

Abstracts of Session 4b

Free papers on pain and follow up

4b1

Ambulatory anaesthetic evolution — 6 years experience in an independent hospital unit

Bazzolo Daniel, Guzzo Fernando, Martinez Hugo, Brandi Claudio, Sivori Enrique

Ambulatory Surgery Unit, Department of Surgery, Hospital Italiano de Buenos Aires, Argentina

BACKGROUND: Ambulatory surgical procedures represent a large and increasing fraction of surgery being performed. In the USA, the percentage of outpatient surgery grew from 20% in 1981 to 69% in 1996. We made a total of 20 435 procedures at our Ambulatory Surgical Unit since 1993.

OBJECTIVE: To show the changes in our anaesthetic technique in 6 years.

METHOD: The anaesthetics techniques performed in our unit between January 1994 and December 1999 was analysed.

RESULTS:

Anaesthesia	1993	1994	1995	1996	1997	1998	1999	Total	%
General	66	730	1028	1117	1389	1687	1865	7882	38.50
Blockades	0	28	84	309	318	276	161	1161	5.60
MAC	0	0	103	374	525	879	1175	3056	14.95
Local	136	1335	1327	1177	1324	1188	1410	7897	38.65
No/anaesth.	0	1	39	77	90	88	129	424	2.30
Total	202	2094	2581	3054	3646	4118	4740	20 435	100

CONCLUSION: The increase in the number of procedures made us change the anaesthetic techniques; blockades delayed the post operative recovery time, that's why there is no significant increase in the use of this technique along the years.

There is an important growth in the use of general anaesthesia due to short recovery time, good analgesia, lack of side effects and discharge with efficiency and safety. Significant increase of MAC in patients with local anaesthesia.

4b2

Guidelines on the pharmacological treatment of postoperative pain in ambulatory surgery

Collaborative study group on postoperative pain management.

Spanish Association of Major Ambulatory Surgery (ASECMA). Spain.

Adequate control of postoperative pain is one of the most important goals in ambulatory surgery success. In a recent multicenter

survey jointly performed by the Spanish Pain Society (SED) and ASECMA, we were able to demonstrate that 57.6% of the patients suffered pain during the first 24 h after surgery. In view of the outcome, ASECMA formed a study group of experts on pain treatment, that elaborated simple guidelines, to address the problem.

Four basic concepts were taken into account in the guidelines. (1) Preoperative information and patient education (information about the pain intensity that could be expected, explanation of the methods of pain evaluation using a visual analogic scale (VAS), and the therapeutic methods available); (2) risk groups identification (pain intensity depending on the surgical procedure and patient personality); (3) multimodal analgesia and (4) follow-up protocols, to assess the efficacy of the treatment.

The guidelines recommend that in all instances systemic analgesics and infiltration of the surgical wound with local anaesthetics (whenever possible) should be administered before the end of surgery. Moreover, if pain is present in the immediate postoperative period oral analgesics should be administered if the VAS < 3, intravenous non-opioids analgesics if the VAS 4–6 and low doses of intravenous opioids if VAS > 7. Among the other discharge criteria, a VAS < 3 should be present in all patients. At home, a fixed dose regime of oral or rectal non-steroidal analgesics or antithermic-analgesics is recommended, when the expected pain is low, and combinations of these with weak opioids for higher pain intensities. In all instance analgesic rescue medication should be made available.

During the postoperative period a follow-up telephone call will assess the fulfilment of the analgesic regime by the patient and the pain intensity. Analgesic protocols will be then modified according to the results obtained when evaluating pain intensity and patient satisfaction.

The implementation of pain treatment protocols in the Ambulatory Units, together with a periodic revision of the efficacy and their modification on the basis of the observed results, will hopefully contribute to improve the outcome of most ambulatory surgical procedures.

4b3

Comaintenance of anaesthesia and planned awakening: a new technique for ambulatory surgery

Ronald Vinik

University of Alabama at Birmingham, Birmingham, AL, USA

INTRODUCTION: Propofol and midazolam are synergistic for induction of anaesthesia. The induction dose of propofol can be reduced by 45% by the addition of 1/10 of the ED50 of midazolam (0.02 mg/kg) l.

