Ambulatory Surgery

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Literature Review[1]
Selected abstracts from the current literature

Utricular macular ablation for benign paroxysmal positional vertigo

PF Anthony

Ear, Nose Throat J. (1996) 75/7 (416–421)

This report describes a new technique using the argon laser to ablate the utricular macula in the affected ear in patients with benign paroxysmal positional vertigo. This procedure is done as outpatient surgery under local anesthesia. The procedure successfully resolved benign paroxysmal positional vertigo in 14 patients. Symptoms in these patients improved from 20–100% (median 87%; mean 80%) as measured by the Dizziness Handicap Inventory.

Complications of endoscopic resection of colorectal adenomas

J Bichsel, B Meyer-Wyss, C Lang

Schweizerische Medizinische Wochenschrift (1996) 126/49 (2144–2148)

Endoscopic polypectomy is associated with a small but definite risk of bleeding and perforation. Patients with large adenomas are thus usually hospitalized for endoscopic resection. In order to evaluate whether these procedures can be performed in the setting of one day surgery, we retrospectively analyzed the complications and results of polypectomy done in the period from 1. 1. 1990 through 31. 12. 1994. Of 1399 colorectal adenomas resected in 680 patients, 385 (28%) were larger than 1 cm. Altogether we observed only 3 (0.2%) clinically significant complications: bleeding was seen in 2 patients, of whom only one required transfusion of one unit. One patient required surgery because of perforation after removal of a sessile cecal adenoma with uneventful outcome. These results show that endoscopic resection of colorectal adenomas is safe even if the polyps are large.

Organization and results of ambulatory laparoscopic inguinal hernia repair. Immediate results

H Johanet, P Marichez, F Gaux

Ann. Chir. (1996) 50/9 (814–819)

Since 1993, we have performed laparoscopic inguinal hernia repair by ambulatory surgery. We report the population of patients with inguinal hernia operated in this way from the first case operated by ambulatory surgery to May 1, 1996. The aim of this prospective and non-controlled trial was to present the organization of our day care department and to report the results of our experience, comparing the ambulatory and hospitalized population, identifying the reasons why we decided to operate on an inpatient basis, assessing the rate and the reasons why the patient was kept the night after an initially scheduled ambulatory procedure. Four hundred and thirty-three consecutive cases were operated during this period. 53.6% of patients were operated by ambulatory surgery, 89.4% of whom returned home at night. The reasons for an inpatient procedure were: bilateral repair in 25.2% of cases, medical in 16.4%, surgical in 20%, social in 13.5% of cases. The unilateral nature of the repair and the young age of the patients were two factors which led us to chose ambulatory surgery.

Efficacy of nonsteroidal antiinflammatory drugs in postoperative pain

J Joris

Acta Anaesthesiol. Belg. (1996) 47/3 (115–123)

NSAIDs have been increasingly used over the past ten years in the treatment of postoperative pain, such that they now play an important role in the management of postoperative analgesia, either alone or combined with opioids. When used alone, they are effective in relieving minor or moderate pain such as that seen after maxillofacial, minor orthopedic, or some ambulatory surgical procedures, and postpartum pain (episiotomy). In these indications, the main benefit as compared with opioids is the lack of respiratory depression, nausea and vomiting. Since these side effects delay discharge from the hospital after ambulatory surgery, the use of NSAIDs may result in faster recovery and earlier discharge. Because of the ceiling effect of NSAIDs, their efficacy as sole agents is usually insufficient to treat pain after major surgery (orthopedic, abdominal, thoracic). NSAIDs should then be combined with opioids. As part of a balanced analgesia regimen, NSAIDs will allow for opioid-sparing, and might subsequently reduce opioid-mediated side effects. A 20 to 50% reduction in opioid consumption, sometimes with improved quality of analgesia, has been reported using different NSAIDs following various types of surgery. Better respiratory function, improved sleep quality, and faster recovery of gastrointestinal function have been reported with NSAIDs. However, the use of NSAIDs has not been shown to be associatecl with improved outcome or more rapid recovery.

Pressure on acupoints decreases postoperative pain

D Felhendler, B Lisander

Clin. J. Pain (1996) 12/4 (326–329)

Our objective was to study the analgesic effect of acupoint pressure on postoperative pain in a controlled single-blind study. Forty pa-

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tients undergoing knee arthroscopy in an ambulatory surgery unit were randomized to receive either an active stimulation (AS) or a placebo stimulation (PS) 30 min after awakening from anesthesia. We stimulated 15 classical acupoints in the AS group, on the side contralateral to surgery, with a firm pressure and a gliding movement across the acupoint. In the PS group, 15 nonacupoints were subjected to light pressure in the same areas as the acupoints in the AS group. We assessed pain using a 100-mm visual analog scale (VAS) before sensory stimulation, after 30 and 60 min, and after 24 h. We recorded heart rate, systolic arterial pressure, and skin temperature before stimulation and after 30 and 60 min. We assessed skin blood flow with laser Doppler before stimulation and after 1 and 30 min. Sixty minutes and 24 h after AS, VAS pain scores were lower than in the placebo group ($p < 0.05$ and 0.0001, respectively). There were no significant changes in the autonomic variables. The results indicate that pressure on acupoints can decrease postoperative pain.

Ambulatory anesthesia: past, present, and future

FK Orkin

Anesthesiol. Clin. North Am. (1996) 14/4 (595–608)

Ambulatory surgery is arguably among the most important trends affecting health care today. As the title of this article suggests, the history and current status of ambulatory anesthesia are discussed. Reviewing the way ambulatory anesthesia has developed helps us understand not only this rapidly growing anesthesiology subspecialty but also how the field is likely to evolve in the coming years.

Preoperative assessment of common diseases in the outpatient setting

GA Van Norman

Anesthesiol. Clin. North Am. (1996) 14/4 (631–654)

In this article, evaluation of patients for outpatient surgery is discussed with regard to patients who suffer from diseases known to have potentially major effects on outcome of anesthesia and surgery. One section deals specifically with patients who have cardiopulmonary disease and/or diabetes. The goal of the article is to outline the principles underlying cost-effective preoperative evaluation and treatment of major medical disease before outpatient surgery.

What are the best agents for ambulatory general anesthesia, and are they cost effective?

BK Philip

Anesthesiol. Clin. North Am. (1996) 14/4 (695–710)

To determine cost-effective anesthesia care, we must first define our goals, e.g. effectiveness. We need to assess an agent's impact on all phases of anesthetic care, including positive and negative side effects as well as recovery times. In light of these considerations, we can evaluate the cost of an agent, i.e. the acquisition price, how that cost compares with the cost of other agents in its class, and how use of the agent will affect other nonanesthetic perioperative costs. The least expensive agent is not a priori the best, and neither is the most expensive one. Cost effectiveness is the value obtained for the money spent; that is what we must determine.

Current status of regional anesthesia for adult outpatients

D Fitzgibbon

Anesthesiol. Clin. North Am. (1996) 14/4 (711–727)

In this article, the author discusses the benefits of regional anesthesia for the ambulatory surgery patient who at discharge must be 'street ready' and pain-free. Thereafter follows a discussion of factors involved in selection of appropriate blocks and local anesthetic drugs. Special attention is paid to upper extremity blocks. Concerns related to post-dural puncture headache and to toxicity of lidocaine and chloroprocaine are addressed.

Evaluation of the difficult pediatric patient

R Patel, P Leith, R Hannallah

Anesthesiol. Clin. North Am. (1996) 14/4 (753–766)

Many pediatric ambulatory surgical patients have chronic diseases with important anesthetic implications. A brief review of the relevant clinical features of asthma, cystic fibrosis, cancer, diabetes, malignant hyperthermia, chronic renal failure and congenital heart disease in children is presented. Appropriateness of ambulatory surgery as well as intraoperative and postoperative management are outlined.

Controversies in pediatric ambulatory anesthesia

RJ Orr, C Ramamoorthy

Anesthesiol. Clin. North Am. (1996) 14/4 (767–780)

Several contentious issues are discussed in this article. Opinions differ about the practice of same day discharge of some pediatric tonsillectomy patients, and there is still argument regarding discharge of the ex-premature infant after short surgical procedures. Masseter muscle spasm as an entity is described and its potential significance explored; in the same vein, the routine use of succinylcholine is questioned. Lastly, the authors comment on the use of the laryngeal mask airway and on the issue of preoperative pregnancy testing of adolescents.

Regional anesthesia and pain management in ambulatory pediatric patients

Y-C Lin, EJ Krane

Anesthesiol. Clin. North Am. (1996) 14/4 (803–816)

This article reviews the pharmacology of local anesthetics in pediatric patients, describes nerve blockades used in ambulatory pediatric surgery, and discusses postoperative pain management in ambulatory pediatric patients.

Recovery and discharge

SE Rapp

Anesthesiol. Clin. North Am. (1996) 14/4 (817–834)

Discharge from the ambulatory surgery unit is dependent on resolution of anesthesia, normalization of physiologic functioning and adequacy of analgesia without side effects. This article focuses on guidelines and treatment of troublesome side effects that prolong discharge.

No change in ST segment during instillation of eyedrops for ophthalmic surgery: a study in elderly patients with heart disease (is present software/technology sufficiently sensitive?)

GH Botz, J Miser, S Hoopes, S Zweig, JG Brock-Utne

J. Clin. Anesth. (1996) 8/8 (631–633)

STUDY OBJECTIVE: To study the safety of instillation of eyedrops prior to ophthalmic surgery, which may potentially affect myocardial function, using continuous ST segment recording.
DESIGN: Prospective study.
SETTING: Ambulatory surgery preoperative area at a university hospital.
PATIENTS: 30 nonpremedicated ASA status III adults (aged 73–92 years) scheduled for cataract surgery with monitored anesthesia care (MAC).
INTERVENTIONS: All patients were given opthalmic drugs consisting of phenylephrine 2.5%, flubiprofen 0.03%, mydriacyl 1% and cyclopentolate 1%.
MEASUREMENTS AND MAIN RESULTS: ST segments were continuously monitored after the instillation of the eyedrops for a period of up to 15 min. A change of 2 mm or more in ST segments from baseline was considered significant. Results showed no significant change in ST segment. No patient reported any new cardiac symptoms or showed any evidence of dysrhythmias or hemodynamic changes.
CONCLUSIONS: The lack of significant finding most likely reflects the safety of these ophthalmic drops in their present dilute concentration, but it is also possible that the software and/or monitors used were not sensitive enough in their current configuration to detect possible subtle changes. Based on the results of this study, we conclude that the preoperative ophthalmic drugs used in our institution do not seem to have any adverse cardiovascular effects in this elderly patient population who are about to undergo cataract surgery with MAC.

Ondansetron prevents postoperative emesis in male outpatients

AL Kovac, MH Pearman, SN Khalil, PE Scuderi, AF Joslyn, BA Prillaman, F Cox

J. Clin. Anesth. (1996) 8/8 (644–651)

STUDY OBJECTIVES: To determine (1) the efficacy and safety of ondansetron in the prevention of postoperative nausea and vomiting (PONV) in male outpatients; (2) prognostic factors for PONV in male outpatients; and (3) patients' perceptions of the debilitating effects of PONV in the ambulatory surgery setting.
DESIGN: Prospective, randomized, stratified, double-blind study.
SETTING: Multicenter—24 medical centers.
PATIENTS: 468 ASA physical status I and II males at least 12 years of age scheduled for general anesthesia.
INTERVENTIONS: All patients received intravenous ondansetron (4 mg) or placebo prior to undergoing general balanced (opioid) anesthesia.
MEASUREMENTS AND MAIN RESULTS: In the postanesthesia care unit (PACU), the number of emetic episodes, vital signs, adverse events and nausea assessments were recorded by a blinded observer. After discharge, and until the end of the 24-h study period, patients completed a diary that collected emetic episodes, adverse events, nausea and pharmacoeconomic data. There were no differences in patient demographics or safety profiles between groups. The number of patients with no emesis and no nausea during the 24-h study period was significantly greater ($P < 0.05$) with ondansetron (4 mg) compared with placebo. Prognostic factors for an increased likelihood of developing PONV in males included a history of motion sickness or previous PONV, patients undergoing nonorthopedic procedures, and surgeries lasting longer than 1 h. Finally, 38% of patients experiencing PONV perceived PONV to be as, or more debilitating than, the after effects of surgery itself.
CONCLUSIONS: Ondansetron (4 mg) was more effective than placebo in preventing PONV in male outpatients. Males at potential risk for developing PONV include; (1) those with a history of motion sickness and/or PONV; (2) patients undergoing nonorthopedic procedures; and (3) procedures lasting longer than 1 h. Such patients may benefit from receipt of a prophylactic antiemetic. Postoperative nausea and vomiting has a debilitating effect that can be differentiated by patients from the effects of surgery itself.

Staging of abdominal cancer by local anesthesia outpatient laparoscopy

J Sand, K Marnela, I Airo, I Nordback

Hepato-Gastroenterology (1996) 43/12 (1685–1688)

BACKGROUND/AIMS: Our aim was to review the results of one trocar staging laparoscopies performed under local anesthesia in outpatients with intra-abdominal cancer.
MATERIALS AND METHODS: 215 patients with intra-abdominal cancer (predominantly esophagogastric and pancreatohepatobiliary) underwent one trocar staging laparoscopy on lidocain infiltration anesthesia under conscious sedation. In 43 patients computed tomography (CT) or ultrasonography (US) had raised a suspicion of hepatic metastases, but percutaneous needle biopsy had failed to confirm it; 172 patients had negative CT or US. Peritoneum and liver were examined and biopsies were taken under direct laparoscopic control.
RESULTS: 14 patients (7%) received narcotics during the 2–6-h observation. Mortality was zero. Complications occurred in five patients (2%): one small bowel perforation (operated), one bleeding from the abdominal wall, one acute atrial fibrillation, and two wound infections. In 79 patients histology demonstrated hepatic or peritoneal metastases. Out of 136 patients 123 were operated on for whom laparoscopy did not demonstrate metastases. Thirty-eight of these were unresectable at laparotomy: five patients (4%) had peritoneal or liver metastases and 33 (27%) proved locally inoperable. The sensitivity of laparoscopy to ascertain peritoneal or lover metastases was 94%.
CONCLUSIONS: We conclude that one trocar local anesthesia outpatient laparoscopy is a fairly safe and effective method to detect peritoneal and liver metastases in abdominal cancer.

