Selective spinal anesthesia for outpatient laparoscopy. V: pharmacoeconomic comparison vs general anesthesia

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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
A new technique of spinal anaesthesia (SA), based on small-dose hypobaric lidocaine-fentanyl solution, was considered for outpatient gynaecological laparoscopy of a short duration.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised all patients undergoing outpatient gynaecological laparoscopy.

Setting
The setting was a hospital. The study was carried out at the University of British Columbia, Vancouver (BC), Canada.

Dates to which data relate
The effectiveness evidence and resource use data were gathered from 1995 to 1997. The price year was 1997.

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

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

Study sample
Power calculations to determine the sample size were not carried out. Patients undergoing outpatient gynaecological laparoscopy from 1995 were included in the study. Fifty-four patients were retrospectively selected. Of these, 24 were included in the SA group and 28 in the GA group. The mean age of the participants was 35 (± 5) years in the SA group and 34 (± 6) years in the GA group.

Study design
This was a retrospective observational study that was carried out in a single centre (the University of British Columbia). It was stated that "patient preference largely determined the choice of technique". The groups of patients were matched.
for age, weight, and duration and type of surgery. The effectiveness outcomes were assessed through patient charts.

**Analysis of effectiveness**

All the patients included in the study were accounted for in the analysis. The primary health outcomes were the time for anaesthesia, the time for recovery in the post-anaesthetic care unit (PACU), the time from arrival in the PACU until discharge home, and the administration of postoperative anti-emetic and analgesic requirements. The two groups were shown to be comparable by matching. No other baseline characteristics were reported.

**Effectiveness results**

The time to administer anaesthesia was 18 (+/- 8) minutes for SA and 10 (+/- 3) minutes for GA, (95% confidence interval, CI, of the difference between the treatments: -11.3 - -4.7; p<0.05).

The time for recovery in the PACU was 123 (+/- 51) minutes for SA and 94 (+/- 48) minutes for GA, (95% CI of the difference between the treatments: -56.6 - -1.4; p<0.05).

The time from arrival in the PACU until discharge home was 150 (+/- 59) minutes for SA and 124 (+/- 49) minutes for GA.

The administration of postoperative anti-emetics was not statistically different between the two groups (8% for SA and 14% for GA).

The frequency of administration of parenteral opioids was 8% in the SA group and 21% in the GA group.

**Clinical conclusions**

The effectiveness analysis showed that SA was less effective than GA with respect to time to administer anaesthesia and the duration of recovery. However, SA resulted in reduced postoperative analgesic requirements in comparison with GA.

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

The health outcomes were left disaggregated and no summary benefit measure was used. A cost-consequences analysis was therefore performed.

**Direct costs**

Discounting was irrelevant because the costs were incurred during and immediately after the surgical intervention. The resource quantities and the unit costs were not reported separately, and the boundary adopted was that of the authors' institution. The costs included in the study were for supplies (all disposables used when administering anaesthesia), sterilising, drugs, gases and nursing time. The cost items common to both interventions were excluded. The costs and quantities were estimated using actual direct hospital expenses, derived from hospital charts. The resource use data were gathered from 1995 to 1997. The price year was 1997.

**Statistical analysis of costs**

The results of a statistical analysis of the costs were reported, but the method used was not.

**Indirect Costs**

The indirect costs were not included.

**Currency**
Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
Both the costs of anaesthesia (supplies, sterilising, drugs and gases) and recovery (supplies, drugs and nursing time) were similar for both groups.

The total costs were Can$53.4 (+/- 10.4) for SA and Can$48.9 (+/- 10.2) for GA, (p less than or equal to 0.05).

Synthesis of costs and benefits
Not relevant.

Authors' conclusions
The results of the study did not indicate significant differences in the costs of the two strategies. However, the effectiveness analysis suggested that general anaesthesia (GA) reduced the anaesthesia and recovery time.

CRD COMMENTARY - Selection of comparators
The reason for the selection of the comparator was clear. GA represented the routine intervention before the introduction of SA. You should consider whether it represents a widely used technology in your own setting.

Validity of estimate of measure of effectiveness
The internal validity of the analysis was limited mainly due to the study design (retrospective observational study). The authors recognised the possible bias represented by the fact that the anaesthetic was chosen on the basis of patient preferences, and this could have affected the distribution of the risk between the groups. It would also have been useful had the authors measured outcome in terms of health, for example pain or mortality, if appropriate.

Validity of estimate of measure of benefit
There was no summary measure of benefit. A measure of quality of life or patient preference would also have been useful.

Validity of estimate of costs
All the categories of costs relevant to the perspective of the study were included in the analysis. However, the quantities and the costs were not reported separately, thus reducing transparency. In addition, statistical analyses of the resources were not undertaken. The cost estimates are likely to be specific to the authors' institution setting. These factors limit generalisability.

Other issues
The issue of the generalisability of the results was not addressed and no sensitivity analyses were performed. However, the authors made appropriate comparison of their findings with those from other studies. The effectiveness results were reported in full, although the costing was limited. The authors discussed the limitations of their study in terms of the
possible bias due to it being retrospective in nature. They argued, however, that this would be unlikely to alter the conclusions, which were in keeping with the scope of the study.

Implications of the study
The authors suggested that further research should be based on large prospective randomised controlled trials, given the design limitations of this study and the rarity of adverse events.

Source of funding
None stated.

Bibliographic details

PubMedID
11305830

DOI
10.1007/BF03019759

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Ambulatory Surgical Procedures /economics; Anesthesia Recovery Period; Anesthesia, General /economics; Anesthesia, Spinal /economics; Cost-Benefit Analysis; Costs and Cost Analysis; Drug Costs; Female; Humans; Laparoscopy /economics; Retrospective Studies

AccessionNumber
22001000750

Date bibliographic record published
31/03/2003

Date abstract record published
31/03/2003