Some patients don't need analgesics after surgery[1]

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Summary: Postoperative analgesic requirements of 410 patients undergoing elective orthopaedic limb surgery were studied. Premedication and anaesthetic were standardized with no narcotic. Twenty-three patients required no analgesic at all during their hospital stay. The importance of acknowledging the existence of this group of patients is discussed. The distribution of time to first analgesic requirement for the other patients was obtained. The importance of knowing the distribution for particular operative procedures and the effect of analgesic interventions such as premedication is discussed.

Introduction

Previous reports (Papper *et al.* 1952; Parkhouse *et al.* 1961) have confirmed the generally held view that some patients need minimal analgesia after major surgery; but these reports are difficult to interpret because pre- and intraoperative events were not standardized. Some of these patients had received anaesthetic agents with long-lasting analgesic properties.

The present study was designed to investigate the postoperative analgesic requirements of a large group of patients who had minor orthopaedic surgery with no analgesic premedication under a standardized anaesthetic with no narcotic.

Methods

Four hundred and ten patients who had elective minor orthopaedic limb surgery were studied at the Nuffield Orthopaedic Centre, Oxford. Ethical committee approval for these patients to enter trials of analgesics was obtained. Patients younger than 18 or older than 75 were excluded, as were those who weighed more than 100 kg.

Premedication was with intramuscular atropine 0.6 mg one hour preoperatively for 144 patients (Bullingham *et al.* 1981), oral lorazepam 2 mg two hours preoperatively for 102 patients (Porter *et al.* 1981) and oral diazepam 10 mg two hours preoperatively for 164 patients (Evans *et al.* 1982). The latter two groups received 0.6 mg of atropine intravenously at induction of anaesthesia.

The anaesthetic was the same for all the patients. Thiopentone 5 mg/kg was followed by spontaneous ventilation with nitrous oxide-oxygen (2 : 1) and halothane as required.

After surgery all patients went to the same recovery room where they were looked after by a full-time research nurse. Only two such nurses were involved. The time at which the patients requested analgesia was recorded, and records of subsequent analgesic requirements were kept.

The demographic data for those who did and those who did not request analgesics were compared using Student's *t* test. The sex ratio, and the ratio of smokers to non-smokers in the two groups were compared by the chi-square test.

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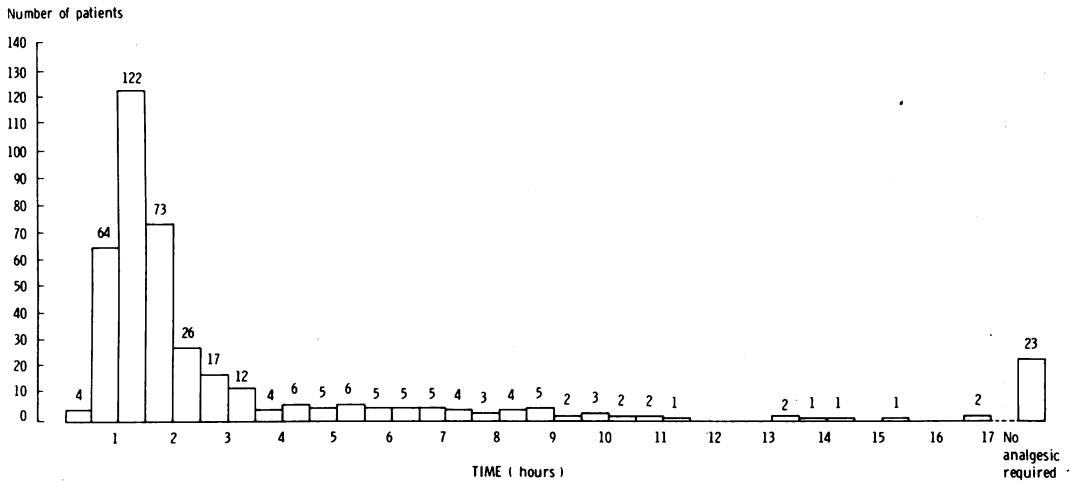

Figure 1. Time from start of anaesthetic to first analgesic request for 410 patients undergoing minor elective orthopaedic limb surgery

Results

The time to the first request for analgesia from start of anaesthetic for the 410 patients is shown in Figure 1. Twenty-three patients made no request for analgesics at any time during their hospital stay. These patients are referred to as the no analgesic request (NAR) group.

