perative use of paracetamol and NSAID or coxib may be very useful for pain prophylaxis.

PRACTICAL USE OF PROPOFOL FOR TIVA

For hypnotic iv infusion, propofol is the dominating drug in use presently, and focus will be on this drug in this presentation. TIVA for surgery almost always employ a mixture of an analgesic drug with propofol; the dosing levels of the two components may vary due to the choice of opioid and the type as well as length of surgery. With the very shortacting opioid remifentanil, the dose of propofol should be in the lower range and remifentanil somewhat more generously given; whereas with alfentanil, sufentanil and especially fentanyl the propofol dose should be higher and the dose of opioid minimized. One way of reducing the opioid need is to provide some baseline analgesia with local anaesthetics, paracetamol, NSAIDs, coxibs and/or corticosteroids before start of surgery. For very short procedures (e.g. less than 20 min) alfentanil may be used as the only opioid, starting with 0.5-1.5 mg (adults) and supplying additional 0.5 mg as needed, alternatively as an infusion of 0.5-1.5 microg/kg/min. For best control and most rapid emergence, remifentanil is a very forgiving drug; due to ultra-fast elimination. Appropriate dosing levels will be 0.05-0.1 microg/kg/min for sedation and spontaneous respiration; 0.1-0.3 microg/kg/min for minor surgery and 0.2-0.5 microg/kg/min for more extensive surgery. For intubation without curare, a bolus dose of 1 microg/kg may be given or an infusion of 1 microg/kg/min may be given for 2-3 minutes, concommitantly with start of propofol infusion. For better control of propofol dose, the BIS (Bispectral index) may be useful. With this device one may pick out those patients who need less than standard doses of propofol and reduce the dose accordingly, resulting in lower drug costs and faster awakening.

The use of neuromuscular blockers will not be substantiallly different with TIVA compared with inhalational techniques, except for a somewhat larger dose of neuromuscular blocking agent will be needed for maintenance when no potent inhalational agent is used.

TARGET CONTROL SYSTEMS

With propofol, usually a level of 2.5-3.5 microg/ml is appropriate together with opioids for surgical anaesthesia. The higher level should be used when curare is given concomitantly. If nitrous oxide is supplied, the TCI level could be reduced down to 1.5-2.5 microg/ml. However, starting an anaesthetic with this level may result in a very slow induction, thus an overshoot is usually required initially: TCI of 4-5 microg/ml (the lower value in elderly patients or patients with strong premedicant effect) until the patient is asleep and then down to maintenance level. Alternatively an effect site TCI system may be used in order to have more rapid induction and adjustements of ongoing anaesthetic level. For remifenranil TCI a level of 2.5-7.5 ng/ml (corresponding roughly to 0.1-0.3 _g/kg/min stable infusion) will usually be appropriate.

CONCLUSION

An appropriate mixture of propofol with an opioid total intravenous anaesthesia will be my favourite for office based anaesthesia. It is important to focus on the appropriate timing and dosing of drugs in order to minimize time for emergence. Further, focus on anti-emesis and non-opioid postoperative analgesia is very important in this setting.

PARALLEL SESSION 8

THE PATIENT AS A CENTRAL FOCUS IMPROVEMENT

Chairmen: **Lemos P,** *(Portugal).*
Bustos F, *(Spain).*

AMBULATORY SURGICAL PATIENT SELECTION – EVIDENCE BASED REVIEW

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PURPOSE

To identify and characterize the evidence supporting decision made in the care of patients with selected medical conditions undergoing ambulatory anesthesia and surgery. Conditions highlighted in this review include: the elderly, heart transplantation, hyper-reactive airways disease; coronary artery disease; and obstructive sleep apnea, diabetes mellitus; morbid obesity; the expremature infant; the child with an upper respiratory infection; malignant hyperthermia; and monoamine oxidase inhibitors.1,2 This talk will focus on sleep apnea, elderly and morbid obesity.