Cost comparison of mivacurium and rocuronium for ambulatory anesthesia

GP Joshi, SA Garg

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: Reducing costs while maintaining quality has become a major goal in the delivery of health care. With increased emphasis on ambulatory surgery, the costs of new drugs have assumed increased importance. Nivacurium and rocuronium are new muscle relaxants which have recently been introduced into clinical practice. This randomized study was designed to determine the comparative costs of mivacurium and rocuronium during anesthesia for ambulatory surgery.
METHODS: Following IRB approval and informed consent. A total of 78 healthy patients undergoing peripheral ambulatory surgery were studied. All patients received a standardized midazolam-fentanyl-propofol-isoflurane-N20 anesthetic. Tracheal intubation was facilitated using either mivacurium ($n = 36$) 0.25 mg/kg (in divided doses) or rocuronium ($n = 42$) 0.6 mg/kg. If necessary, 25% of the intubating dose was administered with the aim of maintaining one twitch of the TOF response at the wrist. Residual neuromuscular blockade was reversed with neostigmine and glycopyrrolate only if deemed clinically

necessary. Time to extubation and duration of stay in the PACU and the phase II unit were recorded. In addition. the incidence and severity of nausea and vomiting and need for treatment were recorded. Patients were contacted 24 h and 7 days postoperatively to assess their satisfaction and evaluate any post-discharge complications. An incremental cost comparison was performed. Total costs of all drugs (including cost of wastage) were calculated. In addition, costs of any side effects arising from the use of muscle relaxants and indirect costs related to duration of OR, PACU or phase II unit stay were included in the analysis. The costs of OR time, PACU time and phase II unit time were based on the salary of personnel in these units. The personnel costs in the OR consisted of two nurses and one technician. The ratio of nurses to patients for our hospital was one nurse for two patients in the PACU and one nurse for six patients in the phase II unit. The average salary of a nurse with fringe benefits was taken as $20/h. The cost of medical personnel was not included in the analysis.
RESULTS: There was no difference between the groups with respect to demographic data and surgical or anesthetic time. All patients in the rocuronium group required reversal, compared to two patients in the mivacurium group. Although there was no difference in the time to extubation and PACU time in the two groups, the phase II unit time was significantly shorter in the mivacurium group. The incidence of nausea and vomiting and need for treatment was similar in the two groups. The costs of anesthetic drugs (apart from muscle relaxants and reversal drugs) were similar in the two groups. The total costs (muscle relaxant and reversal drugs) were higher with the use of rocuronium compared to mivacurium.
DISCUSSION: The results of this study show that both direct (drug costs) and indirect costs were lower with the use of mivacurium in peripheral ambulatory surgeries lasting for 1–2 h. The reason for patients receiving mivacurium being judged 'fit for discharge' significantly earlier than those receiving rocuronium, may possibly be related to early ambulation. As an increasing number of patients are now being transferred directly from the OR to the phase II unit (bypassing the PACU), early discharge from the phase II unit should compensate for the increase in the work load of the nurses from the direct admissions. This should result in significant cost savings because there would be no need to employ additional nurses.

Effects of succinylcholine on the maintenance requirements and recovery profiles of atracurium, mivacurium and rocuronium during outpatient surgery

GP Joshi, DW Kim, PF White

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: A rapid onset and short duration of action makes succinylcholine the drug of choice for rapid tracheal intubation. However, following recovery from succinylcholine-induced neuromuscular blockade, maintenance of surgical relaxation usually involves the use of a nondepolarizing neuromuscular blocking drug. Atracurium, mivacurium and rocuronium are nondepolarizing muscle relaxants with differing onset and recovery characteristics. This study was designed to compare the effects of prior administration of succinylcholine on the pharmacodynamics and recovery profiles of atracurium, mivacurium or rocuronium in women undergoing outpatient laparoscopic surgery.
METHODS: Following IRB approval and informed consent, 60 healthy women undergoing outpatient laparoscopic surgery were randomly assigned to one of three muscle relaxant treatment groups. A standardized fentanyl-propofol induction followed by destlurane 3% and N_2O 60% in O_2 for maintenance was used in all patients. Tracheal intubation was facilitated with succinylcholine 1 mg/kg followed by mivacurium 2–4 mg (Group 1), rocuronium 5–10 mg (Group 2), or atracurium 5–10 mg (Group 3) for maintenance of neuromuscular blockade. Neuromuscular function was assessed using electromyography with a TOF mode of stimulation every 10 s at the wrist. The onset (to 95% depression of T1), clinical duration (to 25% recovery of T1), and recovery index (25–75% recovery of T1) were recorded. Residual neuromuscular blockade was reversed with a combination of edrophonium and atropine only if clinically indicated. The occurrence of side effects (e.g. cutaneous, edema, nausea or vomiting) were noted in the PACU and 24 h postoperatively. Data were analyzed using ANOVA or Kruskuall–Wallis test (as appropriate), with $P < 0.05$ considered statistically significant.
RESULTS: There were no differences between the groups with respect to demographic or clinical data. The onset time and recovery profile of succinylcholine was similar in all the patients. Although patients receiving mivacurium required a greater number of maintenance doses as compared to the other two groups, the need for reversal drugs was decreased. Of interest, there was no difference in the recovery profile after the first maintenance dose of the three muscle relaxants. Transient erythema on the upper body was noted in one patient in Groups I and III. The incidence of nausea was similar in all three treatment groups. However, more patients in Groups II and III had vomiting requiring treatment. A table is presented.
CONCLUSIONS: When succinylcholine is used for tracheal intubation, mivacurium, rocuronium and atracurium are equally effective for maintenance of muscle relaxation during outpatient laparoscopic procedures. The clinical duration of the initial maintenance bolus of each relaxant was similar. However, the rapid spontaneous recovery with mivacurium allows faster recovery without the need for reversal drugs.

Cost-effectiveness and patient outcome—comparison of prophylactic ondansetron vs. dimenhydrinate in laparoscopy

H Sandhu, S Ganapathy, C Moote

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: The purpose of this study was to compare cost-effectiveness and outcome of the cheapest and most expensive antiemetic agents for outpatient laparoscopy.
METHODS: After IRB approval, informed written consent was obtained from 87 women scheduled for gynecological laparoscopy. The study was randomized ard blind. Patients received either placebo (P), ondansetron 8 mg (O), or dimenhydrinate 50 mg (D) intravenously immediately prior to the induction of anaesthesia. All patients received propofol, mivacurium, nitrous oxide, isoflurane and fentanyl. No reversal agents were used. Postoperative nausea, drowsiness and satisfaction were measured prior to discharge using a 10 cm visual analogue scale (VAS). The following day, in a telephone interview, measurements were obtained using a verbal rating scale (VRS) 0–10. Willingness to repeat the same antiemetic therapy and to pay for antiemetic drugs was also determined. Nursing time and supplies were measured. Statistical analysis was performed using ANOVA for parametric data, chi-square for nonparametric data, and a P-value of < 0.05 as significant.
RESULTS: No savings in discharge time, nursing care or supplies could be documented. Immediate recovery from anaesthesia was delayed by D and more patients in this group could not complete the questionnaire at 1 and 2 h postoperatively. Patients were willing to pay an average of $\$32 \pm 17$ for antiemetic medication. A table is presented.
DISCUSSION: This anaesthetic protocol produced minimal postoperative nausea and vomiting, even in the placebo group. While dimenhydrinate is a commonly used antiemetic, sedative properties make it undesirable for outpatient anaesthesia. The cost of prophylactic antiemetic therapy (O $34.80, D $0.38), is difficult to justify given the marginal benefits we observed.

Effect of ondansetron on resumption of normal activities after outpatient laparoscopy

J Tang, BG Wang, J Qi, RH Wender, PF White

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: Postoperative nausea and vomiting (PONV) is a major concern for patients undergoing ambulatory surgery. Although ondansetron, 4 mg i.v., has been reported to decrease emesis in the first 24 h after surgery, the effect of this antiemetic on the patient's quality of life and resumption of normal activities has not been carefully assessed after discharge from the ambulatory surgery unit. Using a placebo-controlled study design, the impact of prophylactic ondansetron on postoperative recovery variables when administered either before or after laparoscopic surgery.
METHODS: 105 healthy consenting women undergoing laparoscopic procedures on an ambulatory basis were randomly assigned to one of three treatment groups according to an IRB-approved protocol. After premedication with midazolam, 2 mg iv, patients received 5 ml of study medication (# 1) containing either saline (Group I), ondansetron 4 mg (Group II) or saline (Group III). Anesthesia was induced with fentanyl 1.0–1.5 μg/kg, and propofol 1.5–2.0 mg/kg i.v., and maintained with desflurane 3–6% in combination with nitrous oxide 60–70% in oxygen. At the end of surgery, 5 ml of a second study medication (# 2) containing either saline (Group I), saline (Group II) or ondansetron 4 mg (Group III) was administered. Nausea and vomiting was assessed at 30 min intervals in the PACU, and at 24 h after discharge. Quality of life issues were assessed at 24 h, 72 h and 7 days after the operation. Data were analyzed using ANOVA (for continuous variables) and Chi-square test or Fisher's exact test (for categorical data), with $P < 0.05$ considered statistically significant (* vs Group I). Data are presented as mean values $\pm$ S.D. and percentages (%).
RESULTS: The three groups were comparable with respect to their demographic characteristics. When ondansetron, 4 mg i.v., was administered at the end of surgery it facilitated the resumption of normal alimentation and enhanced patient satisfaction with their surgical experience. The prophylactic use of ondansetron was also associated with a shorter time to return to work. A table is presented.
DISCUSSION: Prophylactic ondansetron, 4 mg i.v., administered at the end of laparoscopic surgical procedures facilitated resumption of dietary intake and may have contributed to an earlier return to work.

Prophylactic ondansetron vs droperidol plus metoclopramide: effect on nausea and vomiting after laparoscopic cholecystectomy

D Freiberger, JL Gosnell, DC Brooks, RA Steinbrook

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: Postoperative nausea and vomiting (PONV) are unpleasant for the patient and may delay discharge from the ambulatory surgery unit or result in overnight hospitalization following laparoscopic cholecystectomy. This study compared the effects of three commonly used anti-emetic drugs, ondansetron, droperidol and metoclopramide, in preventing PONV after laparoscopic cholecystectomy.
METHODS: With IRB approval and written informed consent, 215 patients were enrolled in a randomized double-blind crossover study. Patients were sedated preoperatively with intravenous midazolam (1–2 mg) and fentanyl (50–100 μg). Following preoxygenation, general anesthesia was induced with propofol (1.5–2.5 mg/kg). Following tracheal intubation, patients received either ondansetron 4 mg i.v. (Group O) or droperidol 0.625 mg IV together with metoclopramide 10 mg IV (Group DM). Anesthesia was maintained with desflurane-air-oxygen and additional fentanyl and vecuronium. Ketorolac 30 mg i.v. was administered during skin closure: Neuromuscular blockade was reversed with glycopyrrolate (0.6–1.0 mg) and neostigmine (3.0–5.0 mg) IV prior to extubation. In the PACU, patients were asked to rate their degree of nausea on a four-point scale (0 = none, 1 = mild, 2 = moderate and 3 = severe) every 30 min until discharge home or admission to the hospital. Moderate or severe nausea in the PACU was treated with the crossover drug, i.e. ondansetron for patients in Group DM, or droperidol plus metoclopramide for patients in Group O. Data were analyzed using t-tests and chi-square analyses, with $P < 0.05$ considered statistically significant.
RESULTS: 15 patients required conversion to open cholecystectomy and were therefore eliminated from the study; thus, 200 patients completed the protocol and are included in the following analysis (A table is presented). The groups were similar with respect to gender, age, weight, duration of surgery, number receiving intraoperative atropine or ephedrine, number admitted to hospital overnight and time to discharge home. Of the 102 patients in Group O, 44 required antiemetic treatment in the PACU, compared to 24 of the 98 patients in Group DM ($P < 0.01$). Pain medication was requested by 87 patients in Group O vs 73 patients in Group DM ($P = 0.06$). Of patients admitted overnight, only one (in Group DM) was admitted for PONV.
CONCLUSIONS: Droperidol 0.625 mg i.v. in combination with metoclopramide 10 mg i.v. was more effective in preventing PONV than was ondansetron 4 mg i.v. in patients undergoing laparoscopic cholecystectomy. There were no differences in the numbers of patients admitted to the hospital or in time to discharge.

Effect of the timing of ondansetron administration on postoperative nausea and vomiting after outpatient laparoscopy

J Tang, B Wang, J Qi, RH Wender, PF White

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: It has been recommended that ondansetron be administered prior to induction of anesthesia when it is used for prophylaxis against postoperative nausea and vomiting (PONV). However, the effect of the timing of ondansetron administration on its antiemetic efficacy has not been previously evaluated. Therefore, we designed a randomized, double-blind, placebo-controlled study to compare the efficacy and recovery profile when ondansetron, 4 mg, is administered either before induction of anesthesia or at the end of surgery, as well as a split dose (2 mg) before and after the operation.
METHODS: 140 healthy consenting women undergoing gynecologic laparoscopic procedures on an ambulatory basis were randomly assigned to one of four treatment groups ($n = 35$/group) according to an IRB-approved protocol. After premedication with midazolam, 2 mg i.v., patients received 5 ml of study medication (# 1) containing either saline (Group I), ondansetron 2 mg (Group II), ondansetron 4 mg (Group III) or saline (Group IV). Anesthesia was induced with fentanyl 1.0–1.5 μg/kg, and propofol 1.5–2.0 mg/kg i.v., and maintained with destlurane 3–6% in combination with nitrous oxide 60–70% in oxygen. At the end of surgery, 5 ml of a second study medication (# 2) containing either saline (Group I), ondansetron 2 mg (Group II), saline (Group III) or ondansetron 4 mg (Group IV) was administered. Nausea and vomiting was assessed at 30-min intervals in the PACU and at 24 hr after discharge. Recovery times to tolerating oral fluids, ambulating, 'home readiness' and discharge were recorded. Data were analyzed using ANOVA and the Chi-square test (or Fisher's exact test), with $P < 0.05$ considered statistically significant (* vs Group I; Group II).
RESULTS: The four groups were comparable with respect to demographic characteristics (A table is presented). Although prophylactic ondansetron decreased PONV, it was most effective when administered at the end of surgery. The efficacy of ondansetron administered

prior to the start of surgery was related to the length of the operation. When ondansetron was administered at the end of surgery, it significantly improved the recovery process compared to the placebo group. When ondansetron is administered for prophylaxis against PONV, in the ambulatory setting, these data would support the use of a 4 mg dose at the end of surgery.

