Conference Report

Anaesthesia for daycare patients: controversies and concerns

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"Anaesthesia for Daycare Patients: Controversies and Concerns" was the title of the fifth annual conference organised by the Department of Anaesthesia, University of Calgary, held in Calgary, Alberta, on October 26, 1985. The participants were Graham Smith from the University of Leicester, Leicester, United Kingdom; Gary G Johnson of the University of Ottawa, Ottawa, Ontario; Odile M Plantevin of St Thomas' Hospital, University of London, London, United Kingdom; and J Alistair Duncan, Gerald V Goresky, J Roger Maltby and John P Sale of the University of Calgary, Calgary, Alberta.

The meeting began with an outline of the physical requirements for a daycare surgery unit by Dr. Smith. He stated that a general hospital serving a population of 100,000 will make use of a unit with ten beds and one operating theatre, doing 2500 daycare surgical procedures annually. The standard of equipment and care must be the same as in the main operating suite of a general hospital, including a fully equipped and staffed recovery room. In addition, there must be a reception area and lounge for waiting patients and relatives, a nurses' office, clean and dirty utility rooms, a large storage area for surgical packs, instruments and laundry, a small laboratory for handling blood samples, lavatories and a small kitchen to dispense refreshments to patients before discharge. Staffing for a ten-bed unit should include a senior nurse in charge, three assistant nurses, an anaesthetic technician and a secretary. Dr. Smith also discussed independent daycare surgery units, stating that they can be operated at a lower economic cost than those attached to acute hospitals.

Patients should be in ASA physical status Class I or II, but Class III patients with well controlled disease may be accepted. Dr. Johnson in his paper on the assessment and preparation of children for daycare anaesthesia noted that some institutions exclude infants up to the age of six months, although he would accept healthy full-term neonates. He would exclude ex-premature, low birth weight and small for gestational age babies until age three months, and preferably until six months, because of the risk (10–25 per cent) until then of apnoea 12–18 hours after anaesthesia. Also, those who had had respiratory distress syndrome and subsequently developed bronchopulmonary dysplasia may have radiologic changes lasting up to three years and clinical signs and symptoms for one to two years, and are at risk for atelectasis or pneumothorax while anaesthetised.

At the opposite end of the age range, 70 years should be the usual maximum allowable age, according to Dr. Plantevin, who discussed the assessment and preparation of adults. She listed the main contraindications to daycare anaesthesia: unstable, uncontrolled or severe diabetes, sickle cell disease, multiple drug therapy, severe cardiac or respiratory problems, and obesity. The social conditions of the patient must be taken into consideration; a responsible adult must be available to take the patient home and to provide care for the first 24 hours.

Drs. Johnson, Plantevin and Smith all recommended anaesthetic assessment clinics for daycare surgery where patients could be screened and

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appropriate investigations arranged before the patient arrives in the daycare unit. Instructions for preoperative preparation, e.g., fasting, and postoperative limitation of activities could be given at this time. Dr. Plantevin emphasised the importance of discussing with patients what they may expect to feel after the anaesthetic and surgery, thus decreasing postoperative anxiety.

Most speakers recommended that criteria be established for procedures done on a daycare basis. The surgery should be of short duration, lasting no longer than one hour (Dr. Smith) or two hours (Dr. Johnson), of a relatively minor nature, and with minimal haemorrhage or postoperative pain. Requirements for post-discharge nursing care must be minimal, i.e., such as can be done by any untrained person.

Dr. Johnson mentioned the high rate (7.7–18 per cent) of cancellation of day surgery in children, most commonly for upper respiratory tract infections. He recommended that elective surgery be postponed for six weeks if a patient has one or more of the following signs: lethargy, fever, discoloured nasal discharge, productive cough, adventitious pulmonary sounds, or increased white blood cell count. Also a morning temperature of 38° C (oral) should be considered an independent reason to cancel surgery. He emphasised the need for immediate preoperative assessment by the anaesthetist, even after a prior assessment by another physician. In addition, stress was placed on the psychological aspects of relating to children. The anaesthetist should sit and speak with the child at eye level, and not stand and dominate. Conversation should be directed towards the child, using simple terms. Slang expressions with negative connotations such as "give you a shot," "put you out," "hook you up," "strap you in," "put you to sleep" are best avoided.