HYPOTHESIS: A similar reduction in the maintenance infusion of propofol from 100 to 50 µg/kg per min can be achieved by a

simultaneous infusion of midazolam in subhypnotic doses. The concurrent use of two subhypnotic doses of propofol and midazolam will synergistically produce adequate anaesthesia for strabismus surgery, which can be antagonised with flumazenil, and patient will recover consciousness in less than 5 min. Additionally, the patient will be sufficiently alert to perform rapid saccadic eye movement within 10 min of the end of surgery, which will enable the surgeon to make final adjustments of the eye muscle in the operating room, instead of next day.

METHODS: Study design: 50 ASA, 1 + 2 consenting adult patients aged 18–65 undergoing strabismus surgery with adjustable suture were randomly induced with midazolam 2 mg, fentanyl 100 µg, and 1–1.5 mg/kg propofol followed by a stepped-down infusion of propofol 167, 133, and 100 µg/kg per min (P100) for maintenance or propofol 50 + 1 µg/kg per min of midazolam (P50). Patients breathed 65% N₂O spontaneously with LMA. Five minutes after surgery the P50 group received 0.4 mg of flumazenil. Bispectral index (BIS) monitoring was used on all patients.

CONCLUSIONS: Comaintenance of anaesthesia with midazolam and propofol reduces the conventional maintenance infusion dose of propofol by approximately 50% and is a practical, realistic technique for ambulatory surgery. Control of recovery is predictable and consistent. Additionally, the patients have no recall for surgery or adjustment of suture 20 min after surgery. This is a cost effective technique for patient, surgeon and institution. BIS monitoring correlated well with hemodynamics, spontaneous respiratory rate and ETCO₂.

REFERENCE:1. Triple anaesthetic combination: Propofol–midazolam–alfentanil. *Anesth Analg* 1994;78:354–58.

RESULTS:

	P50	P100
Duration of infusion (min)	102	87
Response to voice command	8.1	9.7
Response to voice command ^o	3.1	
Orientation (date of birth) (min)	11.5**	15.2
Saccadic eye movement after 10 min	90%	0%
Midazolam (cumulative mg)	9***	2
Propofol (mg/min)	7.8**	10.4
Recall %	0	0
Recall % (24 h) for adjustment	0	100
Nausea %	12	4
Retching %	4	0
Satisfaction %	100	100

_o, From end of infusion; *, $P < 0.001$; ^o, after flumazenil; **, $P < 0.01$.

4b4

Anaesthetic drug costs in a district general hospital day surgery unit

Mary Stocker, Kerri Houghton

Department of Anaesthesia, South Devon Healthcare Trust

Recent advances within anaesthesia have included the introduction of propofol infusions for the induction and maintenance of anaesthesia and remifentanyl infusions for intra-operative analgesia. These agents are associated with a low incidence of nausea and vomiting, rapid emergence from anaesthesia and hence shorter stay in the recovery ward, earlier discharge from day-area units and decreased admission rates^{1,2,3}. However, in many units the cost of these drugs is thought to be prohibitive and hence limits their use.

We have analysed the drug costs within the Day Surgery Unit of a District General Hospital over a 4-year period in order to quantify the cost of the increased use of these drugs. The unit is self contained, treats no inpatients and is able to identify its own expenditure and workload.

A list of the top 100 drugs used in the unit within a 4-year time period (1996–2000) was obtained from the hospital pharmacy department. Any drug not used by anaesthetists was excluded. The cost of each drug for each year being studied was recorded. Information about total numbers of cases done in this time period, length of cases, how many were under general anaesthesia and of these what percentage were anaesthetised using total intravenous anaesthesia was also retrieved from the unit database. We were not able to obtain costs for anaesthetic consumables.

Within the time period studied total theatre activity in terms of cases performed increased by 22.7%. However, cases performed using TIVA increased by 25%. This was associated with an increased cost of anaesthetic drugs per general anaesthesia case, but this was only an increase of 17.8%. It will be noted that during this time period the time per case has increased. This is due to a change in the case mix within the day surgery unit resulting in longer cases being performed here. When account is taken of procedure time within our calculations it can be seen that the cost of anaesthetic drugs measured per hour of theatre time has actually reduced over this period.