Acupuncture and postoperative vomiting in day-stay paediatric patients

KL Schwager, DB Baines, RJ Meyer

Anaesth. Intensive Care (1996) 24/6 (674–677)

The stimulation of the acupuncture point P6 has been used to prevent nausea and vomiting in the adult population. It has, however been subject to limited comparative evaluation in children. We proposed that stimulation of P6 and the analgesic point Li4 would reduce the incidence of postoperative vomiting. Eighty-four unpremedicated paediatric patients having day-stay surgery (circumcision or herniotomy/orchidopexy were included in a randomized double-blind, placebo-controlled study of trasnscutaneous stimulation of P6 and Li4, or no stimulation. The incidence of vomiting was recorded for 24 h postoperatively. There was no statistically significant difference in total postoperative vomiting in those patients who were stimulated, compared with the control group ($P = 0.909$), or between any group postoperative vomiting in the recovery ward, day-stay ward or at home. For all groups, vomiting was more common within the first 4 h and more likely to occur in the day-stay ward.

Spinal anaesthesia with lidocaine 5% for ambulatory surgery in infants

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Cahiers d'Anesthesiol. (1996) 44/6 (485–487)

Spinal anaesthesia has been suggested as the anaesthetic technique of choice for surgery in ex-preterm infants because of the risk of postoperative apnoea associated with general anaesthesia. However, this technique is rarely used today in paediatric patients. We report our experience with spinal anaesthesia using hyperbaric lidocaine in 18 infants scheduled for ambulatory surgical procedures below the umbilicus. Mean age was 15 months and mean weight was 10 kg; spinal anaesthesia was performed at L4–L5 and 3 mg kg^{-1} of hyperbaric lidocaine were injected; motor block was obtained 2 min after injection. Only minor changes in heart rate and blood pressure were observed; the duration of spinal anaesthesia was 40 ± 9.7 min, while the duration of the operative procedure was 40 ± 9.4 min. The anaesthesia was considered satisfactory in 16/18 cases. No complication was observed in the peri-operative period. Spinal anaesthesia with hyperbaric lidocaine is a reasonable option in infants scheduled for ambulatory sub-umbilical surgery lasting less than 45 min.

Total intravenous anesthesia with alfentanil, etomidate and midazolam for outpatient gynecological surgery. Assessment of the influence of the dose of midazolam

SD Belzarena

Rev. Bras. Anestesiol. (1996) 46/6 (387–393)

There are several pharmacological interactions among benzodiazopines, hypnotics and opioids when they are administered in combination. Alfentanil, etomidate and midazolam are widely used for ambulatory procedures. The aim of this study is to assess clinical changes in the quality of anesthesia as a function of the dose of midazolam. After informed consent, 60 female patients, submitted to curettage with or without dilatation under total intravenous anesthesia were randomly allocated into three groups of 20. After appropriate monitoring in the OR they received a solution diluted to a volume of 5 ml containing: saline in Group 0, 0.05 mg kg^{-1} of midazolam of midazolam in Group 10. Fixed doses of alfentanil (20 μg kg^{-1}) and etomidate (0.15 mg kg^{-1}) were administered 2 min later. Time to induction of and recovery from anesthesia was measured and side-effects were recorded. Heart rate, arterial blood pressure, respiratory rate and oxygen saturation (SpO_2) were registered at six moments before and after induction of anesthesia. Induction and recovery times were short. Cardiovascular variables were stable. Respiratory rate and oxygen saturation decreased in all patients. This effect was more prominent and sustained with increasing doses of midazolam. Nine patients from Group 10, six from Group 5 and two from Group 0 required ventilatory support due to a respiratory rate of less than 10 or SpO_2 less than 94%. This combination of drugs produce anesthesia of good quality for outpatient gynecological procedures. Our data suggest that there is an agonism between etomidate and midazolam for the production of hypnosis and among the three drugs for the production of respiratory depression. A moderate dose of midazolam (0.05 mg kg^{-1}) is recommended when this combination of drugs is used in outpatient anesthesia.

The influence of the mother's presence on the quality of the anesthetic induction in pediatric surgery

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Rev. Bras. Anestesiol. (1996) 46/6 (394–398)

The participation of the mother during the anesthetic induction has been stimulated, aiming at decreasing stress and achieving a less traumatic induction. The purpose of this study was to verify whether the presence of the mother makes induction of anesthesia smoother and modifies the parameters which reflect adenergic overactivity such as heart rate, arterial blood pressure and plasma glucose levels. Two groups of children (Group 1; $n = 22$ and Group 2, $n = 24$), aged between 2 and 12 years were anesthetized with halothane and nitrous oxide in oxygen (50%). In Group 1 the mother was present at the induction stage, which did not occur in Group 2. Arterial blood pressure, heart rate, plasma glucose levels and the characteristics of the induction were recorded. Smooth induction was observed in 19 children in Group 2, in the absence of the mother. Agitation during induction prevailed in Group 1, with the presence of the mother (13 children). Before induction, the majority of the children showed tachycardia and arterial hypertension. There was not a significant difference in plasma glucose levels between the two groups. These results led us to conclude that under the conditions of this study, involving outpatient pediatric surgery, the majority of the patients exhibit signs of adrenergic overactivity as they arrive at the operating room. The presence or the absence of the mother during the induction of anesthesia does not influence glucose plasma levels; most importantly, her presence seems to have a negative influence on the qualify of the induction.

Suture haemorrhoidectomy: a day-only alternative

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Aust. New Zealand J. Surg. (1996) 66/12 (830–831)

BACKGROUND: Haemorrhoidectomy is a common treatment for third degree symptomatic haemorrhoids, and day surgery has increased because of increasing pressure for hospital beds. The aim of the present study is to describe a technique of suture haemorrhoidectomy (SH), conducted as a day-only procedure, and compare the

effectiveness and outcomes of this method with the conventional Milligan–Morgan haemorrhoidectomy (MMH).
METHODS: The results of 18 consecutive patients, mean age 52 years (31–73) undergoing SH between April 1994 and June 1995 were compared with a historical control group of 17 consecutive patients, mean age 45 years (29–72), who had MMH in the preceding year. Seven patients were excluded because of intercurrent anal pathology (one), thrombosed haemorrhoids (one) or loss to follow-up (five). An interviewer followed up patients using a telephone questionnaire.
RESULTS: Mean follow-up was 6 months in the SH group and 18 months in the MMH group. There was no significant difference in total operative time. The SH group had a significantly shorter mean time to first void of 3 versus 11 h ($P < 0.005$), mean time to first bowel action of 11 versus 48 h ($P < 0.005$) and mean in-hospital stay of 10 versus 77 h ($P < 0.005$). The SH group had a significantly decreased linear analogue pain scale, a mean of 1 versus 3 ($P < 0.05$). The complications were: two readmissions for pain relief in the SH group and urinary retention in one MMH patient. None of the study group have had recurrence of haemorrhoids.
CONCLUSION: Suture haemorrhoidectomy as a day-only procedure is safe, less painful and reduces in-hospital admission time. The long-term effectiveness and complications of the technique are as yet undetermined.

The utility of preoperative laboratory testing in general surgery patients for outpatient procedures

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Am. Surg. (1997) 63/1 (81–90)

The utility of obtaining routine preoperative laboratory (lab) screening tests was evaluated for a 1-year period in general surgery clinic patients undergoing ambulatory surgical procedures at a teaching hospital. This study sought to determine whether those lab tests not indicated by patient history or physical examination would identify abnormalities that might influence perioperative care of the ambulatory surgical patient or predict perioperative complications. The charts of 142 patients undergoing 155 procedures were reviewed. A total of 300 tests were ordered, with 92 (30.6%) being abnormal. Of the 125 tests indicated, 54 (43.2%) were abnormal, whereas in those lab tests not indicated, 38 (21.7%) were found to be abnormal. In four instances, an abnormal lab test (four out of 300) result was clinically significant (1.3%), causing cancellation of the surgical procedure in two cases (both indicated lab tests) and diagnosis of urinary tract infection in two patients (both routine urinalyses). Forty-eight of the 142 patients had no preoperative lab tests ordered (34%), with no perioperative complications resulting. Patient charges totaled $15725 for all lab tests ordered, with $8573 in charges attributed to those tests not indicated. If lab tests for all general and subspecialty surgical outpatients had been ordered as dictated by patient medical history and physical examination rather than by either routine or by arbitrary criteria, our medical facility could have potentially reduced patient charges by more than $400000 in the year reviewed, assuming a 52.4% savings as noted above, with no expected adverse outcomes.

Small-dose hypobaric lidocaine-fentanyl spinal anesthesia for short duration outpatient laparoscopy. I. A randomized comparison with conventional dose hyperbaric lidocaine

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Anesth. Analg. (1997) 84/1 (59–64)

A randomized, single-blind trial of two spinal anesthetic solutions for outpatient laparoscopy was conducted to compare intraoperative conditions and postoperative recovery. Thirty women (ASA physical status I and II) were assigned to one of two groups. Group I patients received a small-dose hypobaric solution of 1% lidocaine 25 mg made up to 3 ml by the addition of fentanyl 25 μg. Group II patients received a conventional-dose hyperbaric solution of 5% lidocaine 75 mg (in 7.5% dextrose) made up to 3 ml by the addition of 1.5 ml 10% dextrose. All patients received 500 ml of crystalloid preloading. Spinal anesthesia was performed at L2–3 or L3–4 with a 27-gauge Quincke point needle. Surgery commenced when the level of sensory anesthesia reached T-6. Intraoperative hypotension requiring treatment with ephedrine occurred in 54% of Group II patients but not in any Group I patients. Median (range) time for full motor recovery was 50 (0–95) min in Group I patients compared to 90 (50–120) min in Group II patients ($P = 0.0005$). Sensory recovery also occurred faster in Group I patients (100 ± 22 min) compared with Group II patients (140 ± 27 nin, $P = 0.0001$). Postoperative headache occurred in 38% of all patients and 70% of these were postural in nature. Oral analgesia was the only treatment required. Spinal anesthesia did not result in a significant incidence of postoperative backache. On follow-up, 96% said they found spinal needle insertion acceptable, 93% found surgery comfortable, and 90% said they would request spinal anesthesia for laparoscopy in future. Overall, this study found spinal anesthesia for outpatient laparoscopy to have high patient acceptance and a comparable complication rate to other studies. The small-dose hypobaric lidocainefentanyl technique has advantages over conventional-dose hyperbaric lidocaine of no hypotension and faster recovery.

Outpatient management of superficial venous insufficiency at a naval medical facility

KL Greason, JD Murray

Ann. Vasc. Surg. (1996) 10/6 (524–529)

Superficial venous insufficiency is common in a young, working population. It can result in disability and lost time from work because of chronic pain, inflammation and/or ulceration. We reviewed our experience in the management of 104 patients with superficial venous insufficiency secondary to saphenofemoral and/or perforator venous incompetence. The main treatment objective was to control venous insufficiency in a manner that would allow a rapid return to duty. The technique involved ligation of the incompetent saphenofemoral junction and/or perforating veins (i.e. point ligation) under local anesthesia. Patients returned to normal duty status the day after treatment. At 6 weeks later any persistent disease was controlled with compression sclerotherapy. Significant morbidity included postoperative wound complications in 4% and thrombophlebitis in 14%. Objectives of treatment, with excellent functional and cosmetic results, were achieved. True recurrence was noted in 8% of patients, whereas new disease developed in only 4%; the total recurrence rate was 12%. This mode of therapy is ideally suited to outpatient management. This study demonstrates the excellent control of venous dysfunction that is achievable with the use of selective therapy based on proximal venous ligation and staged sclerotherapy.

Audit of patient acceptance of nasal surgery as a day case procedure

PA Tierney, D Samuel, DM Thomas

Br. J. Clin. Pract. (1996) 50/7 (357–359)

A greater emphasis on day case surgery within the health service is seen as a method of improving efficiency and reducing expenditure, We interviewed 90 consecutive patients undergoing nasal surgery who had been preoperatively assessed as being fit for day case surgery, They were randomised into three groups regarding the duration of postoperative nasal packing. All patients stayed overnight following

surgery and were interviewed prior to discharge. Some 52% of the overall sample would be happy to have nasal surgery performed as a day case. If the nasal pack was removed after 2 hours, this figure rose to 67%, This difference in patient acceptance did not attain statistical significance overall, but there was a significant difference in those undergoing submucosal resection. There was no difference in the age, sex distribution or type of surgery performed between each group. The audit commission quotes patient satisfaction with day case surgery at 80%. Nasal surgery was not examined in their report, but was included as one of a set of procedures suitable for consideration. Although day case nasal surgery may be safe, further research regarding patient acceptance is required.

Day-case surgery in children under 2 years of age: Experience in a district general hospital and survey of parental satisfaction

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J. R. Coll. Surg. Edinburgh (1996) 41/6 (408–411)

One surgeon's experience of day-case paediatric surgery in a population aged less than 2 years at a district general hospital is reported. During a 6-year period from 1989 to 1994, 82 day-case operations were performed in 79 infants and young children. All children were managed by a multidisciplinary team including surgeon, paediatric anaesthetist and paediatric nurses. There was no mortality and minimal morbidity. A telephone survey of parents enquiring into satisfaction with all aspects of pre-, peri- and post-operative care revealed that the procedures are well-accepted. The survey also showed that there was no increased utilization of primary health care professionals when day-case surgery is performed in this young age group. We conclude that paediatric day-case surgery is safe and well-tolerated by both infants and parents and is suitable for performance in non-specialist centres provided a team approach is adopted.

Economic outcomes analysis from an Ambulatory Surgical Center

DE Marcinko, HR Hetico

J. Foot Ankle Surg. (1996) 35/6 (544–549)

In the competitive healthcare marketplace, foot surgeons are being placed under pressure to demonstrate the economic value of surgical care. The management methodology of 'fiscal outcomes review' is one tool being used to evaluate such care. Initially developed for internal corporate management as an executive decision support system, the process is being used as an external cost control technique to 'economically credential' providers of surgical care. Consequently, the economic outcomes analysis of a single surgical procedure represents a first attempt to gather, allocate, analyze and interpret meaningful charge information relative to the podiatric Ambulatory Surgery Center setting. When compared with the traditional outpatient hospital setting, charge reductions are documented without compromising quality. The long-held belief that Ambulatory Surgery Center surgery is more efficient than traditional outpatient surgery, can then be corroborated.

