ANAESTHESIA FOR DAY-CARE SURGERY: A SYMPOSIUM (III)*

ANAESTHESIA FOR ADULT SURGICAL OUT-PATIENTS

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ABSTRACT

This discussion is based on the experience of the Phoenix Surgicenter,[®] where over 60,000 patients have been anaesthetized since 1970. Patients accepted for out-patient surgery are ASA Status I or II, although status III patients may be included if their co-existing disability is under excellent control.

Eighty-five per cent of adult patients receive general anaesthesia. A wide variety of local and regional anaesthetic techniques may be used. Efforts during recovery are directed towards preparing the patient for discharge in a "home ready" condition for safe handling by attending relatives.

The common complications have been postoperative nausea or emesis and hypotension. The hospital transfer rate has been 0.2 per cent.

THE PHOENIX SURGICENTER[®] was opened in 1970 as a freestanding ambulatory surgical facility by Doctors Wallace Reed and John Ford. Since then anaesthesia has been administered to over 60,000 patients; not one has had a cardiac arrest or developed malignant hyperthermia; the hospital transfer rate has been 0.2 per cent. This experience furnishes the basis for this discussion.

Anaesthesia for the adult surgical out-patient requires all the safeguards accorded in-patients. In addition, special considerations are needed to ensure safe discharge in a satisfactory "home ready" condition for safe handling by attending relatives. The patient should be reasonably mobile with good orientation and freedom from bleeding, discomfort, nausea or emesis.

Selection of patients

Patients of ASA physical status 1 or 2 are acceptable for out-patient surgery. However, we feel that patients in status 3 may also be included provided that their coexisting medical condition is under excellent control. There is probably no upper age limit if all other criteria can be met; the oldest patient operated upon at Surgicenter[®] was 96 years old, although physiologically younger.

Preoperative evaluation

After receiving written instructions, patients

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report to the out-patient facility on the day of the operation. A history and physical examination to determine suitability for anaesthesia are made. Routine tests are limited to haemoglobin estimation, urinalysis, and clotting time. Other tests are done if indicated. Less than 1 per cent of patients have chest x-rays or electrocardiograms. This alone has resulted in savings of over two million dollars without any evidence of compromised patient care.

Cancellation of the operation has occurred in 0.7 per cent of patients, the commonest causes being upper respiratory infection, recent food ingestion and the operation being no longer necessary.

Premedication

Premedication is usually unnecessary, and its omission is a major factor in rapid recovery from general anaesthesia and ability to meet discharge criteria. However, adequate sedation is usually given to the overly anxious or the retarded patient and to those having a rate pressure product of over 12,000.

General anaesthesia

Eighty-five per cent of our adult patients receive general anaesthesia. This usually consists of an intravenous barbiturate, oxygen and nitrous oxide supplemented with (a) fentanyl and muscle relaxant or (b) halogenated inhalation agents, usually enflurane with or without muscle relax-

ants. Evidence suggests that, where available, Alfathesin* may offer advantages over intravenous barbiturates by shortening recovery time and lowering the incidence of "hangover". Supplementing nitrous oxide with either fentanyl or enflurane results in some difference: fentanyl leads to a more rapid emergence from anaesthesia but has a higher risk of awareness and postoperative nausea and emesis; enflurane provides better control of anaesthetic depth but has a much higher incidence of muscle hypertonus on emergence.

Muscle relaxation may be provided as is required using depolarizing or nondepolarizing agents. If nondepolarizing agents are used, it is prudent to use reversal drugs for all out-patients. Succinylcholine 0.1 per cent intravenous infusion has found wide acceptance for relaxation in out-patients. When given slowly, it does not appear to be associated with post-succinylcholine pains. This condition does occur frequently in out-patients receiving intravenous bolus succinylcholine; thus a nondepolarizing agent should always be used before intravenous bolus doses of succinylcholine. The patient should always be permitted to demonstrate return of good muscle tone following a small initial test dose of succinylcholine 0.1 per cent infusion; this avoids embarrassing postoperative apnoea from an unsuspected low or atypical serum cholinesterase activity.

Emergence from anaesthesia should be well underway at the conclusion of the surgical procedure. The patient should be awakening and be transferred to the recovery room when in a stable condition, accompanied by an anaesthetist.

