
Symposium Report

Practical issues in outpatient anaesthesia

Ambulatory surgery has increased in popularity in response to rising costs of inpatient hospital care. The technological developments in medicine, surgery, pharmacology and anaesthesia management also advanced ambulatory surgery. At present, 60–70% of surgery in North America is performed on an ambulatory basis. The increasing number and complexity of operations being performed on an outpatient basis presents many unique challenges to the anaesthetists. The symposium on "Practical Issues in Outpatient Anaesthesia" was presented at the 1995 Annual Meeting of Canadian Anaesthetists' Society in Ottawa, Ontario. The symposium was divided into three parts. The first part dealt with the management of postoperative pain and emesis in outpatients, the second part dealt with the practical infection control issues and the third part dealt with the practical discharge issues.

Ambulatory anaesthesia will play an ever-important role in the decade of the nineties. As more extensive and painful surgical procedures are being performed on an outpatient basis, anaesthetic techniques to improve analgesia with decreased emesis is needed to improve our ability to provide cost-effective care. The safe and expeditious conduct of ambulatory surgical care can only succeed by careful selection of patients and surgical procedures, appropriate intraoperative and postoperative anaesthetic care, prudent and timely discharge of patients.

L'augmentation des coûts hospitaliers a propagé la pratique de la chirurgie ambulatoire. Les progrès technologiques réalisés en médecine, en chirurgie, en pharmacologie et en anesthésie se sont aussi appliqués à la chirurgie ambulatoire. Présentement, en Amérique du nord, de 60 à 70% de la chirurgie est effectuée en mode ambulatoire. L'augmentation du nombre et de la complexité des interventions ainsi réalisées présente un défi réel pour l'anesthésiste. Un symposium portant sur les aspects pratiques de l'anesthésie ambulatoire a été présenté au congrès annuel de la Société canadienne des anesthésistes à Ottawa. Le symposium était divisé en trois sections. La première portait sur la gestion de la douleur postopératoire et des vomissements, la seconde sur le contrôle des infections et la troisième sur le congé de l'hôpital.

Au cours des années 90, l'anesthésie ambulatoire aura joué un rôle de premier plan. Comme des interventions plus compliquées et plus douloureuses sont effectuées chez des patients ambulatoires, des techniques anesthésiques visant à améliorer

l'analgésie tout en diminuant l'incidence des vomissements sont essentielles si on veut procurer des soins de qualité tout en limitant les coûts. Dans le domaine des soins ambulatoires, on ne peut réunir la sécurité à la diligence que par une sélection pertinente des patients et des interventions, des soins peropératoires et postopératoires appropriés, et une autorisation de départ prudente et opportune.

Practical infection control

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Several changes are affecting the delivery of healthcare. With awareness of the global spread of the acquired immunodeficiency syndrome (AIDS) and reports of the transmission of the human immunodeficiency virus (HIV) from a dentist to several patients, the public has become increasingly concerned about measures to prevent infection. The indiscriminate use of powerful antibiotics and improper treatment regimens have produced outbreaks of drug-resistant organisms including tuberculosis. The economics of healthcare delivery are prompting physicians and hospital administrators to look for methods to reduce the cost of treatment. In addition, standards of care such as Universal Precautions are being required and contribute to growing expenditures for equipment, administrative costs, and educational programmes. At a time when increased surveillance for infectious complications is advocated, more surgical and diagnostic procedures are performed on an outpatient basis, thus making the collection of follow-up data more difficult.

Because of the invasive procedures performed during anaesthesia, breaks in aseptic technique by anaesthetists can produce postoperative infectious complications.¹ In

one report, four outbreaks of postsurgical infection were traced to propofol that had been extrinsically contaminated by anaesthesia personnel. Presumably in an effort to reduce the cost of medication, propofol was delivered from the same infusion to multiple patients. Subsequent investigation demonstrated that propofol can support rapid microbial growth and endotoxin production.² Therefore, it is recommended that preservative-free, single-use ampoules and vials be used for individual patients. The container should be opened immediately before use and the ampoule neck or the vial's rubber septum should be disinfected with an alcohol swab before opening. Only sterile needles and syringes should be used to aspirate medication and, for propofol, any unused agent should be discarded within six hours of opening the ampoule.

Multiple-dose medication vials contain a preservative to retard microbial growth, but outbreaks of nosocomial infection have been traced to contaminated vials. Although cultures taken from multiple-dose vials used by anaesthesia personnel demonstrated no viable bacteria,³ other investigators have demonstrated that some medications in multiple-dose vials may permit bacteria to survive for up to 96 hr and to produce endotoxin.⁴ When an aseptic technique is consistently used to enter a multiple-dose vial, the contents can be used until the expiration date set by the manufacturer or by local policy. If a contaminated needle or syringe has been used to enter the vial, as in an emergency situation, the vial should be discarded. For some infrequently used medications, single-dose vials may be more cost effective than multiple-dose packaging.⁵

Disposable syringes are single patient use items and should not be used to administer medication to multiple patients even though the needle is changed between uses. Microorganisms are introduced into the contents of the syringe from a contaminated needle when it is pulled from the syringe⁶ or from the plunger shaft during multiple cycles of passage through the syringe barrel.⁷ Parlow demonstrated that injection into the flashball of an intravenous administration tubing resulted in blood contamination of syringes that might be invisible on casual observation.⁸ These findings indicate that medication should not be administered to multiple patients from a syringe even if the needle has been changed. At the end of each anaesthetic, all used syringes and needles should be discarded into a puncture-resistant container.