SOURCE

A series of case scenarios and questions was developed to highlight management issues for selected high risk patients. Structured search of MEDLINE (1966-2003) was performed using key-

words for patient condition and ambulatory surgery. Further unstructured searches and bibiliography review were performed to identify answers to specific management questions. Each article cited was assigned a level of evidence using Centre for Evidence Based Medicine (CEBM) criteria. Recommendations were also graded using CEBM criteria

Principal findings. Ambulatory anesthesia is infrequently associated with adverse outcome however knowledge regarding specific patient conditions is of generally low quality. Few prospective trials are available to guide management decisions

CONCLUSION

Ambulatory anesthesia can be performed and is being offered to a variety of patients with significant coexistent disease. Prospective research is required to document the safety of this practice and identify strategies to reduce risk.

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RECOVERY AND DISCHARGE ISSUES. MEASURING RECOVERY FROM ANAESTHESIA

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Fast recovery and properly timed discharge are keys to success in day surgery. Discharge too early after surgery may lead to problems on the way home or later at home. On the other hand delays in discharge home may cause space problems in the postanaesthesia care units (PACU, recovery room) and may be associated with increased need for personnel and costs.

Recovery from anaesthesia is a continuous process which can be divided to three main stages. During the first stage, when the patients wake up, they will regain protective reflexes and the motor functions start to recover. During the second stage the patients will meet criteria for home-readiness and the third stage, complete recovery, means that all residual effects of anaesthetics have disappeared and that the patients are functioning as well as before day surgery.

The use of short acting anaesthetics for both induction and maintenance of anaesthesia has been associated with rapid recovery, particularly during the early stages of recovery. Some patients will meet criteria for discharge from PACU already before leaving the operating room. Patient flow though or the length of their stay in PACU should not be mandated by hospital policy. With fast recovery one can safely shorten time spent in PACU and if patients meet criteria for fast-tracking they can by-pass PACU and go directly to Phase II recovery room[1].

Patients eligibility to fast-tracking can be evaluated with different scoring systems and usually it is possible when the patient is conscious, blood pressure and heart rate are stable, oxygen saturation from the finger is at least 92% when the patient is breathing room air, pain and nausea and vomiting are minimal and when the patient is able to sit. When patients are orientated as to time and place and are able to sit they should be encouraged to walk supported by another person.

In the past most day surgery centres required that all patients take oral fluids and void before discharge home. Today, it is not necessary for all patients, but special attention may be needed with patients who had spinal or epidural anaesthesia or after urological and anorectal surgery. Measurement of residual urine in the bladder with ultrasound may be helpful with simple in and out catheterisation in some patients.

A responsible person should escort patient home and the escort or other responsible person should spend the night after surgery with the patient at home. Despite the introduction of new and short acting anaesthetics and adjuvants patients should refrain from driving and working with machinery for 24 hours after anaesthesia. Postoperative cognitive dysfunction which may persist for several months after major surgery, is much less likely to occur after day surgery. Actually patients' cognitive function was better if the operation was performed on an outpatient basis when compared to performing the same operation as an inpatient basis[2].

Postoperative pain and nausea and vomiting (PONV) may delay discharge home. Good prevention and treatment of both pain and PONV are thus important in day surgery. Additionally, patient information of these side-effects and their role in day surgery is of utmost importance. Multimodal prevention and treatment of both side-effects is recommended and gives usually good results and a satisfied patient. A recent multicenter trial with factorial design gives practice guidelines for prevention of PONV depending on the

patients risk for PONV and showed that even cheap drugs like dexamethasone work well for this indication[3].

It is obvious that well planned and carried out day surgery is an excellent way of obtaining savings for health care using techniques which the patients like. When the use of short acting drugs in combined with multimodal prevention and treatment of both pain and PONV patient recovery is as fast and as comfortable as possible. Patients can be discharge home quickly and they will regain their preoperative psychomotor and cognitive function fast.