Premedication was mentioned by Drs. Johnson and Plantevin. Anticholinergics were recommended for children under 30 kg weight or ten years of age. Suggested doses were: atropine $0.02\ mg \cdot kg^{-1}$ orally or rectally, or $0.01\ mg \cdot kg^{-1}$, to a maximum of 0.4 mg, intravenously at induction of anaesthesia. Adults do not require routine anticholinergic premedication. Both Drs. Johnson and Plantevin discouraged the use of sedative or opioid premedication in daycare patients. In adults, postoperative emesis can be decreased by premedication with metoclopramide or domperidone. If H_2 receptor antagonists are used, when possible a dose should be given the night before surgery and another on the morning of operation.

Dr. Goresky discussed anaesthetic techniques for children, emphasising choice of an appropriate induction technique (intravenous versus rectal barbiturate). He recommended the use of muscle relaxants and of short-acting narcotics intravenously to reduce the dose requirements for slowly eliminated inhalational or parenteral agents. Also, administration of long-acting antiemetics (e.g., droperidol $0.075\ mg \cdot kg^{-1}$ intravenously) decreases postoperative vomiting without undue sedation. He then discussed the use of regional anaesthetic techniques as supplements to general anaesthesia to allow dramatic decreases in the dose of potent inhalation agents during anaesthesia and of narcotics used postoperatively. Ilioinguinal and iliohypogastric nerve blocks for inguinal hernia repair and caudal anaesthesia or dorsal nerve blocks of the penis for circumcision or hypospadias repair are effective regional techniques in children. With the caudal administration of 0.25–0.375 per cent bupivacaine at a dose of $0.5\ mg \cdot kg^{-1}$, good analgesia without motor blockade may be provided for penile or lower abdominal surgery.

Dr. Plantevin, in discussing anaesthetic techniques for adults, also pointed out the benefits of regional anaesthesia, of the short-acting narcotics in balanced anaesthesia, and of the use of neuromuscular blocking agents to reduce the dose of inhalational agents. She strongly recommended the use of methohexitone instead of thiopentone, because of the longer duration of the latter.

The final session dealt with postoperative assessment. Dr. Sale discussed techniques for estimating patient "street-readiness." He divided the recovery period into three phases: immediate, intermediate and late. The immediate recovery phase includes the return of vital signs to normal, including the recovery of airway reflexes, and then the regaining of consciousness. Using the Apgar score as a model, Aldrete[2] and Steward[3] have each proposed a simple scoring system for the assessment of postoperative recovery in paediatric patients.

Intermediate recovery is the period of recovery of motor skills, such as eye–hand coordination and postural reflexes. Numerous tests have been devised, e.g., reaction times, short-term memory,

measurement of extra-ocular muscle balance, letter deletion. Most have been used for research comparing two anaesthetic agents or techniques, but no one test has found its way into routine assessment of recovery, although several have been used as part of discharge criteria.

Later recovery – until the effects of anaesthesia disappear completely – may last for hours or even days. Most patients are discharged with some effect of the anaesthetic remaining. The decision to discharge, therefore, must be made balancing the safety of the patient suffering minimal side effects against the cost of prolonging stay in the daycare unit. Dr. Sale recommended that patients be discharged only when fully conscious, and able to converse normally, to walk unaided, to retain oral fluids and, when appropriate, to have passed urine. The patient should of course not have any complications or symptoms which require treatment.

Drs. Duncan and Maltby reviewed the problem of unscheduled hospital admission after daycare surgery which varies from 0.11 per cent[4] to 4.1 per cent[5] in several reviews. They studied all unscheduled postoperative admissions during a 12-month period at the Foothills Hospital, Calgary. From April 1984 through March 1985, out of 6294 daycare surgical patients only 104 (1.65 per cent) required admission to hospital for at least one night. Problems due primarily to the surgery (75 patients) were twice as common as those due primarily to anaesthesia (34 patients), with five patients having both surgical and anaesthetic problems. The most frequent surgical complications were postoperative bleeding (23), postoperative pain (17), extended surgery for unanticipated pathology (12), and surgical misadventure (8). Anaesthesia related complications included persistent nausea and vomiting (18), delayed awakening (4), severe bronchospasm during the anaesthetic (2), and fainting at the time of starting the intravenous infusion (2). In the patients with persistent vomiting, no single factor in their anaesthetic management could be incriminated. Because of the occasional need to admit daycare patients to hospital overnight, several speakers emphasised the need for liaison between the daycare facility, whether hospital-based or free-standing, and an acute care hospital for the emergency admission of these patients.

The consensus of all speakers was that daycare surgery makes up an increasing part of anaesthetic practice. With proper assessment and selection of patients and surgical procedures, with the wide variety of anaesthetic agents and techniques now available, and with appropriate postoperative assessment and care, daycare anaesthesia is safe, economical and acceptable to most patients and their families.

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