

# Epidural anaesthesia in ambulatory surgery

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There is a growing demand for the performance of more surgical procedures on a day care basis. Regional anaesthetic techniques allow early and painless return of function after surgery. In 1991 and 1992 we used epidural anaesthesia for day care surgery in 180 patients and we reviewed the merits and problems involved with this regional technique.

Key words: Regional anaesthesia, epidural anaesthesia, outpatient anaesthesia complications

## Patients and methods

Epidural anaesthesia was administered to 180 day care patients who had surgery below the umbilicus (Table 1). There were 136 males and 44 females. The average age of the patients was 39 SD 14 yr (range 15-75 yr), their mean weight was 73 SD 11 kg and their mean height was 1.69 SD 8.9 m. Most of them were graded as ASA I ( $n = 75$  (41%)) and ASA II ( $n = 101$  (56%)), only three patients were graded as ASA III (1%).

The skin and subcutaneous tissue were infiltrated, in all cases, with anaesthetic solution before the epidural space was located by the loss of resistance technique.

The anaesthetist who performed the block chose the local anaesthetic, the dose, and whether to use a single or continuous shot technique. The drugs used were mepivacaine 2% or lidocaine 2% in all cases. The patients received intravenous fluids, vasopressors such as ephedrine and sedatives during the course of the operation, according to the advice of the anaesthetist in charge. All the epidurals were performed by regular anaesthetic staff.

When the operation was finished they remained in the phase I recovery room until they regained full motor and sensory function in their legs and the perianal sensation had returned.

They then stayed in the phase II recovery room and when they tolerated oral fluids, demonstrated the ability to micturate and fulfilled the rest of the Kortilla criteria they were discharged from the unit.

**Table 1.** Types of operation performed under epidural anaesthesia in day care unit ( $n = 180$ )

	n	%
Inguinal herniorrhaphy	96	54
Other surgical procedures: fistulectomy, umbilical herniorrhaphy, pylonidal cyst excision, haemorrhoidectomy	44	25
Arthroscopy	27	15
Other orthopaedic procedures: Hallux valgus correction, metatarsal osteotomies, removal of intramedullary nails, ganglion removal, synovial cyst excision	12	7

Once the patient was at home he/she received two telephone calls in the first 24 and 48 h and was visited by a nurse from the ambulatory surgery unit the day after the operation. On the other hand, all the patients could contact the hospital in case of any unusual difficulties by a telephone line open 24 h a day. Provision was made for the admission of any patient unfit to be discharged.

In order to prevent postoperative pain the patients undergoing inguinal herniorrhaphy and arthroscopy received a local injection of 10-20 ml 0.25% bupivacaine before the closure of the wound. Apart from that, all the patients received 50 mg of diclofenac parenteral after surgery. During the first 48 h at home they received daily 150 mg of diclofenac + 300 mg of ranitidine + 5 mg of diazepam, or in the case of peptic ulcer disease or hiatus hernia they received daily 120 mg of dihydrocodeinone tartrate + 300 mg of ranitidine + 5 mg of diazepam + 15 g of paracetamol.

## Results

The mean duration of surgical procedures was 49 SD 29 min (range 5-190 min), the mean duration of the epi-

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**Table 2.** Differences in time to discharge depending on the premedication and the type of local anaesthetic used

	n	Time to discharge (SD) min
Non-premedicated	55	289.9 (66.7)
Premedicated	104	275.6 (61.2)
Lidocaine	22	274.8 (46.1)
Mepivacaine	78	272.2 (67.2)

dural block (the time from the performance of the epidural block until the patient could micturate) was 199 SD 59 min, the mean time from the end of the operation until discharge was 203 SD 62 min and the mean time from the onset of the anaesthesia until discharge was 280 SD 63 min. There was no statistical difference in time to discharge home between patients premedicated with benzodiazepines and patients who received no premedication. Likewise, time to discharge home was not affected by the type of the local anaesthetic agent (mepivacaine or lidocaine) used (Table 2).

The most common complication was bradycardia which was present in eight patients (4.4%), four patients (2.2%) had hypotension, two (1.1%) had nausea, one (0.5%) had urinary retention and required catheterization but afterwards could micturate and was discharged on the same day.

The reasons for immediate hospital admission were pain in the operated zone in seven patients (five of them underwent anal surgery), dural puncture in two patients who did not have headache in the next 48 h and more extensive surgery in two cases.

Six patients were admitted after their discharge: two for fever produced by viral infection and by tracheo-bronchitis; one for thrombophlebitis; one for necrotizing fasciitis and one for postspinal headache that was treated successfully with extravascular fluids, rest and mild analgesics.

## Discussion

The ideal outpatient anaesthetic technique should be easy to administer, readily reversible and provide the essential features of rapid outpatient recovery, namely alertness, ambulation, analgesia and alimantation with minimal complications. Iatrogenic side effects, such as nausea and vomiting and pain, however, may hamper patient recovery and delay discharge<sup>1</sup>. Somnolence, pain and nausea, which are considered minor side effects in inpatients are therefore important complications for the outpatient.

Epidurals have been administered in day care units<sup>2</sup> and in pain clinics on an outpatient basis with satisfactory results. The low incidence of accidental dural puncture during an epidural block makes this technique ideal for ambulatory surgery, in contrast to the intradural technique which is limited in use because of the high incidence of postspinal headache, even with a 25-gauge needle in young people<sup>3,4</sup>.

Alertness is a major advantage of the epidural tech-

nique<sup>3</sup>. It not only facilitates discharge but is also useful intraoperatively, where the minimally sedated patient can often participate in viewing the actual findings of arthroscopy and save the surgeon considerable time in explanations during the postoperative visit. Patient participation can also reduce the potential for misunderstanding or dissatisfaction.

Epidural block can also improve postoperative alimantation because of a lower rate of nausea and vomiting in comparison with inhalation anaesthesia and narcotic techniques<sup>5</sup>.

The main drawback with epidural anaesthesia in the day care unit appears to be the additional time required to perform it, but with adequate planning and facilities for separate induction areas, the time spent is not greater than it would be to induce and recover a patient after general anaesthesia. Parnass<sup>6</sup> studied the influence of general anaesthesia vs. epidural in 260 patients undergoing ambulatory knee arthroscopy surgery and found earlier discharge times and a lower incidence of pain in the epidural group, with patient satisfaction being equal in both groups.

Other concerns about epidural anaesthesia are the incidence of postural hypotension and urinary retention which may limit ambulation and discharge. Urinary retention is more likely with the longer-acting local anaesthetics and it is generally not a problem if short-duration blocks are employed<sup>7</sup>. Orthostatic hypotension is also rarely a problem once there is full return of perianal sensation and proprioception in the foot. Sarma<sup>8</sup>, in a retrospective study of 683 day care surgical patients who received epidural anaesthesia, found no serious postepidural sequelae and most patients (90%) were discharged within 5 h after the operation.

Early ambulation can be achieved with epidural block, this creates a compromise in the form of absence of postoperative analgesia for some other operations<sup>3</sup>. This can be overcome by the infiltration of a long-acting local anaesthetic by the surgeon during the operation. This is particularly effective in outpatient hernia surgery and arthroscopy surgery and allows the patient to ambulate home with minimal discomfort. Local injection of bupivacaine at the end of the outpatient procedure has not been associated with an increased incidence of wound infection<sup>7</sup>.

## Conclusion

Epidural anaesthesia was used in 180 outpatients and was found to be a safe and effective technique. No serious postepidural sequelae were noted and most patients (96%) were discharged within 5 h after the operation.

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