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A patient-based national survey on postoperative pain management in France reveals significant achievements and persistent challenges

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Abstract

We carried out a national survey on postoperative pain (POP) management in a representative sample (public/private, teaching/non-teaching, size) of 76 surgical centers in France. Based on medical records and questionnaires, we evaluated adult patients 24 h after surgery, concerning information: pre and postoperative pain, evaluation, treatment and side effects. A local consultant provided information about POP management. Data were recorded for 1900 adult patients, 69.3% of whom remembered information on POP. Information was mainly delivered orally (90.3%) and rarely noted on the patient's chart (18.2%). Written evaluations of POP were frequent on the ward (93.7%) with appropriate intervals (4.1 (4.0) h), but not frequently prescribed (32.7%). Pain evaluations were based on visual analog scale (21.1%), numerical scale (41.2%), verbal scale (13.8%) or non-numerical tool (24%). Pain was rarely a criterion for recovery room discharge (19.8%). Reported POP was mild at rest (2.7 (1.3)), moderate during movement (4.9 (1.9)) and intense at its maximal level (6.4 (2.0)). Incidence of side effects was similar according to patient (26.4%) or medical chart (25.1%) including mostly nausea and vomiting (83.3%). Analgesia was frequently initiated during anesthesia (63.6%). Patient-controlled analgesia (21.4%) was used less frequently than subcutaneous morphine (35.1%) whose prescription frequently did not follow guidelines. Non-opioid analgesics used included paracetamol (90.3%), ketoprofen (48.5%) and nefopam (21.4%). Epidural (1.5%) and peripheral (4.7%) nerve blocks were under used. Evaluation (63.4%) or treatment (74.1%) protocols were not available for all patients. This national, prospective, patient-based, survey reveals both progress and persistent challenges in POP management.

Keywords: Postoperative pain; National survey; Improvement

1. Introduction

Surveys evaluating pain in hospitals have been conducted since the early sixties and continue to be published regularly [41]. Postoperative pain (POP) control has frequently been shown to be inadequate in many countries including France, in general surveys

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[1,13,26,28] or studies focusing on patients undergoing surgery in individual teaching hospitals [48,62] at national [6,15,36,37,44,45,53] or international level [8,54]. The most frequent detected failings concern the information of the patient, limited pain evaluation, the under use of opioid and regional anesthesia techniques and inadequate organization. However, POP is a major concern for hospitalized patients [13] and may interfere with postoperative recovery and increase postoperative morbidity [14]. Ad hoc evidence-based guidelines for improving pain management have been issued in several countries [4,43,50,51,63]. Acute pain services have been created either based on anesthesiologist staffs [42,56] or dedicated pain nurses [55]. Interventions designed to improve quality have been described in single hospital [7,30,32] or group of hospitals [33]. Medical students are now trained in pain evaluation and management and many medical meetings provide information about postoperative pain control.

The French Ministry of Health has supported effort to improve pain management by initiating successive plans since 1994 concerning the right to pain relief for patients [20], nurses' professional obligations to evaluate pain [19], pain control recommendations for health establishments [18] and the obligation to provide patients with information [40]. Acute pain management has also recently been identified as an important element of evaluations of the professional activity of anesthesiologists [57] and of health establishments seeking certification [52].

A survey of anesthesia practice in France in 1996 has highlighted a 120% increase in number of anesthetic procedures since 1980, with a 14-fold increase in the number of regional anesthetic procedures [17]. Between 1990 and 1996, significant advances in knowledge and attitudes regarding pain and its management in the French general population occurred, with greater awareness of the importance of acute pain treatment and acceptance of morphine use [39].

No large-scale patient-based survey has evaluated changes in POP control in France since 1996 [48]. National surveys have been performed in other countries, based principally on questionnaires sent to institutions or professionals [6,15,34,36,44,45]. Strategies for improving responses to postal questionnaires have been proposed [29], but the information provided by such declarative studies is not reliable because they globally overestimate the quality of care [11]. We therefore designed an observational national survey of POP control for inpatient surgery. The aim was to obtain data for adult inpatients, 24 h after surgery, from a representative sample of surgical centers. We used three sources of information: the patient, the patients' chart and interviews with healthcare providers. The French Anesthesia and Intensive Care Society (SFAR) and the Ministry of Health supported this survey, which was designed to evaluate the impact of the previous ministerial pain plan and French Anesthesia and Intensive Care Society POP management guidelines in routine daily practice, with a view to revising these guidelines and assisting policy-makers with decisions concerning future recommendations for POP control [46].

2. Methods

2.1. Sample

We used French Ministry of Health statistics on surgical activity to build a representative sample of surgical centers according to teaching status, source of funding (public/private) and level of surgical activity. Based on these criteria, we defined five strata: teaching hospitals ($n = 49$), large (>2700 surgical cases per year) public hospitals ($n = 1091$), small public hospitals ($n = 106$), large (>3200 surgical cases per year) private centers ($n = 269$) and small private centers ($n = 268$). Centers performing fewer than five surgical procedures per day were excluded. Sample size was calculated to detect severe pain at rest in 50% of patients, based on incidence previously reported in similar survey [48], with a 2.5% precision and a 5% α error. As a compromise between precision, number of visits and local acceptability, we decided to investigate 25 patients at each center. As postoperative pain is managed by a single anesthesia department at each center, precision may be decreased by clustering, but increased by stratification. Taking into account a global clustering effect of $\rho = 0.15$ (i.e. a design effect of 4.6), we set the sample size at 2000 patients. The order of magnitude of this effect was confirmed after interim analysis 6 months into the survey. We performed a self-weighted two-stage sampling design: (i) the number of selected hospitals in each stratum was proportional to the number of surgical cases in the corresponding stratum, and (ii) each hospital in a particular stratum was chosen with unequal probability, proportional to the number of annual surgical cases in this hospital.

2.2. Questionnaires

Experts in postoperative pain control (DF, members of the French Anesthesia and Intensive Care Society Pain and Regional Anesthesia Committee) designed three questionnaires to collect data from the patient (21 items), the patient's chart (80 items) and an interview with the local postoperative pain specialist (50 items). These questionnaires were used to cross-check data concerning the information of the patient, pre- and postoperative pain, pain evaluation, treatment, side effects and pain management at the center (see Supplementary data). They were tested and modified in a pilot survey including one center from each stratum.

Preoperative pain evaluation was introduced during the survey and data were available for 750 patients. Pain at rest and pain during movement were evaluated at the time of the auditor's visit, using a numerical scale (NS) (0: no pain, 10: unbearable pain), with severe pain described as an NS pain intensity score $\geqslant 7$, as previously suggested [5]. The maximal pain intensity reported by the patient was defined as the most intense pain between surgery and auditor's visit. Maximal pain