Development and preliminary validation of a postoperative pain measure for parents

CT Chambers, GJ Reid, PJ McGrath, GA Finley

Pain (1996) 68/2-3 (307–313)

Parents are now primarily responsible for the at home assessment and treatment of their children's pain following minor surgery. Although some research has suggested that parents underestimate their childrens pain following surgery, no behavioral measure exists to assist parents in pain assessment. The Postoperative Pain Measure for Parents was developed based on cues parents reported using to assess their children's pain (e.g. changes in appetite and activity level). The purpose of the present study was to develop and validate this measure by examining the relation between parent-report of child behaviors and child-rated pain. Subjects were 110 children (56.4% male) aged 7–12 years undergoing day surgery at a tertiary-care children's hospital and their parents. Parents and children completed a pain diary for the 2 days following surgery. Children rated their pain and emotional distress and parents rated the presence or absence of specific behaviors from a checklist. Correlations were conducted between each of the 29 behavioral items and child-rated pain on Day 1; 14 items with correlations less than 0.30 were dropped. The remaining 15 items were subjected to a principal axis factor analysis. A one-factor solution was the best fit for the data. The items were then summed to yield a total score out of 15. Internal consistency reliabilities for the measure and correlations with child-rated pain were high on both days following surgery. Child-rated pain and emotional distress were moderately correlated. The Postoperative Pain Measure for Parents was also positively correlated with child-rated emotional distress on both days following surgery. As child-rated pain decreased from Days 1 to 2, so did scores on the behavioral measure. The Postoperative Pain Measure for Parents was successful in discriminating between children who had undergone no/low pain surgeries and children who had undergone moderate to high pain surgeries. There were no significant differences in scores on the behavioral measure for child age or sex. Using a cut-off score of six out of 15, the measure showed excellent sensitivity ($> 80\%$) and specificity ($> 80\%$) in selecting children who reported clinically significant levels of pain. This study provides preliminary evidence for the use of the Postoperative Pain Measure for Parents as a valid assessment tool with children between the ages of 7 and 12 years following day surgery. It is internally consistent and strongly related to child-rated pain. Future research should explore the use of this measure with a younger sample and children with developmental delays.

Endoscopic transnasal dacryocystorhinostomy. Long-term results

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Minimally Invasive Ther. Allied Technol. (1996) 5/6 (505–510)

Endoscopic dacryocystorhinostomy (DCR) was successfully performed in 40 patients, with four patients having bilateral surgery. Follow-up data were obtained on 43/44 eyes using clinical notes and a patient questionnaire. Range of follow up was 1–46 months, with an average of 18 months (in nine patients follow-up was at least 3 years). Epiphora was successfully relieved in 86% of patients and there was no evidence of a recurrence of nasolacrimal obstruction in the long term. Endoscopic DCR is a relatively quick and simple procedure with low morbidity, and as such is suitable for day case surgery. Satisfactory long-term results make endoscopic DCR an alternative to external DCR as primary surgical treatment for nasolacrimal duct obstruction. In cases of failed external DCR, or when epiphora is iatrogenic following surgery to the lateral nasal wall, a transnasal endoscopic approach is probably the treatment of choice.

Can remifentanil be considered an ideal opioid for managing anaesthesiology in the 21st century?

J Scholz, M Steinfath

Anasthesiol. Intensivmed. Notf.Med. Schmerzther. (1996) 31/10 (592–607)

Current trends toward outpatient surgery and closed loop computer-controlled drug administration have created a demand for short acting

anaesthetic agents. Such agents not only provide the anaesthetist with rapid patient recovery after completion of the procedure, but also with almost immediate intra-operative control over the anaesthetic state of the patient. Shorter acting anaesthetic agents are being developed in several therapeutic areas including volatile anaesthetics, neuromuscular blockers as well as injectable anaesthetics. In the injectable anaesthetic area, propofol has been introduced and offers some significant advantages over the previously existing induction agents. Remifentanil is a novel member in the family of the 4-anilidopiperidine opioid analgesics which also include the traditional agents fentanyl, alfentanil and sulfentanil. Remifentanil undergoes widespread extrahepatic metabolism by blood and tissue nonspecific esterases, resulting in an extremely rapid clearance. Because of its unique metabolic pathway among this group of drugs, remifentanil represents a new pharmacokinetic class of opioids which is named esterase metabolised opioid (EMO). Rapid biotransformation to minimally active metabolises results in a short and predictable duration of action with no accumulation of effect on repeated dosing or with continuous infusion. Clinical experiences presented so far indicate that remifentanil can be safely administered in different anaesthesic regimens as well as in the great variety of patients including children and patients with renal, hepatic or cardiovascular diseases. However, its use also presents the anaesthetist with a significant challenge. If remifentanil is the only opioid analgesic administered during anaesthesia, it must be remembered that shortly after the end of the surgical procedure, the patient will not benefit from opioid-based analgesia. This problem must be addressed if remifentanil is to be used for procedures associated with significant postoperative pain. Reducing the infusion rate of remifentanil to analgesic doses suitable for the postoperative pain management or immediate administration of longer acting opioids at the end of anaesthesia might solve this problem. At present it is difficult to predict precisely the future ranking of remifentanil. However, the unique pharmacokinetic profile of remifentanil should make it useful in the various surgical settings and in all circumstances where precise control over the analgesic state are desirable.

Proposed scoring system for assessing synovial membrane abnormalities at arthroscopy in knee osteoarthritis

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Br. J. Rheumatol. (1996) 35/Suppl. 3 (14–17)

The synovial membrane is thought to play an important role in both the clinical and the anatomical evolution of osteoarthritis. Arthroscopy performed under local anaesthesia on an outpatient basis has been proposed as a means of cartilage and synovial assessment for research purposes. The authors propose a scoring system for assessing anterior synovial abnormalities at arthroscopy in knee osteoarthritis. This synovitis score takes into account the intensity and the extent of synovial lesions.

Visual impairment and general health among Danish cataract patients. Results from the Danish Cataract Surgery Outcomes Study. I

JC Norregaard, P Bernth-Petersen, T Folmer Andersen

Acta Ophthalmol. Scand. (1996) 74/6 (598–603)

This Danish multicenter study was undertaken to evaluate current indications for cataract extraction and to compare the health status among patients enlisted for cataract surgery with that reported for the background population. A consecutive sample of 290 patients from all ophthalmic hospital departments in Denmark was examined and interviewed prior to cataract extraction. The mean visual acuity in the eye enlisted for surgery was 0.17. A visual acuity of < 0.05 occurred in 11.1% and 46.7% had a visual acuity of ≤ 0.05 to < 0.3. Comparing these figures to other recent European studies it seems reasonable to conclude that in Denmark surgery is performed at an earlier stage of the disease. Only a few patients with no functional impairment were seen; other appropriate indications for surgery were seen for these patients. Occurrence of angina, bronchitis and prior myocardial infarction was higher in the cataract sample as compared to the random sample of Danes. The likelihood of preferring an outpatient procedure was significantly increased among younger patients, patients of better general health and among patients with better pre-operative visual acuity in eye enlisted for surgery.

Transvaginal colpourethropexy with fibrin sealant: 4 years-follow up in 23 cases

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Eur. J. Obstet. Gynecol. Reprod. Biol. (1996) 70/2 (157–158)

A method of transvaginal colpo-urethropexy, using fibrin sealant was studied clinically. After a fingertip vaginal retropubic dissection, fibrin sealant is instilled in the retropubic space with the intent of inducing fibrosis between the elevated urethro–vesical junction and the retropubic periosteum. Twenty-three patients with urinary stress incontinence underwent this procedure with 82% of satisfactory results and 18% failure. Complications were minimal. In the future, this technique could be useful for ambulatory surgery.

Retrospective assessment of antibiotic and tourniquet use in an ambulatory surgery center

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J. Foot Ankle Surg. (1997) 36/1 (55–62)

In this study, 459 lower extremity surgeries were evaluated to assess and improve the quality of patient care at the Carnegie Surgery Center, Cleveland, OH. Two aspects of surgery were studied: the antibiotic usage and tourniquet application. The authors analyzed the rate of infection and the number of tourniquet complications that resulted from the surgeries. The infection rate was 0.65%, and there were no tourniquet complications. Using the information learned from the study and reviewing pertinent literature, recommendations were made to further enhance patient care.

Venous levels of lignocaine and bupivacaine after peribulbar block

F Gao, AJ Budd

Anaesthesia (1996) 51/12 (1109–1112)

Twenty-five patients undergoing elective cataract day surgery were studied after receiving a dual-injection peribulbar block with a mixture consisting of equal volumes of 2% lignocaine and 0.75% bupivacaine with hyaluronidase. A maximum of 10 ml of solution was used for the initial block; supplementary injections of up to 10 ml were given to five patients. Venous blood was taken prior to the block and then 1, 10, 20, 30, 60 and 90 min after the block. The peak mean concentrations of lignocaine (0.722 μg ml^{-1}) and bupivacaine (0.353 μg ml^{-1}) were found at 10–20 min after injection when no top-up was given and at 10 min after the top-up injection when required. All measured serum concentrations of lignocaine and bupivacaine were below the accepted toxic levels of the two drugs. However, the highest individual toxicity score after a top-up was 0.915 which was very close to the toxicity threshold (= 1) when a scoring system was used to assess the combined levels.

The effect of glycopyrrolate on postoperative pain and analgesic requirements following laparoscopic sterilisation

BC Guard, SJ Wiltshire

Anaesthesia (1996) 51/12 (1173–1175)

In order to evaluate the contribution of tubal spasm to pelvic pain following laparoscopic sterilisation, we have studied the effect of glycopyrrolate, an anticholinergic agent with antispasmodic properties, on 60 ASA 1 and 2 patients presenting as day-cases for laparoscopic sterilisation using Filshie clips. In a randomised, double-blind, controlled trial, patients received either glycopyrrolate 0.3 mg or saline intravenously prior to induction of anaesthesia. Compared with the control group, patients receiving glycopyrrolate had significantly reduced immediate postoperative pain scores ($P < 0.02$) and required significantly less postoperative morphine ($P < 0.01$). Nausea, vomiting and anti-emetic requirements were also reduced though not significantly. We conclude that glycopyrrolate 0.3 mg at induction of anaesthesia is an effective, method of improving the quality of recovery after day-case laparoscopic sterilisation using clips.

Pre-operative oral administration of morphine in day-case gynaecological laparoscopy

R Rasanayagam, G Harrison

Anaesthesia (1996) 51/12 (1179–1181)

The analgesic effect of morphine sulphate (10 mg, by mouth) given pre-operatively on pain after gynaecological laparoscopy was studied in a randomised prospective, double-blind, placebo-controlled comparison. Two groups of 56 patients were studied, one group undergoing diagnostic laparoscopy and the other laparoscopic sterilisation. All patients received a standard anaesthetic after premedication with morphine or placebo 1 h before the operation. Morphine premedication did not significantly influence postoperative pain as assessed on a visual analogue scale in either group and postoperative opioid consumption was unaffected. Premedication with morphine (10 mg, orally) does not sigificantly decrease pain after day-case gynaecological laparoscopy.

Quality of life in patients undergoing inguinal hernia repair

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Ann. R. Coll. Surg. England (1997) 79/1 (40–45)

Inguinal hernia repair is one of the most common surgical procedures undertaken in the NHS. Despite this, no previous work has examined quality of life in this patient group. This study examines quality of life preoperatively and at 3 and 6 months postoperatively in 140 patients undergoing inguinal hernia repair in the context of a randomised controlled trial of laparoscopic versus open hernia repair. Surgery was undertaken on a day case basis, and quality of life was assessed using the Short Form 36 (SF36). In the initial phase of the study, 57% of those screened for suitability met the study inclusion criteria and were randomised. No significant differences were found between laparoscopic and open hernia repair in terms of quality of life at 3 and 6 months postoperatively. No difference was found between 3 and 6 month scores, suggesting that patients had already made a good recovery by 3 months. A significant improvement was found between preoperative and postoperative scores, with the greatest change arising on dimensions assessing pain, physical function, and role limitation owing to physical restriction. After standardising for age, sex and social class, a comparison of the hernia patients to population norms for the SF36 was consistent with improvement from preoperative to postoperative assessment. This study has demonstrated the improvement in quality of life in patients undergoing elective inguinal hernia repair by experienced surgeons on a day case basis. It has also demonstrated the feasibility of assessing quality of life using generic measures in this patient group. Further work in this area is required. Ultimately, the priority given to elective inguinal hernia repair will depend on how the demonstrated benefits compare with those derived from other elective surgical procedures.

What happens after discharge? Return hospital visits after ambulatory surgery

R Twersky, D Fishman, P Homel

Anesth. Analg. (1997) 84/2 (319–324)

The purpose of this study was to examine the frequency of return hospital visits after ambulatory surgery discharge and to identify any predictor variables for its occurrence. A retrospective review of hospital records for all patients returning to the same hospital within 30 days after ambulatory surgery was conducted. Data on return hospital visits that resulted in rehospitalization (as an inpatient or to the ambulatory surgery unit—ASU) or treatment as an outpatient in the emergency room were recorded. A total of 6243 patients underwent ambulatory surgery over 12 consecutive months and 187 returned to the same hospital of which 1.3% were for complications. Of all the returns, 54% returned to the emergency room (ER) and 46% were rehospitalized as inpatients or to ASU. To identify factors associated with an increased likelihood of return, two case controls for each return visit were obtained from medical records of ambulatory surgical patients operated on during the same time period. Results of the multivariate analysis on the matched case controls identified urology as the only significant surgical service that predicted returns. (Odds ratio 27.87; confidence interval (CI) 3.78–74.86; $P = 0.0002$). A separate analysis of the most common ASU procedures performed identified two surgical procedures that predicted hospital return as compared with overall ambulatory surgery population: patients undergoing varicocelectomy and hydrocelectomy procedures were 8.3 times more likely to return (CI 2.090–23.75; $P = 0.0042$); patients undergoing dilation and curettage were three times as likely to return (CI 1.78–5.55; $P = 0.0002$). Bleeding was the most common reason for all hospital returns (41.5%), with 76.5% of these patients treated and discharged through the ER. The increased likelihood of return visits after urology procedures warrants further evaluation. As patients with bleeding were most likely to return to the ER and discharged, more effective pre- and postprocedure patient education may further reduce this occurrence. Better informing patients regarding the prognosis of bleeding, and advising them of medical alternatives, could reduce inappropriate patient returns to the ER.