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1. Stable vital signs
2. Patient needs to be
   - oriented to time and place
   - able to walk without support
   - able to dress him/herself
   - able to take oral fluids and void if needed
3. Patient must not have
   - more than mild nausea or vomiting (= medication does not help)
   - more than mild pain (= needs injections of analgesics)
   - bleeding or oozing from the would
4. An anaesthesiologists and/or surgeon will discharge the patient home or it will be done by a nurse according to strict discharge criteria (e.g. this Table). The patient must be given both written and oral instructions for the time after discharge, including refraining from driving for 24 hours and where to contact if necessary (phone number for a doctor or hospital).
5. The patient must have an escort home and a responsible person to spend with him/her for the first night after operation.

Table 1. Guidelines for discharge home after day surgery.

ROLE OF THE SURGEON IN DELIVERING SAFE AND EFFICIENT POSTOPERATIVE RECOVERY

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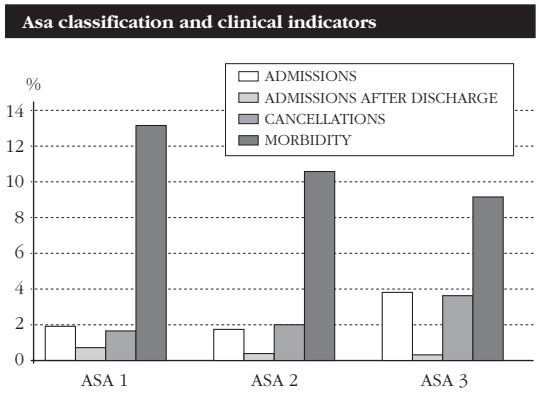
I want to start my contribution using words of Mark Hitchcock from the Addenbrooke's NHS Trust in Cambridge, "The common belief that ambulatory surgery is "simple, minor" surgery carried out on fit and healthy patients is thus no longer justified, and its perception as "low risk" care must be re-examined. Modern ambulatory surgery must be safely performed to produce the same quality of care as that achieved in any inpatient setting". In my opinion, roles of anaesthesiologists, surgeons and nurses are very significant in achieving this aim of the modern ambulatory surgery. My presentation will try to explain to you how surgeons can contribute to delivering a safe and efficient postoperative recovery.

The surgeon participates in the assistential process in ambulatory surgery at four different times: 1) Selection of patients and procedures, 2) Operation, 3) Intermediate recovery and discharge, and 4) Post discharge and follow up of patients.

Selection of patients and procedures. Selection criteria are changing constantly allowing operations on more seriously ill patients and more extensive surgery, to be performed than before. Elderly patients, even more than 90 years old, stable ASA 3 patients and inclusion of procedures as Nissen funduplication for gastro-oesophageal reflux disease, thyroidectomy, endoscopic transthoracic sympathectomy, endoscopic prostatectomy, knee ligament reconstruction, arthroscopic shoulder surgery or breast cancer surgery are some examples of these tendencies. Although it should be normal to expect more complications in higher risk patients, there is no evidence that ASA 3 patients suffer a greater incidence of postoperative complications than ASA 1 and 2. At the 4th International Congress on Ambulatory Surgery,



Geneva 2001, we presented a paper whose principal conclusion was: "There are few differences between the clinical indicators of ASA 3 patients and the global indicators of the day surgery unit". Nowadays, the most important indicators, hospital admissions, hospital admissions after discharge, morbidity, or cancellation of procedures, also show only slight differences.

It is known that certain operations (laparoscopy, orthopaedic and general surgery) are often associated with higher postoperative morbidity, principally pain, nausea and vomiting. This experience forces one to introduce better pain control and to prevent or treat them with the new antiemetic drugs.

In conclusion, in this first step, surgeons can include more risk patients and more extensive procedures in ambulatory surgery without compromising the safety and quality of treatment if patients are well controlled in their recovery, and preventive measures are introduced in order to avoid a higher number of minor postoperative complications.

