The efficacy of regional anesthesia for outpatient anterior cruciate ligament reconstruction

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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
Using regional femoral sciatic nerve block in patients undergoing arthroscopically assisted anterior cruciate ligament (ACL) reconstruction as an outpatient procedure.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing arthroscopically assisted anterior cruciate ligament (ACL) reconstruction.

Setting
Hospital. The economic study was carried out in the USA.

Dates to which data relate
The effectiveness and resource use data were collected between July 1992 and March 1996. The price year was 1995.

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

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

Study sample
Power calculations were not used to determine the sample size. The regional anaesthesia group consisted of 36 patients with an average (SD) age of 28 (9) years versus 31 patients in the control group (general anesthesia) with an average age of 27 (7) years.

Study design
This was a retrospective cohort study, carried out in a single centre. The duration of follow-up was until discharge. No loss to follow up was reported.
Analysis of effectiveness
The analysis of effectiveness was based on intention to treat. The health outcome measures were anaesthesia time, operative time, recovery room time, and anesthesia-related complication.

Effectiveness results
The regional anesthesia group had an average (SD) anesthesia time of 4 hours, 12 minutes (56 minutes) versus 3 hours, 53 minutes (36 minutes) in the general anesthesia group, (p value not significant). The corresponding values for the mean operative time were 3 hours, 17 minutes (46 minutes) versus 3 hours, 2 minutes (42 minutes), respectively, (NS). The corresponding values for the mean recovery room time were 2 hours, 30 minutes (1 hour, 5 minutes) versus 1 hour, 56 minutes (51 minutes), respectively, (p<0.05). The groups had similar anaesthesia-related complications.

Clinical conclusions
"By and large, the patients who received femoral sciatic nerve blocks were comfortable in the recovery room and were able to be transported to their homes with a minimum of discomfort".

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic study, and only separate clinical outcomes were reported.

Direct costs
Discounting of costs was not required due to the short period of treatment. Costs/quantities were not reported separately. The cost items were reported separately. The cost analysis covered the costs of recovery room time, the average cost of overnight stay in the hospital, and professional fees. The perspective adopted in the cost analysis was not explicitly specified. Actual charge data were used in the cost analysis. The date of the price data was 1995. The costs of operating room and anesthesia time were not included in the cost analysis since they were common to both modalities.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
It was calculated that regional anesthesia led to a $2,907 overall cost savings per patient compared with the general anaesthesia.

Synthesis of costs and benefits
Costs and benefits were not combined.
Authors' conclusions
Femoral sciatic nerve block anesthesia is a safe and reliable alternative to general anesthesia for patients undergoing outpatient ACL reconstruction, and does not compromise operating room efficiency. However, it was noted that patients receiving regional anesthesia require a slightly longer recovery room stay. ACL reconstruction using regional anesthesia and with same-day discharge was "well tolerated" and is a cost-effective alternative to in-patient ACL reconstructions.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of benefit
The internal validity of the effectiveness results may be weakened by the lack of a randomised design. Given the lack of a unique benefit measure, the study should be regarded as a cost-consequences study.

Validity of estimate of costs
Quantities were not reported separately from costs, but adequate details of the methods of cost estimation were given. The study lacked a prospective cost analysis.

Other issues
In view of the lack of randomisation, sensitivity analysis, and statistical analysis of the costs, the results should be treated with some caution. The issue of generalisability to other settings or countries was not systematically addressed. A cost-utility analysis may have been appropriate in the context in question.

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