	1996/97	1997/98	1998/99	1999/00
Total anaesthetic drug costs	£56 894	£64 654	£73 249	£74 652
GA cases	4492	4933	4916	4843
Anaesthetic drug costs/GA	£12.67	£13.11	£14.90	£15.41
TIVA (% of GA)	2587 (58)	3063 (62)	3022 (61)	3232 (67)
Hours/case	0.47	0.47	0.48	0.52
Total hours general anaesthesia	1805	1870.4	2092	2228.5
Anaesthetic drug costs/hour GA	£31.52	£34.57	£35.02	£33.50

We have shown that the increasing use of agents often classed as expensive, has not resulted in increased anaesthetic drug costs when measured per hour of general anaesthesia. These drugs constitute a small percentage of the total cost of a day surgery procedure within our unit. It would, therefore, appear that the most effective way to reduce the actual cost per case would be to achieve more cases with the same overhead and staff costs. Using drugs, which aid faster, complication free recovery may contribute to an increased throughput of cases. We would, therefore, advocate the continued use and development of these techniques, which have been shown to have many advantages both to the patients and to the smooth and efficient running of theatre units.

References

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4b5**A project to tackle pain following day case surgery**

B. Newman, Eileen Mann, Sally Gillespie, Jan Nothcott.

Positions: Consultant Anaesthetist, Lecturer Practitioner, Sister, Sen. Staff Nurse.

Department of Day Case Unit, Poole Hospital NHS Trust, Longfleet Road, BR15 2JB Poole, Dorset, UK.

Contemporary literature continues to suggest that, despite recent advances in pain control, pain continues to be inadequately assessed and under-medicated following surgery. One of the main criteria for performing day case surgery is minimal postoperative pain that can be controlled by oral analgesics. However, we are still seeing patients experiencing moderate to severe postoperative pain, experiencing sleep problems related to pain or contacting their general practitioner because of inadequate pain relief. Despite research highlighting the efficacy of morphine, it would appear that myth and misconception continue to limit its use. In addition, a lack of knowledge often reduces effective application of 'balanced analgesia' that combines a range of pharmacological strategies. We are currently trying to improve the pain relief patients can obtain following day case surgery in three simple ways:

1. Training nursing staff to effectively assess pain reported by patients and then selecting from a preprescribed formulary of analgesia that includes titrated intra-venous morphine administered following an algorithm, oral morphine syrup, a non-steroidal anti-inflammatory drug and/or paracetamol.
2. We have added oral morphine syrup vials (which in a strength of 10 mg/5 ml are not controlled by statute in the UK) as potential take home medication for patients who experienced moderate to severe postoperative pain whilst in hospital.
3. Patients are screened at the preoperative assessment clinic for suitability for these drugs documenting contraindications, previous sensitivity or unacceptable side effects. Nurses will also endeavour to identify some of the potential patient barriers to effective pain management such as poor expectations, lack of knowledge regarding pain management options and over-emphasis of harmful drug side effects. It is unlikely patients will take analgesia effectively unless some of these concerns are identified and misconceptions addressed.

In order to improve pain management it is vital that nurses and patients are confident, well informed and in a position to initiate effective pain control without always referring to medical staff.

4b6***Pain Rx for day surgery*©: effective pain management for surgical outpatients**

Marion G. Mann

St. Joseph's/Candler Health System, Savannah, GA, USA.

Increasing numbers of outpatient surgeries have made pain management a challenge for day surgery. There is a growing awareness of the inadequate educational preparation of day surgery nurses regarding pain management. Time constraints have created further challenges to provide appropriate documentation to meet JCAHO Standards. These challenges have caused frustration for day surgery nurses and considerable dissatisfaction for patients. The vision of St. Joseph's/Candler Health System is to set the standards of excellence in the delivery of healthcare throughout the regions we serve. Success is evaluated by measuring patient and family expectations for relief of suffering, safe environment, restoration of function, reasonable cost and patient satisfaction. To provide adequate pain relief is the

primary goal for relief of suffering of day surgery patients. Prior to development and implementation of *Pain Rx for day surgery* ©, a pain assessment team was formed to evaluate system pain management. Analysis of documentation practices, surveys, and interviews with anaesthesiologists, clinical nurse specialists, and clinicians indicated that there was a deficit in knowledge related to pain assessment, pharmacology and proper documentation. A comprehensive educational program to include pain management protocols and educational tools for post operative pain management for outpatients will be provided for day surgery nurses to increase their knowledge using a pre-test post-test comparison. A patient survey will provide patient satisfaction outcomes for the management of pain. *Pain Rx for day surgery* © is an effective means of providing the specific pain management education and resources for day surgery nurses to meet the health system goals and promote excellence in patient care delivery in day surgery.