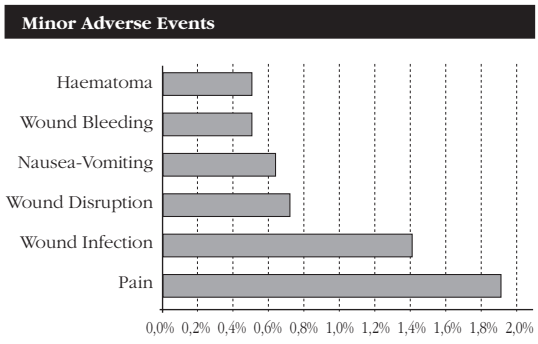
Operation. Although procedures included in ambulatory surgery should have low risk of bleeding, easy postoperative pain control and duration less than 90 minutes, surgeons must perform a carefully surgical technique and chose the less painful ones of the appropriate operations, with fewer complications and with a faster recovery. For instance, it is known that operations such as tension free repair or laparoscopic approach in groin hernia procedures or stapled haemorrhoidectomy are followed by less pain than traditional surgical techniques.

In this second step, although surgeons must always perform operations carefully, this good practice is especially important in ambulatory surgery because patients are discharged within a few hours and complications like wound bleeding or bad pain control, related to the surgical technique, can provoke unexpected admissions or undesirable postoperative home recovery. When complications appear during operations or their length was extensive, surgeons must decide, at the end of the procedure, to admit the patient to the inpatient area of the hospital in order to avoid compromising his safety during his recovery.

Intermediate recovery and discharge. After the early recovery in the Post Anaesthesia Care Unit, ambulatory surgery patients are transferred to a specific area in the unit for their intermediate recovery. In general, this recovery is controlled by nurses following appropriate guidelines for each procedure and type of anaesthesia. The role of nurses is essential to avoid delays in discharge. Their cares are based on vital signs control, adequate pain relief, nausea and vomiting prevention or treatment, wound examination, walking when appropriate, avoiding urinary retention and the beginning of liquid food ingestion. After some hours patients are able to return home or, in a few cases, must be admitted to in-patient beds. In our unit, a score of 12 or greater, using the Post Anaesthesia Discharge Scoring System published by Chung and Marshall in 1995 and modified by us, where the maximum score possible is 14, and the impression obtained during the conversation with patient and relatives are the arguments used by surgeons to justify discharge. As with nursing, the relationship established between patient and his surgeon, based in the confidence of patient, play an important role in the discharge time. This confidence and the information provided by surgeons and nurses during the discharge process, about medication, wound care, normal and abnormal symptoms, what to do if a complication appears, resuming normal activities, feeding, suture removal, contact telephone numbers and arrangements for follow up, are essential in creating an optimal atmosphere in which, not only patients, but their relatives or carers, understand their roles and responsibilities.

In conclusion, in this third step, -when a patient is fit to be discharged - is an essential decision in day surgery. A correct discharge assessment is very important to avoid jeopardizing patient safety and medico-legal problems.

Post discharge and follow up of patients. As Marshall and Chung have warned, discharge from hospital is not the end of the process. Late recovery may be long in some cases before patients return to their normal activities. Arrangements for follow up and data obtained from phone calls done by nurses the day after operation, permit us to register morbidity and recurrences during the late recovery. Mortality and major morbidity are uncommon in ambulatory surgery, but minor postoperative morbidity affects more than 6 per cent of our patients. Bad pain control, nausea and vomiting and wound infection are the most frequent. Probably this percentage is not real because some minor incidences or adverse events are solved by the general practitioner or by the emergency department of the hospital. One report shows at least one minor problem in 86 per cent of day case patients.



The registration of adverse events after the operations must be implemented in all day surgery units. Nowadays, with an important development of ambulatory surgery around the world it is essential to introduce quality assurance program-

mes. Probably the best way to control the quality of care in our practice is monitoring the 4 indicators recommended by The Australian Day Surgery Council in its users' manual, version 3 for use in 2001, cancellation of booked procedures, unplanned return to operating room, unplanned overnight admission and delayed patient discharge or the 4 indicators recommended by us, cancellation of booked procedures, adverse events, unexpected hospital admissions and patient satisfaction. Data provided by this control will permit the introduction of improvements in trying to reach the standards of practice in ambulatory surgery. A subject for further debate will be the definition of suitable standards in this surgery.

