Outpatient tonsillectomy and adenoidectomy clinical pathways: an evaluative study

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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
The use of an outpatient pediatric tonsillectomy and adenoidectomy (T & A) clinical pathway as a guideline for treatment methods and discharge timings. The pathway was based on the criteria established by the American Academy of Otolaryngology - Head and Neck Surgery for determining whether inpatient or outpatient care is appropriate for a child patient. Age less than 3 years, long travel time from hospital to home, difficult home conditions and various medical complications would all indicate inpatient care.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Children undergoing tonsillectomy and adenoidectomy.

Setting
A tertiary children's care hospital. The economic study was carried out in Virginia, USA.

Dates to which data relate
Data for the control group were collected for patients operated on between January and December 1995. Data for the intervention were for patients operated on from the beginning of April to the end of August 1996. Cost data relate to the same periods but dates were not specified and no price date was given.

Source of effectiveness data
Evidence for final outcomes was based on a single study.

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

Study sample
The control group was randomly selected from patients who had had T & A surgery in the year before the development of the clinical pathway. The intervention group was chosen from patients on the pilot test of the pathway conducted between April and August 1996. The pilot test consisted of 241 children (40% of T and A patients for the fiscal year 1995). Patients were "matched" with the random control group by age, gender, race, medical history and surgeon but the match was not perfect in every respect and the methods of matching were not explained. Power estimations were...
used to determine the sample size but it was not stated whether the subject of the calculation was resource use or clinical outcomes, nor was the size of the difference that can be detected mentioned. It was therefore not clear whether the sample size was large enough to detect differences in readmission rates or other adverse effects. There were 80 patients in all, 40 in each group.

**Study design**

Cross sectional retrospective cohort study. The study was single centred. The duration of follow up was not specifically stated but was apparently 3 days from operation. Loss to follow up was not mentioned.

**Analysis of effectiveness**

All subjects chosen for analysis completed the treatment (intention-to-treat analysis). Readmission rates and emergency department visits were analysed "as a measure of quality outcomes". The primary outcome investigated in the study was the percentage of patients discharged within 12 hours as day surgery cases. A further comparison was made by applying the pathway retrospectively to the control group. Groups were shown to be comparable in age, sex and race. It was also stated that groups were matched for medical history and surgeon.

**Effectiveness results**

Each group had 1 patient (2.5%) readmitted within 3 days for dehydration. In the control group this patient had been discharged within 12 hours and in the intervention group the patient had had a 24 hour stay. In the intervention group there were 3 emergency department visits (7.5%) for OPO patients within 3 days for hypovolemia or dehydration. In the control group 6 (15%) were treated as day surgery cases and in the intervention (pathway) group 18 (45%) were treated as day surgery cases. Furthermore, had the pathway been applied to the control group, 24 patients were possible candidates for day surgery treatment.

**Clinical conclusions**

There was no difference in readmission rates, emergency visits or adverse effects.

**Measure of benefits used in the economic analysis**

Since the effectiveness analysis showed no difference between the intervention and the control the economic analysis was based on the difference in costs only.

**Direct costs**

Actual resource use was calculated by reviewing patients’ bills and charts. Costs were computed using the hospital cost-accounting system. It is not clear whether capital and overhead costs were included. Quantities and costs were not analysed separately except for length of hospital stay which was a major contributor to costs. The cost boundary adopted was that of the hospital. Costs were not discounted as they occurred in a period of time less than one year. No price date was given.

**Statistical analysis of costs**

The mean and standard deviation of total costs was given. Analysis of outcomes (which included costs) was performed using chi-square and analysis of variance and a significance level of 0.05 was used.

**Currency**

US dollars ($).

**Estimated benefits used in the economic analysis**
Cost results
The mean total costs for the control group were $590 (SD $80) and for the pathway group $520 (SD $136). This was a statistically significant difference at the 0.05 level.

Synthesis of costs and benefits
Not applicable.

Authors' conclusions
Quality outcomes can be maintained, length of stay and total costs can be reduced, by developing and using a clinical pathway for pediatric tonsillectomy and adenoidectomy surgery.

CRD COMMENTARY - Selection of comparators
The choice of comparators is clear.

Validity of estimate of measure of benefit
The sample size appeared to have been chosen to detect differences in costs and use of hospital care. It might not have been large enough to detect differences in adverse effects or complications.

Validity of estimate of costs
By confining the cost boundary to hospital costs the authors ignored the cost shifting effect implied by early discharge. Insufficient details were given about costing.

Other issues
Generalisability was not addressed. In the discussion section the authors mention other studies which conflict with this one over the use of clinical pathways.

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