4b7**Is the follow up in outpatient surgery efficient and useful?**

A. Wolff, C. Auriho, A. Forster

Division of Anaesthesiology, Geneva University Hospitals, Switzerland

INTRODUCTION: In order to obtain the same quality of care in outpatient anaesthesia as for in patients, it is widely accepted that all outpatients should be contacted at least once after they have left the ambulatory center. This follow-up represents a challenge, which requires energy and motivation which are difficult to maintain. The purpose of this study was to evaluate the usefulness and the efficiency of such a follow-up.

METHODS: In our department, all patients who are anaesthetised on an ambulatory basis are contacted routinely by the recovery room nurses the day after surgery, in order to obtain informations on the outcome (pain level, side effects, etc.). For this study, all the data concerning ambulatory patients who underwent knee and upper limb surgical procedures were analysed during 1 year.

RESULTS: Among the 805 patients included, data were missing for 349 (239 patients could not be contacted after two attempts, and 110 files were missing). Thus, the analysis is on the effective follow up of 456 patients. Regional anaesthesia (spinal, axillary, and Bier's bloc) was performed on 383 patients (84%), and general anaesthesia on 73 (16%). Moderate to intense pain (VAS > 3) was noted for 25% of the patients, nausea was for 4% and debilitating side effects for 5%. In addition, 16% of patients complained about difficulty of sleep.

CONCLUSION: Our results show that in our institution, valid data could only be obtained in 57% of the patients. As previously reported, insufficient analgesia was the most frequent problem. We conclude that our follow-up is useful but inefficient. Priority should be given to improved data collection.

4b8**Total post-discharge complications following ambulatory surgery**

G.H. Cunnick and P.E.M. Jarett

Department of Surgery, Kingston Hospital, Kingston-upon-Thames, Surrey, UK

INTRODUCTION: Ambulatory surgery accounts for a large proportion of the surgical workload of a hospital. This is the first prospective study to document all post-discharge complications.

METHODS: One thousand one hundred and forty seven patients undergoing ambulatory surgery took part in a prospective study over a period of 3 months. They were given a questionnaire on discharge

and asked to complete and return it after 28 days. Subjects were asked if they experienced any postoperative complications (bleeding, wound infection, constipation, nausea/vomiting or other) and whether they sought medical advice.

RESULTS: Three hundred and ninety eight completed questionnaires were returned (34.7%). 33.9% of the respondents were male and 66.1% female. A wide variety of surgical procedures were carried out by the following departments: general surgery, orthopaedics, gynaecology, dentistry, ENT, urology and anaesthetics. Complications were as follows:

Complication	Number of patients (%)	Complications of specific procedures (%)
Bleeding	74 (18.6)	Nasal ops. 44; tonsillectomy 38
Wound infection	27 (6.8)	Toenail surgery 75; tonsillectomy 25

Constipation	41 (10.3)	Lap. cholecyst. 50; minor anal ops. 44
Nausea/vomiting	45 (11.3)	Tonsillectomy 63; diag. laparosc. 33
Wound pain	22 (5.5)	
Headache	8 (2.0)	
Tiredness	4 (1.0)	
Wound ooze	4 (1.0)	
Other	32 (8.0)	

Fifty six patients (14.1%) sought medical advice on one occasion, 15 (3.8%) on two occasions and 8 (2.0%) on at least three occasions. Commonest reasons for seeking help included pain, bleeding and wound oozing (11, 8 and 7 patients, respectively).

CONCLUSIONS: Minor complications of ambulatory surgery are relatively common. Most are self-limiting, but many patients seek further advice. Patients should be warned about minor complications. This would allay anxiety and reduce the need for patients to seek medical advice following discharge.