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HOW TO IMPROVE PATIENT SATISFACTION

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Consensus has been made around the importance to assess perceptions and expectations of patients about health care services. In fact, patient satisfaction is pointed out as an important clinical indicator for evaluating service quality[1]. Nevertheless, patient satisfaction surveys must be made in order to seek comments from dissatisfied patients and to explore reasons for them, creating conditions to improve quality of care. Poor-quality of care is related to reduced patient satisfaction, but high patient satisfaction scores are not equal to high quality day case services.

Ambulatory Surgery has been organised in an unique way around the patient and not the dominant profession, radically changing all the health care system and the health professionals' behaviour. So, seeking for the patient opinion is obligatory for all day surgery units, not to justify their services, but to improve and better the quality of them[2].

Results from several clinical studies show that there is higher patient satisfaction if:

1. good post-operative pain control is achieved[3,4,5];
2. there is no post-operative nausea and vomiting[3,6];
3. good pre and post-operative information is delivered ;
4. increased surgery availability and short waiting time before surgery are achieved;
5. a courtesy and a friendliness environment are given by the operating and day surgery staff;
6. patients do not feel that they are being discharged too early or in a rushed way;
7. a telephone follow-up contact on the next day is established.

Patient satisfaction is quite difficult to measure. In addition, such subjective quality indicator depends on different civilisations, cultures, backgrounds, and individual expectations, making its measurement and results a most difficult achievement. Thus, emphasis must be pointed out on the importance of assessing patient satisfaction across the continuum of ambulatory care with reliable, valid and feasible patient satisfaction questionnaires to our target population.

Glenda Rudkin has developed a set of recommendations for improving the design of patient satisfaction questionnaires (table 1)[7].

Define the target sample size, ensuring representatives and spread of conditions.
Do not exclude the "disadvantaged patient", e.g., non-native speaking.
Consider involving a neutral party to distribute the questionnaire. Health staff may bias the sample by omitting patients they judge to be unsuitable.
Respondents are less prepared to be critical if they know that the health staff will see their questionnaires.
Anonymity is important.
Consider designing a short, general questionnaire supplemented by subsidiary questionnaires where dissatisfaction is shown to occur.
Include open-ended questions, as they produce more negative ratings and comments than closed questions.
Consider qualitative research (in-depht interviews with patients) as a key input to the development of a pilot survey. Patient interviews reveal higher rates of problems than questionnaires. 50% or less is not an acceptable response rate. Much higher rates should be achieved.
Follow-up cards or calls are recommended to improve response rates.
Response rate for mail surveys are significantly higher than phone surveys; however, there are more missing data from mail surveys.
Carers of relatives or friends may rate care more negatively than patients – patients and carers have differing needs. Separate questions to both groups may be appropriate.
Decide what you will do with the results. Disseminate the information to patients and staff.
Publish the results.

Reproduced from Rudkin GE[7]

Table 1. Guidelines for "improved design" in day surgery patient questionnaires.

To have a more holistic and reliable result about all aspects of quality of care that reflects on patient satisfaction – i) the structure of the institution or day surgery unit; ii) the process that enable the services to be delivered; iii) and the outcome – data must be collected specially in two different occasions, one in the immediate post-operative period (concerning the 2 first aspects) and the other around one month later to evaluate the global patient satisfaction including outcome[8]. We emphasise the importance of a long follow-up evaluation – one year - of certain type of surgery (e.g. hernia repair) to have a real feedback of the final outcome. However this is true in every surgical regimen, inpatient or on a day surgery basis.

Although targets are difficult to established on this particular subject, we could say that a minimum of a 65% response rate and a 85% satisfaction score should be achieved by every day surgery unit.

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