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Title **Which Anaesthetic Agents are Cost Effective in Day Surgery? Literature Review, National Survey of Practice and Randomized Controlled Trial**

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Aim

To identify and value resource use, impact on patients, and relative value for money associated with different anaesthetic agents in day surgery.

Conclusions and results

Many of the RCTs available that investigated clinical outcomes involved the use of various anaesthetic combinations and approaches. There were few good comparative studies of patient-based outcomes and economic evidence. No optimal regimen was identified for adults or children on the basis of clinical outcomes, patient acceptability, or efficiency.

The national survey of anesthetists (response rate 76%) indicated the following in adult urology, adult orthopedic, and pediatric general day-case surgery, respectively:

- Use of premedication, 6%, 12%, and 19%
- Propofol as the preferred induction agent, 78%, 81%, and 51%
- Isoflurane as the preferred maintenance agent, 52%, 54%, and 45%
- Use of prophylactic anti-emetics, 32%, 41%, and 24%
- Use of a laryngeal mask airway, 86%, 83%, and 85%.

Results from the adult RCT and the pediatric study are discussed in detail in the full report.

Recommendations

Sevoflurane/sevoflurane is not a cost-effective regimen for day surgery in adults or children. It is associated with higher rates of PONV than propofol followed by propofol, isoflurane, or sevoflurane. It is more expensive than mixed anesthesia regimens. In the adult study, there were no statistically significant differences in the incidence of PONV between the regimens that used propofol for induction. However, there were statistically significant differences in the variable costs of the regimens. The propofol/isoflurane regimen was associated with the lowest cost per episode of PONV avoided.

Methods

The study consisted of three parts: 1) A literature review of clinical outcomes, patient-based outcomes, and economic data. 2) A national survey of 270 anesthetists (October 2000) to determine anaesthetic practice in adult and pediatric day surgery. 3) A prospective RCT to compare the cost effectiveness of anaesthetic regimens. Prospective patient-based resource-use data were collected up to day 7 post-discharge, from the perspective of the NHS and the patients.

Further research/reviews required

Further research is needed in the following areas: 1) Optimization of perioperative analgesia. 2) Routine perioperative PONV prophylaxis should be reviewed. 3) Risk factors for PONV. 4) Cost of volatile anesthetics. 5) Role of patient preferences in anesthesia.

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