

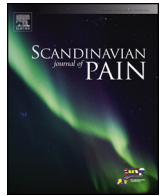


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Observational study

The changing face of acute pain services

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HIGHLIGHTS

- Decrease in pain intensity resulted after APS intervention.
- A shift in the focus of APS treatment was observed.
- The concept of an APS needs to be redefined according to the new clinical variables.
- The interdisciplinary APS team should include other specialties.

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ABSTRACT

Background and Aims: Acute Pain Services have been implemented initially to treat inadequate postoperative pain. This study was undertaken to prospectively review the current challenges of the APS team in an academic hospital assessing the effects of its activity on both surgical and medical pain intensity. It also define the characteristics of the patients and the risk factors influencing the multiple visits from the APS team.

Method: This prospective cohort study was conducted at Uppsala University Hospital (a Swedish tertiary and quaternary care hospital) during one year. All the patients referred to the APS team were enrolled. A standardized data collection template of demographic data, medical history, pain diagnosis, associated diseases, duration of treatment, number of visits by the APS team and type of treatment was employed. The primary outcomes were pain scores before, after treatment and the number of follow-ups. The patients were visited by APS at regular intervals and divided by the number of visits by APS team into several groups: group 1 (one visit and up to 2 follow ups); group 2 (3 to 4 follow-ups); group 3 (5 to 9 follow-ups); group 4 (10 to 19 follow-ups); group 5 (>20 followups). The difference between groups were analyzed with ordinal logistic regression analyses.

Results: Patients ($n = 730$) (mean age 56 ± 4 , female 58%, men 42%) were distributed by service to medical (41%) and surgical (58%). Of these, 48% of patients reported a pain score of moderate to severe pain and 27% reported severe pain on the first assessment. On the last examination before discharge, they reported 25–30% less pain ($P = 0.002$). The median NRS (numerical rating scores) decreased significantly from 9.6 (95% confidence interval, 8.7–9.9) to 6.3 (6.1–7.4) for the severe pain ($P < 0.0001$), from 3.8 (3.2–4.3) to 2.4 (1.8–2.9) for the moderate pain. The odds ratio for frequent follow-ups of the patients between 18 and 85 years ($n = 609$) was 2.33 (95% CI: 1.35–4.02) if the patient had a history of chronic neuropathic pain, 1.80 (1.25–2.60) in case the patient had a history of chronic nociceptive pain, 2.06 (1.30–3.26) if he had mental diseases, and 3.35 (2.21–5.08) if he had opioid dependency at the time of consultation from APS. Strong predictors of frequent visits included female gender ($P = 0.04$).

Conclusions: Beside the benefits of APS in reducing pain intensity, this study demonstrates that the focus of APS has been shifted from the traditional treatment of acute surgical pain to the clinical challenges of treating hospitalized patients with a high comorbidity of psychiatric diseases, opioid dependency and chronic pain.

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Implications: The concept of an APS will ultimately be redefined according to the new clinical variables. In the light of the increasing number of patients with complex pain states and chronic pain, opioid dependency and psychiatric comorbidities it is mandatory that the interdisciplinary APS team should include other specialties besides the “classical interdisciplinary APS team”, as psychiatry, psychology, rehabilitation and physiotherapy with experience in treating chronic pain patients.

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1. Introduction

Despite of major advances in analgesic medication, delivery techniques and the introduction of new pain treatment protocols, optimal pain treatment remains elusive and is the most common concern in more than one half of the hospitalized patients [1]. There is increasing recognition that failure to provide good postoperative pain relief causes unnecessary discomfort, longer hospital stays, increased expense, and less than optimal clinical outcomes in hospitalized patients [2,3]. There is no doubt that effective pain relief would result in shorter clinical recovery, shorter hospital stays and improved quality of life [4].