Intravenous dolasetron for the prevention of postoperative nausea and vomiting after outpatient laparoscopic gynecologic surgery

SG Graczyk, R McKenzie, S Kallar, CB Hickok, T Melson, B Morrill, WF Hahne, RA Brown

Anesth. Analg. (1997) 84/2 (325–330)

The newer 5-hydroxytryptamine type 3 (5-HT3) antagonists are sometimes considered for routine prophylaxis of postoperative nausea and vomiting (PONV) in high-risk patients. This multicenter, randomized, double-blind, placebo-controlled study compared the efficacy and safety of three single intravenous (IV) doses of dolasetron mesylate salt (12.5, 25 or 50 mg) for the prevention of PONV in 635 females undergoing outpatient laparoscopic gynecologic surgery. Antiemetic efficacy was evaluated over a 24-h postoperative period by recording the number and timing of emetic episodes; effects on nausea were evaluated by a visual analog scale (VAS). The propor-

portion of complete responders (no emetic episodes and no escape medication in 24 h) was significantly higher with each dolasetron mesylate dose (> 50% for each dose; $P \leq 0.0003$) than with placebo (30.6%). Fewer patients given dolasetron required or requested escape antiemetic medication compared with placebo ($P < 0.0003$). Dolasetron-treated patients had significantly ($P < 0.0357$) lower median postdose maximum nausea VAS scores compared with placebo-treated patients. Patient satisfaction with dolasetron was high and, overall, was significantly ($P = 0.0131$) greater than that with placebo. Dolasetron was an effective and well tolerated preventive treatment for PONV resulting from laparoscopic gynecologic surgery.

The effect of timing of ondansetron administration in outpatients undergoing otolaryngologic surgery

R Sun, KW Klein, PF White<sp = 1 >
Anesth. Analg. (1997) 84/2 (331–336)

A randomized, double-blind, placebo-controlled study was designed to compare the relative efficacy of prophylactic ondansetron, 4 mg intravenously (IV), when administered before induction of anesthesia or at the end of surgery to an outpatient population at high risk of developing postoperative nausea and vomiting (PONV). Patients undergoing otolaryngologic surgery were randomly assigned to one of three different treatment groups: Group I (placebo) received saline (5 ml) prior to induction of anesthesia and again at the end of surgery; Group II received ondansetron (4 mg in 5 ml) prior to induction of anesthesia and saline (5 ml) at the end of surgery; and Group III received saline (5 ml) prior to induction of anesthesia and ondansetron (4 mg) at the end of surgery. All patients received the same general anesthetic technique. A standardized regimen of rescue antiemetics was administered in the recovery room to patients with two or less emetic episodes or at the patient's request for persistent nausea. Episodes of nausea and vomiting, as well as the need for rescue antiemetics, were recorded for 24 h after the operation. The incidences of nausea and emesis in the recovery room after prophylactic ondansetron, 4 mg IV, administered either before induction (68 and 20%, respectively) or at the end of surgery (60 and 4%, respectively) were not significantly decreased compared to the placebo control group (80 and 12%, respectively). However, when ondansetron was administered at the end of the operation, it significantly reduced the need for rescue antiemetics in the recovery room (36 vs 64% in the control group). The postanesthesia care unit and hospital discharge times were similar in all three study groups. One patient in Group II and one patient in Group III were hospitalized because of intractable symptoms related to PONV. After discharge from the ambulatory surgery unit, the incidence of nausea, vomiting, and the need for rescue antiemetic drugs were similar in all three treatment groups. In conclusion, ondansetron (4 mg IV) was more effective in reducing the need for rescue antiemetics in the recovery room when administered at the end versus prior to the start of otolaryngologic surgery. Therefore, when ondansetron is used for antiemetic prophylaxis in outpatients undergoing otolaryngologic procedures, it should be administered at the end of the operation rather than prior to induction of anesthesia.

Day-case tonsillectomy—Is it appropriate?

MB Pringle, E Cosford, P Beasley, AP Brightwell

Clin. Otolaryngol. Allied Sci. (1996) 21/6 (504–511)

There is continued encouragement to increase the use of day surgery. Recent publications have suggested that day-case tonsillectomy is a safe procedure due to the low primary haemorrhage rates (0.14–3.5%). One of the suggested benefits of day surgery is that patients want it. They prefer to recover at home after an operation. With tonsillectomy, personal experience suggested that this was not the case. A review of 117 patients having tonsillectomy was undertaken. All patients stayed in for at least one post-operative night. No patients or parents thought that the post-operative stay was too long (80% 'just right', 20% 'too short') and only 7% would have been happy to go home on the day of operation. 'Safety' does not automatically make an operation suitable for day-case surgery. Pain, nausea, vomiting, drowsiness and anxiety about the operation and post-operative course were all reasons given for not wanting to go home on the day of surgery. The justification for the increased use of day surgery is that it increases efficiency by reducing costs per case while maintaining the quality of care. One aspect of quality of care is patient acceptability and before day-case tonsillectomy is acceptable to patients the factors responsible for the post-operative morbidity need to be addressed.

Postoperative symptoms 24 hours after ambulatory anaesthesia

F Chung, V Un, J Su

Can. J. Anaesth. (1996) 43/11 (1121–1127)

PURPOSE: To test the hypothesis that the type of surgical procedure influences the incidence of postoperative symptoms. Also the effect of demographic and clinical risk variables: age, sex, ASA status, duration of anaesthesia on the postoperative symptoms were evaluated for each type of surgery.
METHODS: Demographic, medical, anaesthetic and surgical data on 1017 patients were prospectively collected by a research assistant who telephoned each patient 24 h after discharge to administer a questionnaire to determine postoperative symptoms. Postoperative symptoms included incisional pain, nausea/vomiting, drowsiness, dizziness, headache and fever. In addition, 270 patients were asked the percentage (0–100) of their return to daily living function at 24 h.
RESULTS: Incisional pain (26.9%), headache (11.6%) and drowsiness (11.5%) were the most frequently reported symptoms. Dizziness was reported by 9.7% and nausea/vomiting by 7.1%. Approximately 50% of patients undergoing laparoscopy, orthopaedic and general surgery reported 24-h postoperative incisional pain. The incidence of 24-h postoperative nausea/vomiting was highest after general (17.4%), orthopaedic (11.2%) and laparoscopic surgery (9.4%). Drowsiness was highest after laparoscopy (36.1%), followed by general surgery (21.4%). Dizziness was most frequent after laparoscopy (24.1%), followed by general surgery (16.1%). After laparoscopy, postoperative drowsiness or dizziness was related to anaesthesia duration. After general surgery, postoperative dizziness or drowsiness were related to age; the younger the patient, the more likely the symptoms.
CONCLUSIONS: Postoperative pain, nausea/vomiting, drowsiness, dizziness and headache were the more frequent postoperative symptoms 24 h after ambulatory surgery and they were influenced by the type of surgical procedure. In addition, the type of surgery and the 24-h postoperative symptoms determined the degree of return to daily living function.

The Jehovah's Witness family, transfusions and pediatric day surgery

JE Morrison Jr., G Lane, S Kelly, S Stool

Int. J. Pediatr. Otorhinolaryngol. (1997) 38/3 (197–205)

The pediatric otolaryngologist and anesthesiologist, when encountering a family of the Jehovah's Witness (JW) faith, should be aware of the potential problems which may arise when deciding to proceed with surgery. Two case reports are presented which illustrate the difficult situations which can occur when unanticipated complications (i.e. profound bleeding) arise perioperatively. An overview of the history and common tenets of the JW faith, previous legal perspectives, pertinent clinical information from the medical literature, and the protocol of The Children's Hospital, Denver, for dealing with this sensitive issue (drafted with the cooperation of the local JW Hospital Liaison Committee) are presented.

A dose response study of ketorolac in patients undergoing ambulatory hand surgery under intravenous regional anesthesia

SS Reuben, G Gardner, KM Duprat

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: Intravenous regional anesthesia (IVRA) with lidocaine (L) and ketorolac (K) has been shown to provide elective postoperative analgesia following ambulatory hand surgery. Recently the drug manufactuer has recommended using lower doses of intravenous K in the management of postoperative pain. By concentrating K at the surgical site we believe that even lower doses of K may provide optimal postoperative analgesia. This study was designed to determine the optimal dose of K when used in conjunction with IVRA using lidocaine.
METHODS: Following IRB approval for this double-blind study, written informed consent was obtained from 70 patients scheduled to undergo elective carpal tunnel release or tenolysis by the same surgeon. All patients received IVRA with 40 ml 0.5% L, and were randomly assigned to one of seven study groups receiving either 0, 5, 10, 15, 20, 30 or 60 mg K added to the IVRA. Postoperative pain was assessed using a 10 cm visual analog scale (VAS) at 1 and 2 h after deflation of the tourniquet. Analgesia in the recovery room was provided by administering fentanyl 25 μg every 5 min until VAS ≤ 3. The time to first analgesic request, total fentanyl requirement and discharge time were recorded. Patients were instructed to take one Tylenol #3registered trademark sign (T#3) tablet every 4 h as needed for pain. They were contacted by telephone the day after surgery; the time of the first dose and the amount of T#3 tablets required in the initial 24 h postoperative period were recorded.
RESULTS: There were no differences noted in demographic variables, surgical procedures, operative or tourniquet times among the seven groups. Analgesic duration increased in a dose-dependent manner for the 0, 5, 10, 15 and 20 mg groups which were (min): 113 ± 79, 190 ± 113, 301 ± 104, 423 ± 57 and 605 ± 331. The analgesic duration for the 30 and 60 mg groups: 661 ± 543 and 617 ± 456 were not statistically different from 20 mg. VAS scores were noted to be significantly lower in the 20 mg group when compared to groups 0–15 mg. There were no differences in VAS scores between the 20-, 30- and 60-mg groups. The T#3 requirements followed a similar pattern in that the 20-mg group consumed (1.8 ± 1.2) tablets which was significantly lower than 0 mg (4.9 ± 1.2), 5 mg (4.2 ± 1.1), 10 mg (4.1 ± 1.6), or 15 mg (3.1 ± 1.3). There were no differences noted between 20 mg (1.8 ± 1.2), 30 mg (1.7 ± 1.3), and 60 mg (1.9 ± 1.3). A figure is presented.
CONCLUSION: The addition of 20 mg of K to IVRA with lidocaine provides optimal analgesia for patients undergoing ambulatory hand surgery. By utilizing lower doses of K the potential for adverse side effects as well as cost containment may be realized.

Ketorolac for inguinal hernia repair in children: less nausea and faster recovery than after caudal anesthesia or nerve block

LE Jacobson, A Poinier, JM Geiduschek, SS Sasaki, HW Karl, C Ramamoorthy, S Bratton

Anesthesiology (1996) 85/3 A (xxx)

INTRODUCTION: Ilioinguinal-iliobypogastric nerve blocks (NB) and caudal anesthesia (CAU), have been recommended for postoperative analgesia for children undergoing inguinal herniorrhaphy. The reported need for supplemental analgesics after NB has varied from 3 to 72%. Morphine (MS) administration, as an adjunct to NB may double the incidence of vomiting after inguinal surgery. The present study tested the hypothesis that ketorolac (K), alone or in combination with NB, provides better analgesia with less need for MS rescue, fewer side effects and shorter time to discharge than CAU or NB.
METHODS: After obtaining institutional approval and parental consent, 81 children, 18 months to 11 years of age, undergoing inguinal herniorrhaphy were studied. All children received oral premedication with midazolam, general anesthesia with N_2O, O_2, halothane, and one of the following treatments: K: Ketorolac 1 mg/kg IV; NB: 0.25% bupivacaine with epi 1:200000–1 ml/kg; NB-K: the combination of NB and K administered as above; CAU: 0.25% bupivacaine with epi 1:200000–0.75 ml/kg. Postoperatively, a blinded observed recorded pain scores (CHEOPS), emergence and behavior scores, MS requirement, nausaea/vomiting (Hosp N/V), and time to achieve criteria for discharge from the recovery room (RR) and day surgery unit (DSU). Children with a CHEOPS greater than '9' or specific complaints of pain, received 0.03 mg/kg MS intravenously. Data collected after discharge via a written questionnaire and telephone interview included a log of analgesic use, episodes of vomiting (Home N/V), difficulty urinating (UR), and a ten-point parental satisfaction-with-analgesia (SATIS) score. A high degree of satisfaction was defined as SATIS > 8. Nominal data were analyzed with Chi-square tests and continuous data with ANOVA with Bonferroni correction. $P < 0.05$ was considered statistically significant.
RESULTS: All groups were comparable with regard to age, sex, procedure (unilateral or bilateral), operative time, MS requirement, emergence and behavior scores and time in RR. Statistically significant findings are indicated. A table is presented.
CONCLUSIONS: In this study of children undergoing inguinal hernia repair, ketorolac, alone or in addition to a nerve block, resulted in less postoperative nausea and vomiting than either caudal anesthesia or nerve block alone. Analgesia was equivalent in all grueps. The combination of ketorolac and nerve block was also associated with shorter recovery time in the DSU.

Analgesia after day-case knee arthroscopy: double-blind study of intra-articular tenoxicam, intra-articular bupivacaine and placebo

TM Cook, JP Tuckey, JP Nolan

Br. J. Anaesth. (1997) 78/2 (163–168)

Arthroscopy of the knee is performed regularly on a day-case basis. Intra-articular bupivacaine produces transient analgesia and reports of analgesia using intra-articular morphine have produced conflicting results. Non-steroidal anti-inflammatory drugs given systemically can provide effective analgesia for this procedure. In this study we attempted to determine if intra-articular tenoxicam provided useful analgesia after day-case arthroscopy. Sixty-three ASA I–II patients were allocated randomly to one of three groups to receive 40 ml of a solution containing 0.9% saline (group Pla), 0.25% bupivacaine (group Bup) or tenoxicam 20 mg (group Ten). The injection was made into the knee joint at the end of surgery, 10 min before tourniquet deflation. Verbal rating and visual analogue pain scores (at rest and on knee flexion), use of analgesia, mobilization and disturbance by pain at home were recorded for the next 48 h. There were no differences between pain scores in any of the three groups when tested at rest or on movement. Less analgesia was used in the first 24 h by patients in the tenoxicam group but the difference in time to first analgesia was not statistically significant. Side effects and disturbance by pain were similar in all groups. The use of intra-articular tenoxicam 20 mg at the end of arthroscopy reduced oral analgesic requirements during the first day after operation but did not alter patients' perception of pain.