Monitoring

With increasing demands for more and better warning systems in the operating room, we feel that the following constitute required monitoring of the out-patient at this time: continuous monitoring of (a) the heart by precordial or oesophageal stethoscope complemented by the electrocardiogram; (b) arterial blood pressure by the sphygmomanometer; (c) body temperature. Other monitors may be used as required.

Local and regional anaesthesia

A wide variety of peripheral nerve blocks and intravenous regional anaesthesia can be used in the out-patient. Caudal or perianal block² is preferred to general anaesthesia for perianal op-

erations in the prone jack-knife position. Subarachnoid anaesthesia, using a 26-gauge spinal needle, has been safely used in a large out-patient series³. Lumbar epidural anaesthesia has been reported in out-patients⁴, but either failure to obtain anaesthesia or inadvertent dural puncture with a large needle in 8 per cent of patients appear to make the technique less desirable than subarachnoid anaesthesia.

Patients under local anaesthesia must at all times receive the supervision accorded the patient under general anaesthesia. Furthermore, the possibility of a pneumothorax should always be entertained and included whenever needles are used near to or pointing in the direction of the pleura.

Recovery room

Efforts in the recovery room are directed towards preparing the patient for discharge in a state of "home readiness". This state includes a stable circulation, no bleeding, no excessive pain, no nausea or emesis. Cystoscopy patients should have voided. Circulation and sensation must be satisfactory following operations on the extremities if either a tourniquet was used or a cast applied. All patients should be in possession of adequate instructions and necessary prescriptions. A follow-up telephone call is made the day after the operation to ascertain progress. The most important ingredient in the recovery room to achieve these goals is an adequate number of well trained sympathetic yet encouraging nurses.

Complications

The commonest complications are nausea and/or emesis, and hypotension.

Nausea occurred in 30 per cent and emesis in 20 per cent of patients; contributing factors have included pain, narcotic analgesic drugs, hypotension, obesity, excessive and sudden movement or position changes and a history of motion sickness. The presence of the latter or a history of nausea and emesis with previous anaesthesia warrants administration of an anti-emetic drug during the operation. Otherwise treatment is that of the possible cause, continued postoperative intravenous fluids and anti-emetic drugs.

Postoperative hypotension occurred in 16 per cent of patients. Usual causes have been postural changes, pain, a full bladder, analgesic or anti-emetic drugs. However, more serious possibilities should always be considered. These have included hypoxia, hypovolaemia, or myocardial problems. All surgical out-patients

*Alfathesin: Alphaxalone/Alphadolone, Glaxo Laboratories, Toronto, Ontario.

should receive a minimum of 500 ml of intravenous fluids during operation and in the immediate recovery period. Treatment of postoperative hypotension includes treatment of the cause, administration of oxygen, supine positioning, continued intravenous fluids and, if required, a vasopressor, usually ephedrine.

Hospitalization

The hospital transfer rate has been 0.2 per cent for all patients but increased to 0.59 per cent for patients over 64 years of age and to 1.41 per cent for those in ASA physical status 3.⁵ Commonest reasons were bleeding, inadequate pain control and further elective operations. No patient was transferred as an emergency; all cases of bleeding were controlled in the outpatient facility before transfer to hospital for observation.

Patient acceptance

Out-patient surgery has proven to be an extremely satisfactory experience for everyone involved. Patient satisfaction has been well demonstrated by a large prospective study undertaken for the U.S. Department of Health, Education and Welfare by an independent survey organization.⁶ Surgeons are attracted by efficiency and convenience. Anaesthetists have long sought increased and better patient contact and readily

find it in out-patient surgery; where else does a patient stand up, shake you by the hand and thank you for his anaesthetic care 90 minutes after emerging from a general anaesthetic?

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RÉSUMÉ

Les auteurs rapportent l'expérience de la clinique Surgicenter de Phoenix où plus de 60,000 patients ont été anesthésiés depuis 1970. Les malades acceptés pour la chirurgie ambulatoire sont des classes I et II selon la classification de l'ASA, bien que certains patients de classe III peuvent être inclus si l'affection concomitante dont ils souffrent est bien contrôlée.

On a administré l'anesthésie générale à quatre vingt-cinq pour cent de la population adulte, mais une grande variété de techniques locales et régionales peuvent aussi être employées. A la période de réveil, on prépare les malades pour le retour à la maison sous la surveillance des parents qui les accompagnent.

Les complications les plus communes ont été la nausée post-opératoire ou les vomissements et l'hypotension. Le taux de transfert à un hôpital a été de 0.2 pour cent.