After the publication by Brian Ready in 1988 of a description of an anesthesiology-based acute pain service [5] the number of hospitals offering acute pain services (APS) increased worldwide. Although most hospitals implemented acute pain teams because of the detrimental effects that inadequate postoperative pain management can have on patients and also to treat “patients with chronic pain and unmanageable pain states” [6] the role of this service has been shifted today in response to new clinical challenges. The current focus of the APS has been changed from managing acute postoperative pain to a more comprehensive service due to an increasing number of referrals for hospitalized patients with untreated and undertreated pain who have concomitant disease, complex medication and histories, comorbid conditions such as opioid dependency, chronic non cancer pain, drug addiction, drug abuse, psychiatric and psychological disturbances. It is essential therefore to understand how patient characteristics such as age, gender, type of pain and coexisting comorbidities affect the multiple follow-ups by APS team aimed to treat difficult to control pain. Because of the new challenges there is a need in the acute pain team not only of an anaesthesiologist but also of qualified personnel from other specialties. This study was undertaken to prospectively review the current challenges of the APS team to define the characteristics of the patients with pain states requiring multiple visits by the APS team.

Our aims were twofold: first, to describe the risk factors influencing the multiple visits from the APS team; second, to analyze the choice of the treatment and the effects of the treatment instituted by the APS.

2. Methods

The pharmacological protocols for pain control of the medical patients were developed in Uppsala University Hospital by a multidisciplinary pain committee (pharmacists, anesthesiologists, general practitioners, pain specialists) and postoperative pain protocols by anesthesiologists, pain specialists and registered pain nurses. Pharmacological pain therapy is followed up on a daily basis by physicians. Advanced postoperative pain therapy such as patient-controlled analgesia (PCA), continuous epidural analgesia (EDA), continuous spinal analgesia (SPA) and peripheral nerve blocks by infusion (PNB) are followed up by a registered anaesthesiologist nurse for the first few days after the treatment was instituted or by the ward nurses who have specialized PCA, EDA-pump

device training. The patients are referred to the APS in the case of pain with intensity over 6 NRS despite the treatment instituted by the ward, for the treatment of pain in addicted patients. Usually the reason for the requested help from the APS team is that the patients have an NRS more than 6, and do not respond to the usual therapy instituted by the physicians, for recommendation of perioperative pain relief in patients with high doses of opioids (more than 200 mg morphine equivalents) or opioid tolerant patients.

The Ethical Committee of Uppsala University approved the study protocol (reference number 2016/416). A standardized data collection template (both electronic and paper) was employed for the patients referred to the APS team during one year (August 2015–July 2016). The template included demographic data (age, sex), history, pain diagnosis, associated diseases, duration of treatment and number of visits by the APS team, type of treatment and side effects. Patient data were collected using both chart review and personal reports of the patients. The data system used was Microsoft Excel® database and the electronic patient journal used within the hospital (Cosmic®). The patients were visited by the APS at regular intervals based on the individual needs. The team consisted of a pain specialist physician and a nurse pain specialist. The APS team physician included 2 anesthesiologists, 1 general practitioner, all specialized in pain management and 2 advanced practice pain nurses. Each patient was seen and followed when possible by the same pain clinician and nurse. Data collection occurred over one year.

From the patient’s journal we obtained documentation which included associated diseases, previous laboratory tests, X-rays, MRI, neurophysiological tests and type of surgical interventions. At the time of the APS team visit a comprehensive history was taken. The medical patients underwent a detailed neuromuscular examination and a targeted physical examination.

A diagnosis based on the type of pain was made as follows: acute and chronic nociceptive and neuropathic pain, their subtypes (somatic musculoskeletal and visceral pain, peripheral and central neuropathic pain) and pain conditions as acute nociceptive postoperative pain and cancer related pain. Furthermore, addiction, opioid dependency and psychiatric comorbidities were recorded. The team followed up the patients until pain intensity was improved as judged by the patients and by the ward. Discontinuation of APS team visits occurred also when the patients were transferred to another hospital or discharged home.

2.1. Pain prevalence and intensity

Pain documentation was recorded on an 11-point pain intensity numerical rating scale (NRS where 0 = no pain at all, to 10 = worst imaginable pain) before and after the treatment. The lowest pain score, highest pain scores the previous day and present pain were measured.

2.2. Analgesia

Data on the pre-consultation analgesia given were obtained from the computerized patient journal. Patients were treated with systemic analgesics administered orally or intravenously, given

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