Resolution of chronic anal fissures after treatment of contiguous internal hemorrhoids with direct current probe

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Gastrointest. Endosc. (1997) 45/2 (157–162)

BACKGROUND: Purposes: (1) to prospectively evaluate efficacy and safety of direct current (DC) probe treatment of chronic anal fissures associated with internal hemorrhoids, and (2) to estimate direct and indirect costs of anoscopic treatment versus surgery.
METHODS: Ten patients with chronic fissures of 11 mm (mean length) had symptoms for 5 months (mean) in spite of medical management; all had internal hemorrhoidal disease. DC coagulation was applied to two or three contiguous internal hemorrhoids per outpatient session. A total of 11 mA (mean) of DC current was delivered for 7 min (mean) per hemorrhoid segment.
RESULTS: All ten patients had relief of chronic anal pain within two treatments and nine anal fissures healed within 4 weeks. One patient developed a perianal abscess and fistula requiring surgery. There were no recurrences in 20 months (mean) of follow-up with medical management. Mean direct and indirect costs (in terms of lost time from work or usual activity) of DC probe treatments were estimated to be 10–30% lower and twice to ten times less, respectively, than standard surgery for chronic anal fissures.
CONCLUSION: DC probe treatment for chronic anal fissures associated with internal hemorrhoidal disease is an important advance as an effective, safe and cost-effective nonsurgical treatment in selected patients.

The effects of midazolam and flumazenil on psychomotor function

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J. Clin. Anesth. (1997) 9/1 (21–25)

STUDY OBJECTIVE: To determine the effects of midazolam and its antagonism with flumazenil on psychomotor function as assessed by the perceptive accuracy test (PAT) and choice reaction time (CRT).
DESIGN: Double-blind, cross-over, randomized, placebo-controlled study.
SETTING: Department of Anaesthesiology, University Hospital, Linkoping, Sweden.
SUBJECTS: 11 healthy volunteers (six females, five males, mean age 32 years).
INTERVENTIONS: Midazolam 0.1 mg/kg (Group MH), midazolam 0.035 mg/kg (Group ML), or placebo (Group PL) were injected intravenously (IV) in a cross-over design. Flumazenil 0.5 mg was injected after 60 min. Plasma concentrations of midazolam were measured at 3, 30, 60 and 75 min.
MEASUREMENTS AND MAIN RESULTS: Baseline values were first obtained on psychomotor tests including the PAT and CRT. These tests were then repeated 30 and 60 min after the IV injection of midazolam or placebo, and repeated 15 and 30 min following the injection of flumazenil. A dose-dependent effect of midazolam was seen on the PAT and CRT. Flumazenil completely reversed the psychomotor effects of midazolam in Group ML at 60 min but not in Group MH, and this action was clearly detected by the PAT. Psychomotor tests had returned to baseline values when the plasma concentration of midazolam was below 33 ng/ml. A marked inter-individual variation was seen on the PAT, CRT and in the correlation between the plasma concentration and the results on the PAT.
CONCLUSIONS: There was a dose-dependent deterioration in psychomotor performance in subjects given midazolam. The PAT was sensitive in the detection of these residual effects, but a large inter-individual variation in the psychomotor effects of midazolam was evident that could be due to pharmacodynamic and pharmacokinetic variability between individuals. Flumazenil in a dose of 0.5 mg IV completely reversed the effects of low-dose, but not high-dose, midazolam.

Cost effectiveness of cataract surgery. A comparison of conventional extracapsular surgery and phacoemulsification at Flinders Medical Centre

P Asimakis, DJ Coster, DJ Lewis

Aust. New Zealand J. Ophthalmol. (1996) 24/4 (319–325)

PURPOSE: To compare the cost of conventional extracapsular cataract surgery and phacoemulsification at Flinders Medical Centre.
METHODS: The costs of the two forms of cataract surgery were assessed over a 12-month period. During this period 410 cataract operations were performed.
SETTING: The cataract surgery was carried out in a dedicated day surgery unit in a teaching hospital.
OUTCOME MEASURE: The direct, indirect and tangible costs were measured.
RESULTS: Conventional extracapsular cataract surgery with posterior chamber lens implant costs $1000.85 and phacoemulsification with lens implantation costs $1231.00.
CONCLUSIONS: Although conventional extracapsular surgery generates slightly lower costs than phacoemulsification, the cost difference is small. In generating these figures, some assumptions must be made and the real difference may prove to be less than this.

Mechanism of femoral nerve palsy complicating percutaneous ilioinguinal field block

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Br. J. Anaesth. (1997) 78/3 (314–316)

Femoral nerve palsy has been reported after percutaneous ilioinguinal field infiltration with general anaesthesia for inguinal herniorrhaphy. The mechanism whereby this could occur was studied in cadaver dissections. It was found that the plane between the transversus abdominis muscle and the transversalis fascia was continuous laterally with the tissue plane deep to the iliacus fascia, which is the plane containing the femoral nerve. Injection of methylene blue 1 ml into this plane resulted in pooling of dye around the femoral nerve. Femoral nerve palsy may result from infiltration of a sufficient volume of local anaesthetic into the plane between the transversus abdominis muscle and the transversalis fascia with tracking of the injectate deep to the iliacus fascia to affect the femoral nerve. This finding has important implications for the performance of a percutaneous ilioinguinal field block particularly in day surgery provision.

Evaluation of morphine versus fentanyl for postoperative analgesia after ambulatory surgical procedures

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Anesth. Analg. (1997) 84/3 (509–514)

Adequate postoperative analgesia without side effects is necessary to facilitate same-day discharge of ambulatory patients after ambulatory surgery. This study compared the use of intravenous morphine and fentanyl after painful ambulatory procedures with respect to analgesic efficacy, the incidence of side effects and impact on the patient's readiness for discharge. Fifty-eight patients undergoing ambulatory surgery were prospectively randomized to receive morphine or fentanyl for postoperative analgesia and studied in double-blind fashion. The drugs were administered in equipotent doses in the postanesthesia care unit (PACU) and were titrated against pain scores until a

visual analog score of less than 40 mm was achieved and the patient was satisfied with the level of analgesia. In the ambulatory surgical unit, oral analgesia was available. Pain scores, amount of analgesia used, the incidence of side-effects (nausea and vomiting, sedation and dizziness), the times to achieve recovery milestones, and fitness for discharge were studied. Equal amounts of morphine and fentanyl were used in the PACU, but pain scores were higher in the fentanyl group in the ambulatory surgical unit. In addition, the fentanyl group required more oral analgesia than the morphine group (69 vs 17%; $P < 0.0002$). The incidence of in-hospital side effects was similar. However, the morphine group had a more frequent incidence of postdischarge nausea and vomiting than the fentanyl group (59 vs 24%; $P < 0.016$). There was no significant difference in the duration of stay in the PACU (morphine vs fentanyl, 69 ± 15 min vs 71 ± 20 min), the times to achieve recovery milestones, and fitness for discharge (morphine vs fentanyl, 136 ± 41 min vs 132 ± 40 min). The short duration of fentanyl was not associated with faster discharge times; most patients required additional analgesia to control pain. Morphine produced a better quality of analgesia but was associated with an increased incidence of nausea and vomiting, the majority of which occurred after discharge.

Remifentanil compared with alfentanil for amoulatory surgery using total intravenous anesthesia

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Anesth. Analg. (1997) 84/3 (515–521)

The purpose of this study was to test the hypothesis that using a 1:4 ratio of remifentanil to alfentanil, a remifentanil infusion would provide better suppression of intracperative responses and comparable recovery profiles after ambulatory laparoscopic surgery than all alfentanil infusion, as part of total intravenous anesthesia. Two hundred ASA physical status I, II or III adult patients participated in this multicenter, double-blind, parallel group study. Patients were randomly assigned 2:1 to either the remifentanil-propofol or alfentanilpropofol regimens. The anesthesia sequence was propofol (2 mg/kg intravenously (IV) followed by 150 μg kg^{-1} min^{-1}), and either remifentanil (1 μg kg^{-1} IV followed by 0.5 μg kg^{-1} min^{-1}) or alfentanil (20 μg kg^{-1} IV followed by 2 μg kg^{-1} min^{-1}), and vecuronium. After trocar insertion, infusion rates were decreased (propofol to 75 μg kg^{-1} min^{-1}; remifentanil to 0.25 μg kg^{-1} min^{-1}; alfentanil to 1 μg kg^{-1} min^{-1}). Alfentanil and propofol were discontinued at 10 and 5 min, respectively, before the anticipated end of surgery (last surgical suture); remifentanil was discontinued at the end of surgery. Recovery times were calculated from the end of surgery. The median duration of surgery was similar between groups (39 min for remifentanil vs 34 min for alfentanil). A smaller proportion of remifentanil patients than alfentanil patients had any intraoperative responses (53 vs 71%, $P = 0.029$), had responses to trocar insertion (11 vs 32%, $P < 0.001$), or required dosage adjustments during maintenance (24 vs 41%, $P < 0.05$). Early awakening times were similar. Remifentanil patients qualified for Phase 1 discharge later and were given postoperative analgesics sooner than alfentanil patients ($P < 0.05$). Actual discharge times from the ambulatory center were similar between groups (174 min for remifentanil vs 204 min for alfentanil) ($P = 0.06$). In conclusion, remifentanil can be used for maintenance of anesthesia in a 1:4 ratio compared with alfentanil, for total IV anesthesia in ambulatory surgery. This dose of remifentanil provides more effective suppression of intraoperative responses and does not result in prolonged awakening.

Fat graft myringoplasty in children—a safe and successful day-stay procedure

RB Mitchell, KD Pereira, RH Lazar

J. Laryngol. Otol. (1997) 111/2 (106–108)

The surgical closure of dry tympanic membrane perforations in children remains a controversial issue due to conflicting opinions on the appropriate technique, graft material and success rate. We present a review of 342 children who underwent fat graft myringoplasty as a day stay procedure over a 6-year period. Successful closure of the tympanic membrane perforation was achieved in 92% of ears. Subsequent recurrent otitis media with effusion required insertion of ventilation tubes in 12%. No relationship was observed between the age of the child and a successful outcome. We conclude that day-stay fat graft myringoplasty is a safe and successful procedure which results in a dry and safe ear in the majority of children.

Propofol: an alternative general anesthetic for outpatient oral surgery

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J. Oral Maxillofac. Surg. (1996) 54/8 (943–948)

PURPOSE: This study compared propofol with methohexital for use in outpatient general anesthesia for oral surgery procedures.
PATIENTS AND METHODS: 50 American Society of Anesthesia (ASA) class I or II patients undergoing elective minor cral surgery procedures were selected for inclusion in the study. Participants were randomly divided into two groups—propofol-treated and methohexital-treated. All anesthetic agents were titrated in bolus using dosages standardized by weight. After premedication with intravenous midazolam and fentanyl, general anesthesia was induced either by propofol or methohexital. The quality of the anesthesia was subjectively evaluated by the anesthetist, surgeon, and the patient. Also, a standardized battery of tests was developed to quantitatively evaluate recovery from anesthesia.
RESULTS: Propofol showed significantly less percentage increase in diastolic blood pressure and heart rate than methohexital. However, at the same time, propofol showed significantly greater percentage lowering of diastolic blood pressure. The mean low heart rate percentage data of preoperative baseline were different, but both were greater than 100%. The anesthetist and patient evaluations showed no statistically significant difference in the acceptance of either agent. No patient in either group had any recollection of pain with induction or any recollection of the operation itself. There were no statistically significant effects of group in recovery test performance, although patients tended to recover more quickly in the symbol digit test and object recall test with propofol. No patient complained of any postoperative complications secondary to the anesthetic.
CONCLUSIONS: Propofol is a suitable agent for induction and maintenance of general anesthesia for outpatient oral surgery procedures. It provides a smooth induction of anesthesia with few excitatory effects.

Patients with cardiac disease for ambulatory surgery

ML Mingus

Anesthesiol. Clin. North Am. (1997) 15/1 (171–188)

Patients with CAD and valvular disease can safely undergo ambulatory surgery. Patient selection is critical to evaluate the patient's medical condition and optimize any unstable angina and CHF

prior to surgery. Hemodynamic changes, which are common in brief but stressful ambulatory procedures, should be controlled to decrease the potential for complications (despite a lack of scientific evidence to support this concept). Surveillance for perioperative cardiac dysfunction should be continued into the postoperative period and by telephone communication after discharge.

Comparison of postoperative emesis, recovery profile, and analgesia in pediatric strabismus repair: rectal acetaminophen versus intravenous fentanyl-droperidol

GS Padda, OA Cruz, JL Krock

Ophthalmology (1997) 104/3 (419–424)

BACKGROUND: Postoperative nausea and vomiting comprise of significant morbidity in pediatric patients undergoing strabismus repair and can prolong hospitalization. Many authors recommend routine intraoperative opiate analgesia and prophylactic antiemetics.
METHODS: A prospective, comparative, randomized study to assess rectal acetaminophen ($n = 45$) to intravenous fentanyl-droperidol ($n = 45$) to resolve recovery profile, emesis rate, and adequacy of analgesia in a pediatric strabismus repair population was performed, with standardization of the anesthetic technique. Data on pharmacoeconomic cost-effectiveness analysis, willingness to pay, and willingness to repeat were elucidated.
RESULTS: Emesis rate in the acetaminophen group was 9%, and the fentanyl-droperidol group was 13% (not statistically significant). There was a statistically significant shorter wake-up time, time in postanesthesia recovery, time in ambulatory surgery unit, time to first verbal command, time to first oral intake, time to ambulation, and time to return to normal activity in the acetaminophen group ($P < 0.05$). Postoperative analgesic potency of rectal acetaminophen was adequate and equivalent by the Observer Pain Scale. Parental satisfaction was similar by willingness-to-pay and willingness-to-repeat postoperative survey. Cost-effectiveness ratio (i.e. cost per treatment success) for acetaminophen and fentanyl-droperidol groups was $0.33 and $87.91, respectively.
CONCLUSIONS: Prophylactic fentanyl-droperidol prolongs the length-of-stay and recovery time and provides no discrete identifiable benefit over acetaminophen alone in this population. Cost-effectiveness analysis strongly favors use of acetaminophen over fentanyl-droperidol prophylaxis in children undergoing primary strabismus surgery.

Total intravenous anaesthesia for day care surgery

VN Swadia

J. Anaesthesiol. Clin. Pharmacol. (1997) 13/1 (57–61)

With the advent of newer intravenous anaesthetic agents and increasing awareness of environmental pollution, total intravenous anaesthesia (TIVA) has become the need of the hour. In this study, a new combination of drugs viz. diazepam, ketamine and thiopentone was tried for the purpose of TIVA as all the three drugs are easily available and commonly used in our institution. Minor surgical procedures lasting 5–50 min were selected for the study keeping in mind the criteria for day surgery. Clinical evaluation of good quality recovery from anaesthesia was done by various tests. Immediate recovery from anaesthesia occured within 15 min of injecting the drug combination. Recovery of physical and cognitive functions took a maximum of 6 h. All the patients were declared fit for 'home readiness' 6 h after the surgery was over. This method is found to be safe, reliable and economical.