Improperly handled anaesthesia equipment has been implicated in outbreaks of nosocomial respiratory tract infection. The Centers for Disease Control and Prevention have published guidelines for appropriate infection control procedures for anaesthesia equipment.⁹ Items used on the respiratory tract such as the anaesthesia breathing circuit

(inspiratory and expiratory breathing tubes, Y-piece, reservoir bag), endotracheal tube, face mask, laryngoscope blade, oral airway, and monitoring devices inserted into the breathing circuit should be single patient use items or if reusable, should undergo high-level disinfection between patients.⁹⁻¹¹ Except for patients with pulmonary or laryngeal tuberculosis, the routine use of microbial filters in anaesthesia breathing circuits is not indicated.^{9,12} Devices such as blood pressure cuffs or ECG cables, which either touch only intact skin or do not touch the patient, should be cleaned with an antiseptic or soap and water between uses and when contaminated with blood.

In an effort to reduce equipment costs, some hospitals reprocess single-use disposable items. Although the cost effectiveness of reusing disposable items has not been adequately studied, 41% of Canadian hospitals in one survey reprocessed single-use items.¹³ When disposable medical devices are reused, the institution must formulate a policy to assure the sterility and physical integrity of the device after recycling.¹⁴ If reprocessing is undertaken, the user assumes liability for the function and sterility of the product. When institutions consider whether to recycle disposable devices, the cost of processing, packaging, and storage should be compared with the cost of the single-use item and the charge for its disposal.

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Management of postoperative pain and emesis

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“Slapping the patient on the face and telling him or her that it’s all over is a complete inversion of the truth. As far as the patient is concerned, it is often just the beginning.”¹ Although the currently available armamentarium of analgesic and antiemetic drugs is impressive, management of acute postoperative pain, as well as nausea and vomiting, poses some unique challenges following ambulatory surgery. The increasing number and complexity of operations being performed on an outpatient basis present the practitioners of ambulatory anaesthesia with many unique challenges. Outpatients undergoing day-case procedures require an analgesic technique that is effective, has minimal side effects, is intrinsically safe, and can be easily managed away from the hospital or surgery centre. Intractable nausea and vomiting not only contributes to dehydration in the early recovery period and delays the discharging of patients from the ambu-

latory unit, but also leads to unanticipated hospital admissions.

The control of postoperative pain and emesis is the most important factor in determining when a patient can be safely discharged from an outpatient facility. Since inadequately treated pain and emesis are among the most common problems after ambulatory surgery, the ability to provide adequate pain relief without exacerbating postoperative nausea and vomiting (PONV) remains one of the major challenges for providers of outpatient anaesthesia and surgery. Although perioperative analgesia has traditionally been provided by opioid analgesics, aggressive use of opioids can be associated with sedation and an increased incidence of PONV, which, in turn, contributes to a delayed discharge from the day-care facility. In order to minimize these opioid-related adverse effects, “balanced” analgesia techniques involving the use of opioid and non-opioid analgesic drugs (local anaesthetics and non-steroidal anti-inflammatory drugs (NSAIDs) are becoming increasingly popular.²

Local anaesthetic techniques

Peripheral nerve blocks and wound infiltration with local anaesthetics are becoming increasingly popular adjuncts to general anaesthesia because they can provide considerable intraoperative and postoperative analgesia. These techniques decrease the incidence of pain and reduce the requirements for narcotic analgesics in the perioperative period. Effective pain relief in the early postoperative period provides for rapid and smooth recovery, enabling earlier ambulation and discharge from the ambulatory surgery unit. The use of local anaesthetic techniques for postoperative pain control can also decrease the incidence of PONV and, thereby, potentially lower the incidence of unanticipated hospital admission after ambulatory surgery. For example, blockade of the ilioinguinal and iliohypogastric nerves with bupivacaine 0.25–0.5% decreases the anaesthetic and analgesic requirements in children and adults undergoing inguinal herniorrhaphy. Subcutaneous ring block of the penis with bupivacaine 0.25% provides effective analgesia after circumcision. Similarly, infiltration of the mesosalpinx in the area of the Yoon ring placement with 0.5% bupivacaine decreases the postoperative pain and cramping after laparoscopic tubal ligation. Pain after knee surgery can be decreased by administering a femoral nerve block alone or in combination with intraarticular local anaesthesia.

While subcutaneous infiltration of the operative site with local anaesthetics remains a popular technique for decreasing postoperative opioid analgesic requirement, other simplified local anaesthetic techniques have been described in the anaesthesia literature. For example, topical analgesia with a lidocaine aerosol was found to be