

Review Article

AMBULATORY ANAESTHESIA –AN OVERVIEW

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ABSTRACT

Ambulatory Anaesthesia is office based anaesthesia (day care anaesthesia) carried out by anaesthesiologist in physician's office or dedicated Ambulatory Surgical Centres (ASCs). Ambulatory anaesthesia currently represents more than two thirds of the anaesthesia performed. It is considered to be cost effective, safe, and patient's expected to be discharged home on the same day. More than three decades of evidence supports the idea that the preoperative assessment is best done by the focussed history, physical examination, and only selective further laboratory investigations. With the cases optimized by this approach outcomes have not been shown to be much affected, possibly even improved along with less cost inflicted by additional testing. The multi modal (or balanced) analgesia represents an increasingly popular approach to prevent postoperative pain. The multimodal analgesia technique facilitates the recovery process and other clinical meaningful outcomes after ambulatory surgery.

Keywords: *Ambulatory Surgery, Preoperative, Laboratory, Assessment, Multimodal Analgesia*

INTRODUCTION

Ambulatory surgery or day care surgery refers to surgical or invasive diagnostic procedures on patients performed by qualified providers in ambulatory dedicated suites or in hospitals with pre procedural and immediate post procedural care; patients do not need to stay overnight in the hospital. Patients will be well enough to complete their recovery at home. Ambulatory anaesthesia has come a long way since 1842 with the surgical removal of neck mass by Crawford W. Long by administering ether to James Venable. Surgical practices have been transformed over the past century and a half. Majority of surgeries in the developed countries are carried out as ambulatory (day care) surgeries, with target 80% of all the surgeries in the United-states and 70% operative or diagnostic procedures in the United- Kingdom, in near future on the ambulatory basis. Ambulatory surgical care has proven to be safe, convenient, flexible and cost effective and can be performed in a variety of setups; hospital, dedicated Ambulatory Surgical Centres (ASCs) or in some cases, a surgeons office without requiring in hospital admission. This rapid growth in ambulatory surgery would not have been possible without the changing role of anaesthesiologists and the development of more highly titratable anaesthetic drugs and less invasive surgical techniques (Leim *et al.*, 1997). The availability of rapid, short acting anaesthetic, analgesic and muscle relaxant drugs have facilitated the recovery process allowing more extensive as well as complicated procedures to be performed on a wide variety of outpatients (Michaloliakou *et al.*, 1996). In future, the range of acceptable surgical patients and procedures continues to expand. However, patients presenting for outpatient surgery may have increasingly complex conditions, the anaesthesiologist have to be play an active role in their preoperative assessment and preparation in order to avoid delays and cancellations. The global economic cost containment demands the savings inherent ambulatory surgical procedures to be safely performed on day care basis without sacrificing quality while minimizing hospital resources (Kitz *et al.*, 1988).

Preoperative Assessment

The preoperative assessment plays a vital role because patients presenting for ambulatory surgery may have complex medical problems. It is essential to adopt a method to screening these patients preoperatively in order to avoid costly delays and last minute cancellations (Pollard *et al.*, 1996). This may be accomplished with telephone screening interview or through a visit to preoperative evaluation clinic. Collecting the information with the computerized questionnaires before preoperative evaluation by

Review Article

the anaesthesiologist can be time saving and efficient. Patients with a high risk of anaesthetic and surgical complications (e.g., difficult airway, malignant hyperthermia) or who will require special anaesthetic techniques are identified. Thorough preoperative assessment involves history, physical examination and laboratory investigations. Studies of medical ambulatory consultations have shown 86% of diagnosis depend entirely on information obtained from patients' histories, a further 6% discovered by physical examination, and only 8% were determined by laboratory investigations or radiographs. With the majority of studies it is concluded that 60% of routinely ordered preoperative screening tests could be eliminated if tests are based solely on recognisable indications. Further, inappropriate tests may be even harmful to patients because of unnecessary follow up of false positive test results or lack of appropriate follow up from false negative results.