Vaginal misoprostol for cervical dilatation before operative office hysteroscopy

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Gynaecol. Endosc. (1997) 6/1 (47–49)

OBJECTIVE: To assess the efficacy of misoprostol as an adjunct for easy cervical dilatation before operative office hysteroscopy under local anaesthesia.
DESIGN: Randomized, placebo-controlled clinical trial.
SETTING: Tertiary centre for treatment of infertility.
SUBJECTS: Patients undergoing hysteroscopy, for simultaneous diagnostic and operative indications such as uterine septae, synechiae, submucous myomas, endometrial polyps and lost intrauterine devices, were included into the study.
INTERVENTION: 43 cases were randomized to misoprostol ($n = 22$) and placebo ($n = 21$) groups. The drug was administered vaginally 4 h before hysteroscopy. Hysteroscopy was performed under local anaesthesia in an examination room as an office procedure. Main outcome measures: rapid and easy dilatation, decreased pain, decreased incidence of cervical haemorrhage, laceration and uterine perforation.
RESULTS: In the misoprostol group, a 7-mm hysteroscopic sheath passed easily without dilatation in 20 (91%) cases while it passed easily without dilatation in six (28%) of the placebo group ($P < 0.001$). The average dilatation time for groups was 1.6 and 2.8 min, respectively ($P < 0.05$). Mean dilatation pain scores for the misoprostol and placebo groups were 5.1 and 9.3, respectively ($P < 0.05$). Cervical bleeding was noted in two cases in the misoprostol group and laceration of the cervix was noted in three cases. In the placebo group there were eight cases each of both bleeding and laceration.
CONCLUSION: Application of misoprostol does provide a safe, painless and effective means of cervical dilatation by chemical, rather than mechanical forces and reduces complications such as cervical bleeding, laceration and uterine perforation.

An update for Bassini procedure in the treatment of inguinal hernia under local anesthesia. Preliminary note

A Vitali, S Biagiotti, L Talamucci, S Nardi, GC Biliotti

Minerva Chir. (1997) 52/1-2 (149–152)

Inconvenience due to tension along the suture, a relative high recurrence rate, the availability of optimal prosthetic materials and the tendency to reduce hospital stay are the motivations which induced many surgeons to adopt alternative techniques instead of the traditional ones for inguinal hernia repair. Among these latter it is worthwhile to add a personal update of the Bassini's technique: the plasty tailored upon the polypropylene mesh performed in local anesthesia. Thanks to the use of the prosthetic mesh, the plasty is performed using only four stitches tied loosely without much high tension on the conjoined tendon. Such technical expedient reduced postoperative pain and give better warrant for the plasty and allow hernia repair in local anesthesia and on a daily basis.

Benchmarking the perioperative process. I. Patient routing systems: a method for continual improvement of patient flow and resource utilization

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J. Clin. Anesth. (1997) 9/2 (159–169)

The article presents an overview of the design and application of a real-time patient routing system, based on barcode and local area network technology, that was designed to track the progress of patients

during the perioperative process. We present data on all patients undergoing ambulatory surgery. Patients' progress during their surgical stay was recorded at 17 strategic events using this real-time patient tracking technology. These times were used to identify inefficiencies in the perioperative process by icentifying bottlenecks and areas of high variation. We found that both raw and actual operating room (OR) utilization efficiency was less than 50%. Points of high variation in a patient's progress occurred during the time from admit to the hospital until the patient was ready for the OR; the time from when a patient was ready for the OR until they were called for; and the time a patient spends in the OR preoperative holcting room. Causes for variation were identified and traced back to individual procedures, activities, and work processes. Multidisciplinary improvement teams were created to improve the pinpointed problem areas. The real-time patient routing system is a process that has proven to be highly valuable to all participants in the surgical process in bringing about rational, data driven efficiencies in perioperative services. This process has the potential to facilitate multidisciplinary cooperation in efforts to contain and reduce costs of perioperative services.

Caudal epidural butorphanol plus bupivacaine versus bupivacaine in pediatric outpatient genitourinary procedures

CD Lawhorn, JM Stoner, ML Schmitz, RE Brown Jr., FW Stewart, P Volpe, R Shirey

J. Clin. Anesth. (1997) 9/2 (103–108)

STUDY OBJECTIVE: To investigate the efficacy of adding butorphanol to bupivacaine administered in the caudal epidural space in children undergoing genitourinary (GU) procedures.
DESIGN: Randomized, double-blinded, controlled study.
SETTING: University affiliated pediatric hospital.
PATIENTS: 200 ASA physical status I and II male patients between 6 months and 10 years of age.
INTERVENTIONS: Patients were randomized to receive either 0.25% bupivacaine with 1: 200000 epinephrine alone (Group 1) or 0.25% bupivacaine with 1:200000 epinephrine plus 30 μg/kg butorphanol (Group 2) administered via the caudal epidural space prior to surgical incision.
MEASUREMENTS AND MAIN RESULTS: Patients were evaluated postoperatively until discharge. Measurements included requirement of additional analgesic, sedation, pain/comfort scores, and a 24-h analgesic follow-up. Significantly fewer patients in the butorphanol group required rescue morphine sulfate in the postanesthesia care unit ($P \leq 0.001$). The total number of morphine doses administered to Group 2 was significantly less than Group 1 ($P \leq 0.001$). A total of 52% of patients in Group 1 compared with 28% in Group 2 required administration of additional analgesics following discharge from the hospital ($P \leq 0.003$), with 23% of Group 1 requiring a codeine compound compared with 8% in Group 2 ($P < 0.03$).
CONCLUSIONS: The addition of 30 μg/kg butorphanol to 0.25% bupivacaine with epinephrine via the caudal epidural space is a safe, effective means to increase duration of analgesia following GU procedures.

Outpatient general anesthesia: a comparison of a combination of midazolam plus propofol and propofol alone

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J. Clin. Anesth. (1997) 9/2 (130–137)

STUDY OBJECTIVE: To compare the hemodynamics, efficacy, safety and postoperative recovery of patients following the use of either midazolam plus propofol or placebo plus propofol for induction and maintenance of general anesthesia for outpatient surgical procedures of less than 2 h duration.
DESIGN: Prospective, parallel, randomized, double-blind, placebo-controlled, multicenter study.
SETTING: Ten outpatient surgery centers.
PATIENTS: 203 ASA physical status I, II, and III patients undergoing various outpatient surgical procedures.
INTERVENTIONS: Patients were randomly assigned to one of the two treatment groups. For induction of anesthesia, Group 1 received midazolam (0.077 ± 0.0021 mg/kg) via slow intravenous (IV) push plus continuous infusion propofol (provided in a concentraticn of 5 mg/ml), and Group 2 received placebo plus full-concentration (10 mg/ml) propofol. Thereafter, Group 1 received half-concentration propofol and Group 2 received full-concentration propofol via continuous infusion for maintenance of anesthesia. Investigators administered doses of study medication in a blinded fashion as required to achieve the desired clinical effect. Drugs used to maintain anesthesia were restricted to study drug, short-acting opioids and nitrous oxide. Succinylcholine chlcride or vecuronium were used to facilitate intubation of study patients.
MEASUREMENTS AND MAIN RESULTS: There were no statistically significant differences between the midazolam/propofol and placebo/propofol groups with respect to the mean (S.E.) decrease in mean arterial pressure from pre-dose to time of intubation or from time of intubation to initiation of surgery; the mean (S.E.) time required from initiation of study medication to completion of intubation (6.7 (0.23) vs. 7.0 (0.26) min, respectively); or the mean (S.E.) amount of propofol required to induce and maintain anesthesia (6.03 (0.329) vs. 9.71 (0.489) mg/kg, respectively). There was no significant difference between the two treatment groups in the time to recovery following the completion of surgery (as assessed by Aldrete Post Anesthesia Recovery Score). Most patients (approximately 79%) in both groups rated the quality of the anesthetic regimen as excellent; however, as assessed by patient questionnaires, fewer patients in the midazolam/propofol group were able to recall the events surrounding their surgical procedure as compared with patients in the placebo/propofol group (89.2 vs. 77.9%; $P = 0.022$). There were no differences between the two groups with respect to the frequency or severity of adverse events.
CONCLUSIONS: Concomitantly administered midazolam and reduction-concentration propofol did not exacerbate the well-described hypotensive effects of full-strength propofol during induction of anesthesia. The time to intubation was equivalent with the combination of midazolam/propofol as compared with propofol alone. Recovery from the two regimens was not significantly different. However, reduced recall of perioperative events was observed more often in the midazolam/propofol regimen compared with propofol alone.

Acupuncture in anesthesia or analgesic-induced nausea and vomiting

M Meinecke-Machens

Schmerz (1997) 11/1 (9–12)

The most common and distressing symptoms following anesthesia and surgery are pain and emetic problems. Under most circumstances, pain causes the greater amount of suffering, particularly after major surgery, but in some instances postoperative nausea and vomiting (PONV) may be more distressing, particularly after minor surgery. In outpatient surgery, emesis may also have important economic implications, for example, admission to hospital beds because of intractable vomiting. Antimetic drugs given during the perioperative period may be associated with unwanted side effects, including sedation, hypotension and extrapyramidal reactions. Since 1986 there have been studies reporting beneficial antiemetic effects for Pe 6 stimulation on the right or both forearms in adults using either

needling (acupuncture) or pressure (acupressure). The majority of these studies have investigated postoperative nausea and vomiting. But Pe 6 stimulation has also been shown to be an effective antiemetic for symptoms associated with pregnancy and chemotherapy. Although Pe 6 electro-acupuncture and acupressure are recognized as having an antiemetic effect, its inconvenient instrumentation may limit its clinical applicability. There have also been studies reporting beneficial antiemetic effects of P 6 acupoint injection with 50% glucose and acupuncture of the ear.

Tumescent mini abdominoplasty

TT Nguyen, KA Kim, RB Young

Ann. Plastic Surg. (1997) 38/3 (209–212)

The tumescent technique for liposuction has become a widely accepted procedure in the plastic surgical community. We have used this technique as primary anesthesia for a limited abdominoplasty (mini abdominoplasty) in a series of 35 patients over a 2-year period on an outpatient basis. Anesthesia for the procedure consists of tumescent lidocaine solution and minimal sedation with oral Valium or low-dose intravenous Versed. All patients had good hemodynamic stability and tolerated the procedure well. No complications were noted intra- or postoperatively. The tumescent technique provides adequate and safe anesthesia for mini abdominoplasty with supplemental liposuction. The main advantages of the procedure include avoidance of risks associated with general anesthesia, less bleeding, faster recovery, and probably reduced cost of the operation.

Discharge criteria after ambulatory surgey in general anaesthesia

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Anasthesiol. Intensivmed. (1997) 38/2 (61–68)

There are at present only a few papers on discharge criteria following ambulatory surgery in general anesthesia. This article therefore describes the stages of recovery after general anaesthesia and provides an overview of discharge criteria from PACU or the ambulatory recovery area and of postoperative instructions for the out-patients in the current literature. In the stage of immediate recovery consciousness, protective reflexes and motor activity return and the patient can be discharged from PACU if specific clinical criteria are satisfied. The return of co-ordination and physiological functions in the stage of intermediate recovery allows to discharge ambulatory patients home accompanied of a responsible adult (home-ready). A patient is considered completely recovered and 'streetfit' after the return of all psychomotorical functions. The evaluation of patients recovery and readiness for discharge from PACU using score-systems can be considered a valuable alternative to the individual assessment by the anaesthetist that would allow delegation of patient discharge to qualified nursing staff. The Aldrete-Score for adults and the Soliman-Score for children are simple and practical scoring systems to determine patient discharge from PACU. The 'Post-Anesthesia-Discharge-Scoring-System' (PADSS) developed by Chung and the modified 'Postanesthetic-Recovery-Score' (PAR) by Aldrete are scoring systems to evaluate home-readiness of ambulatory patients. The PAR seems especially too complex and time consuming which renders it of lesser practical value. To avoid post-operative complications after discharge, patients should receive written instructions in the premedication interview. Possible complications should be explained to the patient and the accompanying adult and written instructions for the next 24 h should be handed to them before the patient is discharged.

National survey of MRSA: Ireland, 1995

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J. Hosp. Infect. (1997) 35/3 (175–184)

The objective of this survey was to obtain an indication of the size of the methicillin-resistant *Staphylococcus aureus* (MRSA) problem in Ireland prior to introducing national MRSA control guidelines. A survey of all microbiology laboratories in Ireland was carried out over 2 weeks in Spring 1995. For patients from whom MRSA was isolated during the study period standard demographic and clinical data were requested and period prevalence/1000 discharges was calculated. All 45 microbiology laboratories surveyed responded. MRSA was isolated from 448 patients during the 2-week period. The period prevalence of MRSA was 16.5/1000 discharges. Males aged 65 or less had the highest rate (50/1000 discharges). Half of all isolates were from patients in surgical or medical wards, but 4% were from community-based sources such as GPs, nursing homes and hospices. Thirty-two percent of MRSA patients were infected rather than colonized. MRSA is clearly a significant problem in Ireland. While it is largely a hospital problem at present, the increasing trend towards day procedures and shorter hospital stay means that infection will increase in the community.

Acupressure treatment for prevention of postoperative nausea and vomiting

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Anesth. Analg. (1997) 84/4 (821–825)

Postoperative nausea and vomiting are still common problems after general anesthesia, especially in ambulatory surgery. Drug therapy is often complicated with central nervous system symptoms. We studied a nonpharmacological method of therapy-acupressure-at the Pericardium 6 (P.6) (Nei-Guan) meridian point. Two hundred consecutive healthy patients undergoing a variety of short surgical procedures were included in a randomized, double-blind study: 108 patients were in the acupressure group (Group 1) and 92 patients were in the control group (Group 2). Spherical beads of acupressure bands were placed at the P.6 points in the anterior surface of both forearms in Group 1 patients, while in Group 2 they were placed inappropriately on the posterior surface. The acupressure bands were placed before induction of anesthesia and were removed 6 h postoperatively. They were covered with a soft cotton wrapping to conceal them from the blinded observer who evaluated the patients for presence of nausea and vomiting and checked the order sheet for any antiemetics prescribed. In both groups, the age, gender, height, weight, and type and duration of surgical procedures were all comparable without significant statistical difference. In Group 1, only 25 of 108 patients (23%) had nausea and vomiting as compared to Group 2, in which 38 of 92 patients (41%) had nausea and vomiting ($P = 0.0058$). We concluded that acupressure at the P.6 (Nei-Guan) point is an effective prophylaxis for postsurgical nausea and vomiting and therefore a good alternative to conventional antiemetic treatment.

