Ambulatory Surgery

Ambulatory Surgery 6 (1998) 211–214

Study of unilateral postherniorraphy analgesia with local anaesthetic and monitored anaesthesia care

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Received 10 January 1998; accepted 22 February 1998

Abstract

Local anaesthetic with monitored anaesthetic care (MAC) is a very good technique for unilateral-inguinal herniorraphy. We looked at the analgesia produced by the infiltration with local anaesthetic, the intensity of pain in the immediate postsurgery period; the efficiency of oral analgesics and the satisfaction of the patients. Between January and July 1997, 63 patients underwent unilateral-inguinal herniorraphy (Shouldice type) using local anaesthetic (300 mg of mepivacain 1% and 50 mg of bupivacain 0.25%) and MAC (fentanyl, mydazolan and propofol). The intensity of pain was measured using two evaluation scales: visual analogue scale (EV) and verbal scale (Eve). When the patients asked for an analgesic they were given magnesic metamizol (Nolotil), every 6 h. Five patients (8%) felt no pain and 58 felt pain 4 h 36 min after local anaesthetic infiltration (EV = 2.5; Eve = 1.45) of these 58 patients, 49 took a first dose of 'Nolotil' 6 h 40 min after local anaesthetic induction (EV = 4; Eve = 1.97), 43 received a second dose of 'Nolotil' at 13 h 40 min (EV = 3; Eve = 1.49) and 22 a third dose at 17 h 40 min (EV = 3.2; Eve = 1.7). Every patient that was very satisfied with the anaesthetic technique, said that the postsurgery pain was bearable and they would be happy to be operated on again with the same anaesthetic-surgery technique. The efficacy of the anaesthetic technique (local anaesthetic with conscious sedation) was very good, 8% of the patients never felt pain and 21% never received any analgesic. The time passed until the first analgesic dose was 6 h 40 min, and the tolerance of the pain was excellent.

Keywords: Inguinal-postherniorraphy pain; Local anaesthetic; Monitored anaesthesia care

1. Introduction

Because of the growth of major ambulatory surgery in Spain over the last few years, it is thought that it is very important to know objectively the efficiency, comfort and acceptance levels by patients of unilateral-inguinal herniorraphy, under local anaesthetic and monitored anaesthesia care (MAC) [1]. This approach produces faster recovery and more rapid mobility.

In this study, the duration of the analgesia produced with the infiltration of local anaesthetic, the intensity of pain in the immediate postoperative period, the efficiency of local anaesthetic and oral analgesics and the satisfaction of the patients, have been measured.

2. Materials and methods

Between January and June 1997, 63 patients (57 males, median age 52 years and six females, median age 45 years) underwent unilateral-inguinal herniorraphy using the Shouldice technique and local anaesthetic and monitored anaesthetic care (MAC).

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0966-6532/98/$ - see front matter
PII S0966-6532(98)00013-4

The local anaesthetic used was: 300 mg mepivacain 1% and 50 mg bupivacain 0.25% and MAC was undertaken using 0.10 mg fentanyl, 2–3 mg mydazolán and 2–3 mg/kg per h propofol.

The intensity of pain was measured with two evaluation scales [1,2]:

1. visual analogue scale (EV), the patient scored from 0 to 10 (Table 1);
2. verbal scale (Eve), based on the McGill-Pain Questionnaire this had several levels of pain: no pain, light pain, moderate pain, severe pain, very severe pain and crushing pain (Table 2).

These scales of pain evaluation were in a document which was given and explained to the patient in the immediate postsurgery period. The patient had to fill it in contemporaneously, annotating: when he felt pain and how intense it was; when he took the first dose of oral analgesic and how bad the pain was at that moment; and how bad the pain was when the next doses of analgesics were taken.

Oral magnesic metamizol (Nolotil) (575 mg capsules) was used as the analgesic. After the patient asked for the first analgesic dose, this was given to him again each 6 h as required. We studied patient satisfaction with the surgery through a six questioned form, which was included in the document given to the patient in the immediate postoperative period (Table 3).

3. Results

Of the 63 patients operated on six (8%) never felt pain and 58 felt pain 4 h 36 min after the local anaesthetic induction, with pain quantified according to a Visual Scale (EV) of 2.5 and a Verbal Scale (Eve) of 1.4 (light–moderate pain) (Table 4).

A total of 49 patients asked and had a first dose of analgesic (575 mg 'Nolotil' orally) 6 h 40 min from local anaesthetic induction, having at that time a pain score of EV = 4 and Eve = 1.97 (moderate pain) (Table 5).

A total of 43 patients received a second analgesic dose 13 h 40 min from induction with pain scores of EV = 3 and Eve = 1.49 (light–moderate pain) (Table 6) 22 patients took a third analgesic dose at 17 h 40 min with pain scores of EV = 3.2 and Eve = 1.7 (light–moderate pain) (Table 7).

It is important to note that 8% of the patients never felt pain and 21% never received any analgesic. Only ten (15%) patients did not sleep very well on the first night. Every patient was very satisfied with the anaesthetic technique, and they would be happy to be operated on again using the same anaesthetic surgery technique. They said that the postsurgery pain was bearable and the analgesia used was effective.