For healthy, active outpatients undergoing superficial surgeries (e.g. biopsy, hernia repair, vein stripping, and dilatation and curettage) no laboratory tests indicated in males, only haemoglobin (or hematocrit) test may be required for females. However, patients with chronic diseases (e.g., hypertension, diabetes) require additional laboratory tests (e.g., electrolytes and glucose). In addition preoperative visit familiarizes the patient and family with the centre. To avoid unexpected delays resulting from incomplete assessment, all paper work, including the consent form, history, physical examination, and laboratory test results should be reviewed before arrival for surgery. Hence, thorough patient preparation prior to the day of surgery can prevent unnecessary delays, absences, last minute cancellations, and inadequate patient management.

Anaesthetic Techniques

Quality, safety, efficacy, and the cost of drugs and equipments are important factors in choosing an anaesthetic technique for ambulatory surgery. The ideal anaesthetic for ambulatory surgery should have a rapid and smooth onset of action and it should produce intra-operative amnesia with analgesia, good surgical conditions with a short recovery period. Ambulatory surgery requires the same basic equipments as inpatient surgery for delivery of anaesthetic drugs, monitoring, and resuscitation.

The choice of anaesthetic technique depends on both surgical and patient factors. For some ambulatory procedures, general anaesthesia remains the most popular technique with both patients and surgeons. When intravenous agents are used their doses must be limited; those agents that are quickly metabolized or distributed in the body away from the brain are preferred. Inhalational anaesthesia inductions which avoid or minimize intravenous agents are ideal. Monitored anaesthesia care (MAC) with a combination of local nerve blocks and intravenous sedation so also regional anaesthesia techniques such as spinal anaesthesia and peripheral nerve blocks are also useful techniques for majority of ambulatory (day care) surgeries. These techniques provide rapid and complete anaesthetic blocks, a limitation of adverse events, avoid unplanned hospital admissions while providing prolonged optimal postoperative pain relief; especially with continuous peripheral nerve blocks. The incidence of nausea and vomiting following ambulatory anaesthesia varies between 2.2% to 4.6%; PONV is more common following GA compared to regional anaesthesia. Since PONV is known to delay the patient discharge, a multimodal antiemetic therapy is more beneficial.

Discharge Criteria

There are three stages of recovery following ambulatory surgery, namely early, intermediate, and late. Early and intermediate recovery stages occur in the ASCs, whereas late recovery refers to the resumption of normal daily activities and occurs after discharge. Early recovery involves emergence from anaesthesia, patient regain their protective reflexes and resume motor activity. Patients are cared in post anaesthesia care unit (PACU), where in their vital signs and oxygen saturation are carefully monitored and supplemental oxygen, analgesics, or antiemetic administered. During the intermediate recovery period, patients are cared in recovery area; patients progressively begin to ambulate, drink fluids, void, and prepare for discharge. Most ASCs will have separate recovery area for the intermediate recovery of outpatients to home-ready state. The choice of anaesthetic technique as well as postoperative analgesic and antiemetic drugs may have an impact on the duration of intermediate recovery period. A prolonged early and intermediate recovery period will significantly increase the cost of patient's operation. The late

Review Article

recovery period starts when the patient is discharged home and continues until full recovery is achieved and patient is able to return to work. The anaesthetics, analgesics, antiemetic drugs may have an effect on the patient's recovery during the first 24 to 48 hours. However, the surgical procedure will have the highest impact on the patient's full functional recovery.

Summary

Ambulatory anaesthesia is considered to be cost effective, safe, low risk, with patients expected to be discharged home on the same day. Early mobilization and enteral feeding is beneficial in most procedures, and has been shown to reduce the risk for thrombo-embolic complications and gastro intestinal translocation- related infections. Reducing in hospital stay also reduces the risk of nosocomial infections.

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