Negative pressure induced airway and pulmonary injury

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Can. J. Anaesth. (1997) 44/1 (78–81)

PURPOSE: To describe negative pressure injury occurring during the use of a laryngeal mask airway (LMA) in which airway bleeding rather than pulmonary oedema was the major complication.

CLINICAL FEATURES: A patient presented to the day surgery unit for resection of a ganglion cyst on her right wrist. She underwent general anaesthesia using an LMA, and experienced severe laryngospasm and transient hypoxaemia (oxygen saturation to 66%) 7 min after incision. This resolved within 90 s of succinylcholine administration. Nonetheless, the LMA was removed, a tracheal tube was inserted atraumatically and positive pressure ventilation was maintained until the time of emergence, when fresh blood appeared in the tracheal tube. The blood ultimately became frothy, resembling pulmonary oedema fluid. Haemoptysis, continued postoperatively and led to the hospitalization of this ambulatory patient.
CONCLUSION: Rapid development of large subatmospheric pressures, as can occur during severe laryngospasm, may disrupt the tracheobronchial vasculature causing airway bleeding. This bleeding should be distinguished from negative pressure pulmonary oedema.

Preoperative ultrasound to predict conversion in laparoscopic cholecystectomy

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Surg. Laparosc. Endosc. (1997) 7/2 (121–123)

Laparoscopic cholecystectomy (LC) is the established treatment for symptomatic cholelithiasis. With its decreased postoperative stay, it is being performed increasingly in short-stay or outpatient settings. It is particularly important to identify preoperative factors that may predict conversion to open cholecystectomy (QC) at LC, with its concomitantly prolonged hospital recovery. In this series of 738 patients, the ultrasound features of stone size, gallbladder wall thickness, diameter of the common bile duct, number of stones and the appearance of a contracted gallbladder were assessed preoperatively in all patients. The overall conversion rate was 3.5% (26/738). By logistic regression analysis, factors found to increase significantly the risk of conversion were patient age >70 years ($P<0.01$), a stone at least 20 mm in diameter ($P<0.05$), a gallbladder wall thicker than 4 mm ($P<0.05$), a common bile duct wider than 6 mm ($P<0.05$), and a contracted gallbladder on ultrasound ($P<0.02$). The number of stones in the gallbladder was not significant. Using these risk factors, it was possible to divide patients into high- and low-risk groups. The 118 patients in the high risk group had 18 of the 26 conversions, for a conversion rate of 15.3%. The 620 patients in the low-risk group had eight of the 26 conversions, for a conversion rate of 1.3%. This low-risk subgroup represented 84% of the series of 738 LC procedures and may have been suitable for outpatient LC. Using preoperative ultrasound, it is possible to predict patients who are at low risk of conversion and are suitable for ambulatory surgery.

Intravenous regional anesthesia in ambulatory surgery

A Mozo Barrales

Rev. Mex. Anestesiol. (1997) 20/1 (32–34)

With the purpose to evaluate the efficacy and safety of using minimum or low doses of lidocaine in intravenous regional anesthesia, in orthopedic and reconstructive surgery of superior extremity and the utility in short stay at the hospital, 20 patients of both sex, child and adults, were evaluated at the Orthopedia Hospital 'Magdalene de las Salinas' of the Institute Mexicano del Seguro Social. We obtain good analgesia in 98% of the patients, hemodynamic stability, and no complications secundaries to the technique as well as of local anesthetics or by ischemia, with a predictable recovery of the sensitive and motel functions in a short time. We concluded that the method is effective, sure and economic in the management of ambulatory surgery. This alternative should be considered in all patients that fulfill the requirements.

Tonsillectomy and its complications

J Rous, R Sakar

Otorinolaryngol. Foniatrie (1997) 46/1 (25–32)

During the five year period from 1989 to 1993 at the ENT Clinic in Plzen 995 tonsillectomies were made, i.e. in 8.66% of the total number of patients hospitalized during that period. The mean age of the operated patients was 20.44 years, whereby the age group from 16 to 20 years accounted for more than one quarter (28.64%) of the whole group. Women predominated (56.98%). A non-complicated afebrile course was recorded in 800 (80.40%) of the operated patients, in the remaining 195 (19.60%) after tonsillectomy various complications developed such as early (11.86%) and late (5.53%) haemorrhage, postoperative fever (4.22%), subautaneous emphysema of the face, neck and thoracic wall (0.3%) and the trismus (0.3 %). In two instances aspiration bronchopneumonia was diagnosed and postintubation oedema of the larynx. Except for early haemorrhage which was less frequent after operations under general anaesthesia in the remaining postoperative complications no correlation with the type of anaesthesia used was found. The total relatively high number of complications may be to a certain extent be influenced by the fact that the authors included in the group of patients with early haemorrhage (11.86%) cases treated conservatively (10.35%) as well as those treated by surgery (1.51%). The authors' experience with a relatively frequent incidence of postoperative complications and their development usually before the 3rd day after surgery indicates unequivocally that it is not advisable to perform tonsillectomy as ambulatory surgery, while on the other hand the possibility to reduce the traditional 6-day hospitalization of the majority of patients should be ruled out.

Complications of ambulatory phlebectomy: Review of 1000 consecutive cases

JA Olivencia

Dermatol. Surg. (1997) 23/1 (51–54)

BACKGROUNDP: Complications of ambulatory phlebectomy performed in an office setting.
OBJECTIVE: Complications of phlebectomy.
METHODS: Review of 1000 consecutive cases performed in an office setting.
CONCLUSIONS: Ambulatory phlebectomy is a satisfying procedure for the treatment of most patients presenting with varicose veins. Its clinical as well as cosmetic results are very gratifying. As pleasing as ambulatory phlebectomy has proven to be, complications do result and must be dealt with. The two most frequent complications were: blister formation and localized thrombophlebitis, and the most serious were two cases of skin necrosis.

Recent trends in utilization of procedures in otolaryngology—head and neck surgery

PD Manoukian, JR Wyatt, DA Leopold, EB Bass

Laryngoscope (1997) 107/4 (472–477)

The development of minimally invasive techniques and increasing performance of surgery in outpatient settings have had a major influence on otolaryngologybead and neck surgery (OLHNS), but little is known about the extent to which these forces have affected the overall distribution and total rate of performance of OLHNS procedures. The aims of this study were to determine whether there has been a change in the total number of people undergoing OLHNS

procedures between 1989 and 1992 in Maryland and to identify those procedures for which there has been a significant change in utilization. Data were obtained on 171579 patients undergoing OLHNS procedures between 1989 and 1992 in Maryland's nonfederal, acute care hospitals, hospital-based outpatient centers, and freestanding multispecialty surgical centers. Age-adjusted annual surgical rates were calculated by direct standardization using 1990 Maryland census data, and changes in rates over time were examined using linear regression. From 1989 to 1992, there was no significant change in the total age-adjusted annual rate of performance of the most commonly performed OLHNS procedures ($P > 0.05$), yet there was a significant increase ($P < 0.05$) in the rates of ethmoidectomy from 37/100000 to 73/100000, intranasal antrotomy from 25/100000 to 44/100000, and septoplasty from 70/100000 to 89/100000, and a significant decrease ($P > 0.05$) in the rate of rhinoplasty from 44/100000 to 36/100000. The data show an annual average decrease in inpatient surgery of 5.2% ($P = 0.006$), and a corresponding increase in outpatient surgery of 5.1% ($P = 0.005$). Maryland surgeryrates for commonly performed procedures in OLHNS remained stable overall, except for an increase in sinus surgery and septoplasty rates and a decrease in rhinoplasty rates.

Ambulatory surgery. Organization and results after 5-years experience

H Johanet, P Marichez, F Gaux

Chir. Mem. Acad. Chir. (1997) 122/1 (35–38)

Ambulatory surgery has been organized and regulated in France since 1991. We report the organisation of this activity in our unit and the results in 22476 patients. Endoscopies, not specifically surgical, were 25.7% of procedures. Overnight hospitalization was needed in 3.1% of patients, including about 40% of them for social and familial conditions or follow up of diagnosis or therapeutic sequences. This rate is growing, because we developed diagnosis or therapeutic sequences for interest of the patient. Since 1994, we operated more patients in ambulatory surgery than in classical hospitalization.

Inhalation induction with sevoflurane: a double-blind comparison with propofol

A Thwaites, S Edmends, I Smith

Br. J. Anaesth. (1997) 78/4 (356–361)

We conducted a randomized, double-blind comparison of 8% sevoflurane and propofol as induction agents for day-case cystoscopy in 102 patients. All patients received an i.v. cannula and breathed oxygen 5 l min^{-1}. Anaesthesia was induced with propofol i.v. or inhalation of 8% sevoflurane and 10% intralipid (as a placebo) i.v., delivered by a blinded observer. Anaesthesia was maintained in all patients with 2% sevoflurane via a face mask. Induction of anaesthesia with sevoflurane was significantly slower compared with propofol (mean 84 (S.D. 24) vs 57 (11) s), but was associated with a lower incidence of apnoea (16 vs 65%) and a shorter time to establish spontaneous ventilation (94 (34) vs 126 (79) s). Induction complications were uncommon in each group but the transition to maintenance was smoother with sevoflurane and was associated with less hypotension compared with propofol. Emergence from anaesthesia induced with sevoflurane occurred significantly earlier compared with propofol (5.2 (2.2) vs 7.0 (3.2) min) and anaesthetic induction was also significantly cheaper with sevoflurane. According to a postoperative questionnaire, the majority of patients found both anaesthetic techniques acceptable. Nevertheless, significantly more patients (14%) rated induction with sevoflurane as unpleasant compared with propofol (0) and significantly more patients (24%) would not choose sevoflurane induction compared with propofol (6%). This phenomenon may have been related to the particular patient population studied, however. Inhalation induction with 8% sevoflurane would appear to offer several objective advantages compared with induction with propofol in day-case patients, although a significant minority may dislike this technique.

Mivacurium in daycase surgical patients

L Cade, P Kakulas

Anaesth. Intensive Care (1997) 25/2 (133–137)

Laparoscopy is commonly performed as a dayease procedure and requires satisfactory but brief and readily reversible muscle relaxation with good intubating conditions. We have examined the use of the new nondepolarizing muscle relaxant, mivacurium, in this setting and compared it with the two most commonly used such drugs in day surgery, atracurium and vecuronium, in a prospective randomized trial of 107 patients. Mivacurium provided a significantly more rapid onset and briefer duration of muscle relaxation, which was readily reversible with or without pharmacological antagonism.

Moran repair for inguinal hernias

RM Moran, J Brauns, CR Petrie, BP Novak, JM Johnsrud

Am. Surg. (1997) 63/5 (430–433)

A total of 1282 inguinal hernia repairs were performed between September 1989 and June 1994 using polypropylene mesh inserted in the preperitoneal space to reinforce a two-layer transversalis fascia technique. There was a recurrence rate of 0.4% with a minimal follow-up of 14 months. All the operations were performed as outpatient surgery, under local anesthesia or general anesthesia, with immediate ambulating home and early return to normal activities and work. Complications were minimal, with no mortality.

Day care surgery for advanced Dupuytren's contracture

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J. Hand Surg. (1997) 22 B/2 (191–197)

Seventy-six consecutive patients suffering from advanced Dupuytren's contracture were analysed in order to evaluate the safety of day care surgery. The complication rates for haematoma, necrosis, infection and reflex sympathetic dystrophy mere acceptable, but we found an unacceptably high percentage of nerve lesions. Day care treatment was achieved in all but seven cases. We concluded that advanced Dupuytren's contracture can be treated by day care surgery but the operations should be performed by surgeons who are skilled in hand surgery, and individual selection of patients with recurrence seems advisable.

The treatment of enchondromas in the hand by endoscopic curettage without bone grafting

I Sekiya, N Matsui, T Otsuka, M Kobayashi, D Tsuchlya

J. Hand Surg. (1997) 22 B/2 (230–234)

Nine patients with enchondromas in the hand were treated by endoscopic curettage of the tumour without bone grafting. The procedure was performed on an out-patient basis using axillary block anaesthesia. New bone formation and remodelling cf the lesions were observed in all patients. There were no postoperative fractures, infections, recurrences or other complications. Functional recovery was rapid. We conclude that endoscopic curettage without bone grafting is an effective treatment of enchondroma in the hand.

Patient safety in accredited office surgical facilities

DC Morello, GA Colon, S Fredricks, RE Iverson, R Singer

Plast. Reconstr. Surg. (1997) 99/6 (1496–1500)

The medical profession is besieged by concerns about cost containment. This in turn has focused attention on the use of ambulatory surgical facilities. However, the costs of hospital outpatient surgery programs usually prevent them from being competitive when compared with the costs of using office surgical facilities. To address the question of patient safety in office surgical facilities, the American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF) sent a questionnaire to its accredited facilities. Two-hundred and forty-one (57.7%) of the 418 accredited facilities returned the anonymous questionnaires, a very high response rate. Of interest are the following findings: 400 675 operative procedures were reported during a 5-year period. Significant complications (hematoma, hypertensive episode, wound infection, sepsis and hypotension) were infrequent, occurring in 1 in every 213 cases. Return to the operating room within 24 h and preventive hospitalization were less frequent. A death occurred in 1 in 57 000 cases (0.0017%). The overall risk is comparable in an accredited office (plastic surgical facility) and in a free-standing or hospital ambulatory surgical facility. This study documents an excellent safety record for plastic surgery done in accredited office surgical facilities by board-certified plastic surgeons.

Ambulatory phlebectomy of the foot: Review of 75 patients

JA Olivencia

Dermatol. Surg. (1997) 23/4 (279–280)

BACKROUND: Review of 75 patients on whom ambulatory phlebectomy of the foot was performed as part of their varicose vein treatment.
OBJECTIVE: To demonstrate that ambulatory phlebectomy is an effective modality of treatment for varicosities of the foot.
METHODS: Ambulatory phlebectomies were performed on an outpatient basis under local anesthesia.
RESULTS: The overall satisfactory result of ambulatory phlebectomy of the foot employed in the 75 patients in this study revealed the procedure to be very effective with few complications resulting and with a high degree of patient satisfaction.
CONCLUSIONS: Ambulatory phlebectomy of the foot has proven to be a most satisfactory procedure for the treatment of varicose veins of the foot.