
Pharmacoeconomic comparison between homeopathic and antibiotic treatment strategies in recurrent acute rhinopharyngitis in children

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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

Antibiotics and homeopathy were assessed for the treatment of recurrent acute rhinopharyngitis (ARP). Other drugs, such as mucus fluidifiers, trace elements, corticosteroids and antipyretics, could have been prescribed.

Type of intervention

Treatment.

Economic study type

Cost-effectiveness analysis.

Study population

Patients could be included in the study if they were patients of a sample of general practitioners (GPs) selected randomly from a database of allopathic GPs (Pharbase) or homeopathic GPs (listed in France Telecom as having a specific training in homeopathy). They also had to meet several inclusion criteria. Specifically, they had to be aged between 18 months and 4 years, have suffered at least 5 episodes of acute rhinopharyngitis in 1999, and have consulted a GP in 2000, either for preventive treatment or for treatment of a current episode. Children were excluded if their parents were illiterate, or if the patients suffered from severe immunodepression. ARP was defined as rhinorrhoea and/or cough and a temperature of at least 38 degrees C within 24 hours of entering the study.

Setting

The setting was primary care. The economic study was carried out in France.

Dates to which data relate

The effectiveness and resource use evidence referred to 2000 to 2001. The price year was 2000.

Source of effectiveness data

The effectiveness data were derived from a single study.

Link between effectiveness and cost data

The same patients provided both the effectiveness and cost data. The costing was carried out prospectively.

Study sample

No power calculations were reported. The database included 499 patients. Of these 499 patients, 431 met the inclusion criteria and 68 patients were excluded. Patients were excluded because they were treated with both homeopathic drugs and antibiotics (n=55) or with neither antibiotic nor homeopathic drug (n=12), or data were missing (n=1). There were

241 (55.9%) patients who had received at least one homeopathic drug and no antibiotic (group H) and 190 (44.1%) patients who had received at least one antibiotic and no homeopathic drug (group A). The patients in group H had a mean age of 2.84 years and 56.8% were male. The patients in group A had a mean age of 2.97 years and 54.2% were male.

Study design

This was a multi-centred post hoc cohort study in which patients were studied for a 6-month period. Blinding of the outcome assessment and loss to follow-up were not reported.

Analysis of effectiveness

The analysis was conducted on an intention to treat basis. The primary health outcomes used were the numbers of episodes of ARP, complications and adverse effects, and quality of life as measured by the Par-Ent-Qol scale. The scale had three sub-scales corresponding to an "Emotion Score", a "Daily Disturbance Score" and a "Global Score". The scales ranged from 0 to 100. The parents assessed quality of life at the end of the monitoring period.

At baseline there was no difference between the two patient groups in most socio-demographic indicators. However, a higher percentage of group A was looked after at home and suffered passive smoking. In addition, a higher percentage of group H were prescribed preventive treatment, had less treatment of a current episode of ARP and had fewer complications, and fewer of these children were ill at the time the study began. Nevertheless, the authors concluded that, overall, the two groups were comparable at baseline.

Effectiveness results

The number of episodes of ARP was 2.71 (95% confidence interval, CI: 2.46 - 2.96) in group H and 3.97 (95% CI: 3.65 - 4.30) in group A, ($p < 0.001$).

The average number of complications was 1.25 (95% CI: 1.05 - 1.45) in group H and 1.95 (95% CI: 1.69 - 2.20) in group A, ($p < 0.001$).

The percentage of patients suffering side effects was 4.6% in group H and 4.2% in group A, ($p = 0.86$).

The quality of life scores were as follows:

emotion score, 24.81 (95% CI: 22.43 - 27.19; standard deviation, SD=18.67) in group H and 33.72 (95% CI: 30.63 - 36.82; SD=20.79) in group A, ($p < 0.001$);

daily disturbance score, 16.79 (95% CI: 14.65 - 18.94; SD=16.82) in group H and 26.03 (95% CI: 23.31 - 28.76; SD=18.30) in group A, ($p < 0.001$); and

global score, 21.38 (95% CI: 19.23 - 23.52; SD=16.81) in group H and 30.43 (95% CI: 27.71 - 33.15; SD=18.29) in group A, ($p < 0.001$).

Clinical conclusions

The authors concluded that quality of life was better under the homeopathic drug strategy. In addition, the homeopathic drug strategy was more effective than the antibiotic drug strategy for the treatment of infantile ARP.

Measure of benefits used in the economic analysis

No summary measure of benefits was produced. Therefore, the authors carried out a cost-consequences analysis.