4. Discussion

Our study demonstrates very positive results about the efficiency of our anaesthetic technique (local anaesthetic with conscious sedation). The time that elapsed from local anaesthetic infiltration until the first dose of analgesic was 6 h 40 min in 80% of patients. The anaesthetic tolerance was excellent and every patient would be happy to undergoe surgery again using the same anaesthetic technique, 8% of the patients never felt pain and 21% never received any analgesic.

For obtaining our objectives, we used a mixture of two local anaesthetics mepicain and bupivacain. These were used in lower concentrations than normal (30 ml mepivacain 1% and 20 ml bupicain 0.25%, giving a final concentration of mepivacain of 0.6% and bupivacain of 0.10%). The total dose of both anaesthetics was 300 mg and 50 mg, respectively, which is very far from the maximum dose advised (500 mg for mepivacain and

Table 1
Scale of postoperative pain evaluation (visual analogue scale)

Analogic visual scale (score the pain intensity from 0 to 10)
Time of beginning of pain
Time of 1° analgesic dose
Time of 2° analgesic dose
Time of 3° analgesic dose
Next day
To the 24 h
To the 48 h

Table 2
Scale of postoperative pain evaluation (verbal scale)

Verbal scale (score the pain intensity from 0 to 5)	
0	No pain
1	Light pain
2	Moderate pain
3	Severe pain
4	Very severe or horrible pain
5	Crushing or atrocious pain

Table 3
Questionnaire for evaluating the patient satisfaction

	Patient satisfaction level (answer 'yes' or 'no')
Are you satisfied with the anaesthetic technique used?	
Will you be operated again with the same technique?	
Is the postoperative pain bearable?	
Is the analgesic efficient?	
Have you had a good night?	
Have you had any complication or problem?	

Table 4
Verbal scale of the 58 patients who felt pain

Verbal scale (Eve = 2)	
Light pain	37 (64%)
Moderate pain	16 (27%)
Severe pain	5 (9%)
Very severe pain	0
Crushing pain	0

Table 5
Verbal scale of the 49 patients who received a first Nolotil dose

Verbal scale(Eve = 1.97)	
Light pain	12 (24%)
Moderate pain	26 (53%)
Severe pain	11 (23%)
Very severe pain	0
Crushing pain	0

Table 6
Verbal scale of the 43 patients who received a second Nolotil dose

Verbal scale (Eve = 1.49)	
No pain	2 (5%)
Light pain	24 (55%)
Moderate pain	12 (28%)
Severe pain	4 (9%)
Very severe pain	1 (3%)
Crushing pain	0

200 mg for bupivacain) [3]. This is very important because the first symptoms of local anaesthetic intoxication are trembling, shaking, nervousness or nausea, making recovery and the early discharge of patients, which is so necessary in ambulatory surgery, more difficult. The long analgesic effect of bupivacain is well documented [4] and this has been confirmed in this study, even with the low dose used.

The drugs used in the conscious sedation were fentanyl, mydazolam and propofol; all of them with an adequate pharmacokinetic behaviour for use in ambulatory surgery, because they allow the early recovery of patients [5–7].

In this study we used a sedation scale of five levels [8].

1. Awake and orientated.
2. Sleepiness
3. Closed eyes, but answer verbal orders.
4. Closed eyes, but answer to soft physical stimulus.
5. Closed eyes, but do not answer to soft physical stimulus.

Our objective was to keep the patients in level 3 sedation, without loosing the verbal contact with them. Even the few patients who complained slightly during the operation were very satisfied with the anaesthetic technique after their surgery, due to the retrograde amnesia produced by the mydazolam.

Table 7
Verbal scale of the 22 patients who received a third Nolotil dose

Verbal scale (Eve = 1.7)	
No pain	1 (4%)
Light pain	9 (41%)
Moderate pain	8 (36%)
Severe pain	4 (19%)
Very severe pain	0
Crushing pain	0

In this study oral-magnesic metamizol (Nolotil), which is the most popular analgesic in our country, was used in the standard dose of 575 mg every 6 h. The results of the analgesia provided are not as good as they could have been. When the patients received the second dose of metamizol, 28% of them had moderate pain and 9% severe pain. This problem can then be looked at from two different points of view:

(1) Maybe it is only a dose problem. According to several authors, the analgesia produced by metamizol is the same as that for paracetamol analgesia for equivalent doses, i.e. 1 g of metamizol is equivalent to 1 g of paracetamol. In the literature there are a lot of studies proving greater effectiveness from efficiency of a 1 g paracetamol dose than a 0.6 g paracetamol dose [9]. Perhaps by using two pills of metamizol (2×575 mg) in the postoperative period the results would be better.

(2) Perhaps the problem can be tackled by exploring the concept of pre-emptive analgesia [10] and multinodal analgesia [11,12], using local anaesthesia with preoperative peripheral and central analgesics.

There are several studies (Tverskoy [13], Bugedo [14], Dueholm [15]) that demonstrate the excellence of pre-emptive analgesia in inguinal herniorraphy, with a diminution of postsurgery pain and the analgesic dose used.

Therefore it is believed in the future that pre-emptive analgesia should be used and this will be the main subject of our next studies.

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