a 3- and 5-day course of azithromycin (58.0% and 42.9% respectively) (P<0.01) was better than a 10-day course of roxithromycin (7.5%) (P<0.05). The time to resolution of symptoms for a 3- and 5-day course of azithromycin (4.1 days and 5 days respectively) (P<0.01) was faster than a 10-day course of roxithromycin (7.5 days) (P<0.05). The confidence interval was 99% for a 3- and 5-day course of azithromycin and 95% for a 10-day roxithromycin course.

In terms of side effects, the incidence of diarrhoea in patients treated with a 3- and 5-day course of azithromycin (8.8% and 7.1% respectively) (P<0.01) was lower than a 10-day course of roxithromycin (15.8%) (P<0.05). The incidence of dyspepsia in patients prescribed with a 3- and 5-day course of azithromycin (14.3 and 16.7 respectively) (P<0.01) was greater than a 10-day course of roxithromycin (12.2%). The incidence of nausea in patients using 3- and 5-day treatment of azithromycin (15.4% and 19.1% respectively) was greater than a 10-day course of roxithromycin (15.6%) (P<0.05).

Clinical conclusions
The use of 3- and 5-day course of azithromycin lead to better clinical outcomes in terms of compliance and resolution of symptoms than a 10-day course of roxithromycin.

Measure of benefits used in the economic analysis
Health outcomes used in the analysis were compliance rates, speed of resolution of symptoms, and side effects. Compliance was recorded by a method based on the MEMS (Aprex Corporation) process. The time to resolution of symptoms was derived from patients' diaries based on a 10 cm visual analogue scale question and from a 2 week clinical evaluation based on semi-structured telephone interviews.

Direct costs
Quantities and costs were reported separately. Direct costs included physician visits, drugs, and laboratory tests. Costs of services and laboratory tests were based on official charges (UCANSS, 1992) and the costs of drugs were estimated from the Dictionnaire Vidal - 1992.

Statistical analysis of costs
Bivariate analyses of health care utilization were performed with the chi-squared test and Student's t-test. Confidence intervals and p values were reported for some resources used.

Indirect Costs
Indirect costs were included as loss of earnings incurred by patients with pharyngitis. Costs and quantities were reported separately. Costs and quantities data were obtained from patients’ charts and patient interviews.1992 price data was used.

Currency
US dollars ($).
Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
The compliance in patients using a 3- and 5-day course of azithromycin (58.0% and 42.9% respectively) (P<0.01) was better than a 10-day course of roxithromycin (7.5%) (P<0.05). The time to resolution of symptoms for a 3- and 5-day course of azithromycin (4.1 days and 5 days respectively) (P<0.01) was faster than a 10-day course of roxithromycin (7.5 days) (P<0.05). The confidence interval was 99% for a 3- and 5-day course of azithromycin and 95% for a 10-day roxithromycin course.

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Cost results
The total treatment costs of a 3- and 5-day course of azithromycin were $193.60 and $195.30 per patient respectively. The total costs of using roxithromycin was $202.10 per patient. The cost saving of azithromycin versus a 10-day course of roxithromycin were $8.50 (for a 3-day course) and $6.80 (for a 5-day course) per patient.

Synthesis of costs and benefits
Azithromycin was the dominant strategy.

Authors’ conclusions
Azithromycin given for 3- and 5-days was more cost-effective than a 10-day course of roxithromycin because of improved compliance and more rapid resolution of symptoms.

CRD Commentary
This was a generally good quality study with clearly stated and reasonable choice of comparator health technology. Clinical evidence was derived from a randomised clinical trial. The methods of deriving the final health outcomes included a scaling method and semi-structured interviews with patients, although no final utility scores were derived. Cost data were based on charges and actual fees. An incremental analysis was reported in terms of costs savings. The results were compared with other studies, however sensitivity analysis was not carried out.

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