Intra-vas deferens bupivacaine for prevention of acute pain and chronic discomfort after vasectomy

L. D. Paxton, B. K. Huss, V. Loughlin and R. K. Mirakhur

Summary
We have studied the use of intra-vas deferens local anaesthesia in 70 patients undergoing vasectomy as day-case patients. Patients were allocated randomly to either a control or treatment group. In the treatment group, 0.5% bupivacaine 1 ml or 0.9% saline 1 ml was injected into the lumen of the right or left vas deferens in a randomized blinded design. The control group did not receive an injection. Patients were discharged with a questionnaire for recording visual analogue scores (VAS) for both the right and left sides to be scored on days 1 and 7 after operation. One day after the procedure a second questionnaire was sent out asking about the presence or absence of chronic testicular discomfort, its duration and any surgical intervention required to relieve it. There were no differences between the control group and the saline side of the treatment group in VAS scores on both day 1 and day 7 after operation or in the incidence and duration of chronic testicular discomfort (mean 30 (SD 53) and 34 (50) days, respectively). The VAS scores were, however, significantly less ($P < 0.005$) and testicular discomfort was absent on the bupivacaine-treated side. (Br. J. Anaesth. 1995; 74: 612–613)

Key words

Vasectomy is a standard method of contraception and after circumcision is the most commonly performed operation in men. Recent studies of this procedure have revealed that chronic testicular discomfort may occur in up to 33% of patients [1]. There has been no prospective study examining the use of local infiltration at the site of surgery in reducing the acute pain and chronic discomfort after this operation. This was examined in the present study.

Methods and results
We studied 70 ASA I or II patients undergoing vasectomy on a day-case basis after obtaining written informed consent and the approval of the Research Ethics Committee. Patients were familiarized with the visual analogue scales (VAS) for scoring pain (0 cm = no pain, 10 cm = worst possible pain) before the procedure. Patients were then allocated randomly to either the control or the treatment group. No premedication was administered and patients were anaesthetized with fentanyl 1–1.5 $\mu$g kg$^{-1}$, propofol 1–2 mg kg$^{-1}$, and 1–1.5% isoflurane and 70% nitrous oxide in oxygen via a face mask or a laryngeal mask airway. The treatment group received 0.5% bupivacaine 1 ml into the lumen of one vas deferens and 0.9% saline 1 ml into the lumen of the other vas deferens, at random, after the vas deferens was identified after skin incision. Two minutes later the vas was transected and ligated. The control group had no infiltration but the vas deferens was ligated in the same way.

After recovery from anaesthesia, patients returned to the day ward and were discharged home later with a questionnaire and VAS records for pain to be scored for the right and the left sides on days 1 and 7 after surgery. Oral non-steroidal analgesic drugs were prescribed for postoperative analgesia. One year after the procedure, a second questionnaire was sent enquiring about the presence of any testicular discomfort, its location (left or right) and its duration. All the replies were analysed by one of the authors who was unaware of the treatment. Data were analysed by $t$ tests for the patient data, Kruskal–Wallis and Wilcoxon tests for the VAS scores, chi-square test for the incidence of discomfort, and analysis of variance for the duration of discomfort.

The first questionnaire was returned by all patients; those who did not initially return them were reminded by telephone. The second questionnaire was valid for 61 (91%) patients only; six patients did not return the questionnaire and three were excluded because of development of wound infection and scrotal haematoma.

There were no differences between the treatment and control groups in mean age (35 (range 26–45) yr and 34 (28–45) yr), weight (82 (SD 10.1) kg and 81 (12.9) kg), height (175 (5.4) cm and 175 (7.2) cm) or duration of anaesthesia (22 (2.0) min and 22 (1.9) min), respectively. The VAS scores for pain on days 1 and 7 were significantly lower on the side of the bupivacaine infiltration in the treatment group compared with the saline side of this group and the
control group ($P < 0.005$), but there were no differences between the latter two (table 1). The severity of pain was less on day 7 compared with day 1.

The mean duration of testicular discomfort was 34 (SD 50) days on the saline-treated side in the treatment group and 30 (53) days in the control group when all patients in the groups were considered. However, the discomfort within these groups was experienced by only 12 (38%) patients in the control group and 14 (45%) patients in the saline side of the treatment group for periods of 2–24 weeks. This did not require surgical intervention in any patient. No patient experienced prolonged testicular discomfort in the bupivacaine-treated side. Three patients (two in the control and one in the treatment group) needed a prolonged course (up to 1 month) of simple analgesic drugs for the discomfort. One patient complained that the discomfort interfered with his sex life. There were no differences in the timing of the discomfort felt (day or night).

**Comment**

Vasectomy is a relatively minor procedure involving structures with well defined anatomy. The post-vasectomy syndrome or chronic testicular pain following the procedure is a recognized complication of this procedure in addition to some acute pain [1, 2]. In the present study we found that simple infiltration of local anaesthesia into the lumen of the vas deferens was an effective method of alleviating both. Lack of any beneficial effect from injection of saline into one vas deferens excludes any placebo effect.

Studies of the use of peripheral nerve block with local anaesthesia may be more supportive of the concept of pre-emptive analgesia compared with studies where there has been central block with either local anaesthetics or opioid analgesic drugs [3–5]. This may reflect the fact that the peripheral blocks may completely inhibit afferent input into the spinal cord [6]. The injection of bupivacaine in this study supports the use of local anaesthetic infiltration even when the procedure is carried out under general anaesthesia and possibly the concept of pre-emptive analgesia.

**References**