Direct costs

No discounting was carried out as the costs were incurred during less than 2 years. The costs were not broken down into

prices and quantities, and were estimated from actual data. The costs of the drugs, medical consultations and medical tests were measured. The quantity data came from case reports completed by GPs, while the costs were obtained from public prices and social security prices. The price year was 2000.

Statistical analysis of costs

A statistical analysis of the costs was carried out. Chi-squared, Student, Mann-Whitney and Kolmogorov-Smirnov tests were used.

Indirect Costs

The indirect costs were measured in terms of the numbers of days of parental leave, but they were not priced.

Currency

Euros (Euro).

Sensitivity analysis

No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis

See the 'Effectiveness Results' section.

Cost results

The average overall costs, social security costs and patient costs were reported separately.

The average social security costs were Euro 88 (95% CI: 80 - 90) in group H and Euro 99 (95% CI: 93 - 106) in group A, ($p < 0.05$).

The average costs to the patient were Euro 86 (95% CI: 79 - 93) in group H and Euro 73 (95% CI: 68 - 78) in group A, ($p < 0.05$).

The average overall costs were Euro 174 (95% CI: 159 - 189) in group H and Euro 172 (95% CI: 161 - 183) in group A ($p > 0.05$).

Significantly fewer periods of leave to care for a child occurred in group H than in group A (9.5% of parents versus 31.6% of parents; $p < 0.001$).

The duration of leave was similar with both strategies, 3.39 days in group H versus 4.33 days in group A, ($p > 0.05$).

Synthesis of costs and benefits

The costs and benefits were not combined as the study was a cost-consequences analysis.

Authors' conclusions

The homeopathic strategy appeared to be more medically effective and to be associated with a better quality of family life in the treatment of infantile recurrent acute rhinopharyngitis (ARP) than the antibiotic strategy. It incurred the Social Security significantly lower direct medical costs and produced less sick-leave. "Homeopathy (prescribed chiefly by homeopathic general practitioners) could thus constitute a cost-effective alternative to antibiotics, providing an economical and ecological solution to public health problems caused by antibiotics (over-consumption and bacterial resistance)".

CRD COMMENTARY - Selection of comparators

The choice of the comparators, homeopathic and antibiotic treatments for ARP, was implicitly justified by them often representing current practice in the authors' setting (i.e. France).

Validity of estimate of measure of effectiveness

The effectiveness data were derived from a single study and no other source. The study design, a post hoc cohort study, was not appropriate for the hypothesis as the authors acknowledged that the patients in each treatment group were not randomly selected and no sample size was determined in the planning phase of the study. The patients' parents had chosen a particular type of treatment, which was probably correlated with many social, economic and cultural variables. Although the authors did try and test for some of these social variables, they did not test for differences in education, income level or size of housing, which could have a strong association with choice of treatment and health outcome. In addition, some baseline parameters were differently distributed in the two groups and such confounding factors were not taken into account in the analysis of effectiveness. The authors acknowledged that this non-homogeneity may have skewed the medical effectiveness results in favour of the patients in group H or in group A depending on the parameters.

Validity of estimate of measure of benefit

The authors did not derive a summary measure of health benefit. The health benefits are therefore those associated with the effectiveness outcomes.

Validity of estimate of costs

The authors appear to have been aiming to assess the costs from a societal perspective, but they did not value the indirect costs incurred by the parents. If they had, this would have resulted in a cost-advantage for the homeopathic group. (NB: all costs were included, the costs of the drugs, medical consultations, and medical tests being measured from the patient perspective and the social security perspective). The costs were not reported separately from quantities, thus limiting the reproducibility of the study in other settings. The resource use quantities were taken from a single study, and no statistical, sensitivity or any other kind of analysis of the quantities was carried out. The unit costs were obtained from public prices and social security prices, and no sensitivity analysis of the prices was carried out. The price year was reported, which will aid future reflation exercises and allow comparisons with other interventions assessed at different time periods. Discounting was unnecessary as the costs were incurred during less than 2 years.

Other issues

The authors wrote that there was no other study with which their results could be compared. The issue of generalisability to other countries was discussed, with the authors acknowledging that their results were not representative of other countries because of differences in medical practice and health insurance systems. The authors did not present their results selectively but their conclusions reflected the scope of the analysis.

The authors reported several further limitations of their study. First, the non-randomised study design. Second, the non-homogeneity in the baseline characteristics. Third, the fact that both patient groups could have received other drugs which could have influenced the results of the study in terms of effectiveness and costs. Finally, the results on adverse events should be treated with caution because it was difficult to establish with certainty the link between the treatment and the adverse event.

Implications of the study

The authors recommended that further research be undertaken to confirm these results. Research in which patients are randomly allocated to the two kinds of treatment studied in this paper would be useful.

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