The details of all patients are presented in Table 1. There were no significant differences between the NAR group and other patients for age, weight, height or operation time. There was also no significant difference in sex ratio, the ratio of smokers to non-smokers, or the proportion of leg to arm surgery. The operative procedures are shown in Table 2.

Discussion

The quality of the treatment of postoperative pain has been harshly criticized (*Lancet* 1976). Three factors mitigate against improvement in management. First, the patient and the pain eventually go away; poor pain relief is then forgotten, at least by the prescriber. Secondly, the spectrum of pain reported by patients after identical surgery varies from intense to negligible. Thirdly, the pain relief which results from standard prescription also varies from complete to negligible. This paper is concerned with the second issue, the spectrum of reported pain after surgery.

The group of patients who made no request for analgesics under this stringent criterion of no request at any time during their hospital stay represent one extreme of the spectrum of reported pain after surgery. There is no similar study of analgesic requirement available with

Table 1. Details of patients according to analgesic requirements

	Analgesic request ($n=387$)	No analgesic request ($n=23$)
Age in years (mean ± s.e.)	43.4 ± 0.8	41.0 ± 3.3
Weight in kg (mean ± s.e.)	67.7 ± 0.6	67.2 ± 2.5
Height in cm (mean ± s.e.)	167.6 + 0.5	169.7 ± 2.4
Sex ratio (male : female)	161M : 226F	12M : 11F
Smoking (no : yes)	223N : 164Y	15N : 8Y
Leg or arm surgery (L : A)	187L : 200A	11L : 12A
Operation time in min (mean ± s.e.)●	22.1 ± 1.2 ($n=246$)	19.4 ± 3.0 ($n=18$)

●Only incomplete information available for some patients, who are therefore excluded

Table 2. Operative procedures (specified for those where total incidence > 10)

	No analgesic request	Total
Carpal tunnel release	3	80
Dupuytrens	2	23
Trigger finger or thumb	4	22
Arthroscopy	7	19
Ganglion ankle	1	10
Zadek's procedure	1	12
Ganglion arm	0	32
Keller's operation	0	42
Meniscectomy	0	48
Other operations by site:		
Knee and tibia	1	32
Foot and ankle	1	35
Elbow, wrist and hand	3	55
Total	23	410

standardized non-analgesic premedication and anaesthetic. The operative procedures covered the usual range of orthopaedic practice, and the length of surgery did not differ between the two groups in this study.

The NAR group must be distinguished from analgesic placebo responders because, during their stay in hospital, they received no postoperative analgesics, either by mouth or parenterally.

The NAR group is important in the assessment and planning of improvements in postoperative pain relief. Prophylactic methods, such as local anaesthetic blocks, and mandatory regimens for infusion (Church 1979) or injection of analgesics are unnecessary for the NAR group. If the procedure carries a risk of morbidity, then that risk may be unacceptable for those patients who do not need pain relief. Demand analgesia is one way round the problem (Jacobs *et al.* 1981) in the absence of methods by which these patients can be predicted.

In this series there were significant numbers of patients who made no analgesic request for some hours after surgery. The proportion of patients who would not have made an analgesic request within a given period may be determined from Figure 1. This proportion is important as a yardstick against which to assess the duration of analgesia provided by methods of pain relief.

Figure 1 also demonstrates the necessity for a no-treatment control group in any clinical trial of prophylactic methods of postoperative pain relief. This should be contrasted with the appropriate placebo control group when investigating treatments given to those in pain.

The operative procedures in this study are common, although relatively minor. The fact that some patients need little analgesia is true after major surgery (Papper *et al.* 1952, Parkhouse *et al.* 1961), although the proportion may be lower. Each operative procedure will have a distinctive distribution of time of analgesic request. The frequency distribution in Figure 1, under the conditions described here, represents a biological baseline against which the effects of analgesic interventions may be measured. Analgesic premedication would probably move the distribution to the right (Parkhouse *et al.* 1961). Local analgesic blocks will remove all patients to the left of a certain point. This distribution, together with a knowledge of overall analgesic requirement, represent the fundamental information needed for rational provision of pain relief.

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