Clinical pain research

Mandatory documentation of pain in the emergency department increases analgesic administration but does not improve patients’ satisfaction of pain management

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HIGHLIGHTS

• Mandatory pain documentation increases the use of analgesics in the ED.
• Mandatory pain documentation does not increase patient satisfaction.
• Despite acute injury and pain, patients do not take analgesics prior to an ED visit.

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ABSTRACT

Background: Pain is one of the most common symptoms treated in emergency department (ED). Pain may cause suffering and disability for the patient. Inadequate pain management may be associated with increased risk of complications such as sleep disturbance, delirium and depression. Previous studies conclude that pain management in ED is insufficient and inadequate. Yet, little is known about patients’ own experience regarding pain management in ED.

Objective: The aim of this study was to explore the satisfaction of pain management in patients having acute musculoskeletal injuries before and after implementation of mandatory documentation regarding pain assessment in the ED.

Method: An observational pre-post intervention study design was used. The study was conducted on patients having acute musculoskeletal injuries such as soft tissue injury, back pain or wrist/arm/leg/foot fractures in a 24-h adult (>15 years) ED at a public urban teaching hospital in Stockholm, Sweden. Data was collected by an interview based on a questionnaire.

Results: A total of 160 patients answered the questionnaire. In the pre- (n = 80) and post-intervention (n = 80) groups, 91/95% experienced pain in the ED. A significant difference (p < 0.003) was found during the post-intervention period, with more patients receiving analgesics compared to the pre-intervention group. A significant decline (p < 0.03) in patients’ own reported pain intensity at discharge was found between the groups. Patients’ reported satisfaction on pain management in the ED increased in the post-intervention group, but the difference was not statistically significantly.

Conclusion: Patients’ satisfaction with pain management increased, but not statistically significantly. However, both percentages of patients receiving analgesic drugs increased and pain intensity decrease at discharge were statistically significant after the intervention that made nurses obliged to register pain.

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**Implication:** According to the findings of this study, mandatory pain documentation facilitates pain management in the ED, but there is still room for improvement. Additional actions are needed to improve patients’ satisfaction on pain management in the ED. Mandatory pain documentation in combination with person-centred care could be a way of improving patients’ satisfaction on pain management. Effective pain management is an important quality measure, and should be focused on in acute care in the ED. By routinely asking patients to report the pain intensity at discharge, the ED personnel can have direct feedback about the factual pain management. RNs may also be encouraged to use intravenous analgesics in higher extent when the patients have very severe pain.

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1. Introduction

Pain could be considered the fifth vital sign [1]. It is a global health care issue, since pain causes more than half of the visits to emergency department (ED) [2,3]. Previous studies conclude that pain management in ED is insufficient and inadequate [4–6] and inadequate pain management may be associated with increased risk of complications such as sleep disturbances, delirium and depression [7]. Hindrances to achieving adequate pain relief for the patients in ED are described as: failure to assess and acknowledge pain, lack of guidelines, failure to document pain, failure to assess treatment correctly, and attitudes and inadequate knowledge among personnel [8]. Nevertheless, several attempts to improve pain management in an ED have been made by using guidelines [9], by educating personnel [10] and implementing assessment using pain scales [11]. Documentation of pain assessment has been shown to have a positive effect on pain management [12], but there is a large variation between studies, ranging from 57% to 94% [1,9,13]. Mandatory pain scoring included in triage has shown reduced time to analgesia [12] and it has improved the frequency of documented pain assessment in EDs [14]. Despite several attempts to improve pain management at EDs, patients suffering from acute pain do not receive enough analgesics in EDs [15]. However, there is sparse research on how different strategies to improve pain management affect the patient’s own experience of acute pain management in EDs. At present, patient perceptions are rarely used in order to systematically evaluate pain management in EDs. Therefore, the aim of this study was to explore the patients’ satisfaction of pain management before and after implementation of mandatory documentation of pain assessment in the ED.

2. Method

A pre-post intervention study design was used to evaluate patients’ satisfaction of acute pain management in the ED after implementation of mandatory documentation of pain assessment.

2.1. Setting

The study was conducted on patients suffering from acute musculoskeletal injuries such as soft tissue injury, back pain or wrist/arm/leg/foot fractures in a 24-h adult (>15 years) ED at a public urban teaching hospital in Stockholm, Sweden. The ED serves all adult patients with surgical, cardiological, orthopaedic and internal medicine requirements, and no referral is needed. In the health care system in Stockholm, patients >15 years with orthopaedic and/or surgical injuries are always treated at an adult ED. Each year the hospital receives by ambulance approximately 7300 patients with acute life-threatening conditions. The ED has transfer agreements for patients requiring more comprehensive care for neurosurgical conditions and burn injuries.

The personnel working with direct patient care in the ED include physicians specializing in cardiology, surgery, orthopaedics, internal medicine and emergency medicine; there are also registered nurses (RNs) as well as RNs with additional training in emergency care. There are approximately 110 RNs working at the ED. The RNs perform primary triage, supported by standardized protocols, in order to identify patients’ need of care based on the acuteness of their condition. The aim is also to assess the patient’s pain and initiate pain relief if necessary.

The RN is able to administer oral and/or intravenous analgesics to patients before examination by a physician by using nurse-initiated analgesic protocol. The nurse-initiated analgesic protocol was developed by emergency physicians’ and approved and signed by the medical director of the emergency department and consists of recommendation on different analgesics and dosage that the RN can use for pain relief (paracetamol 500 mg–1 g), NSAIDs, a combination paracetamol/NSAID, paracetamol/codeine tablets (1–2 tablets), and intravenous opioids (morphine 1–10 mg). The choice of drug and dosage is dependent on the patient’s pain intensity and the patient’s overall clinical situation. In the nurse-initiated analgesic protocol there is also given, which is the maximum permissible dose of the drug and what nurses should do if a suspected overdose should occur.

In October 2010, the patient medical report was computerized and pain assessment became mandatory for RNs to document. If RNs did not record the pain assessment, they were not able to continue documentation in the patient’s medical report. During the study period, patients with soft tissue injury, back pain or wrist/arm/leg/foot fractures were treated by orthopaedic surgeons or emergency physicians and cared for by nurses with or without additional emergency care training. In 2010, in total 103,243 patients visited the ED; of these, approximately 23% suffered from acute musculoskeletal injuries such as soft tissue injury, back pain or wrist/arm/leg/foot fractures.

2.2. Data collection and variables

A questionnaire with eight questions was used for data collection. It was filled out by a triage nurse when interviewing a patient at admission and discharge from the ED. The questionnaire consisted of two demographic questions (age and gender), one question asking if the patient had been taken any analgesic prior to attending the ED, two questions about patient’s pain intensity scored between 0 and 10 (0 = no pain and 10 = very severe pain), and three questions concerning the patient’s experience including satisfaction of pain management in the ED. The questionnaire was pilot-tested for content and face validity [16] by asking 11 patients to answer and reflect on the questions before data collection was started. Small changes were made in the questionnaire after the pilot testing. The changes consisted of clarification of vocabulary, adding a question regarding pain medication at home and a question regarding pain intensity in connection to discharge. The number of patients considered to be sufficient to detect a 30 percentage change in pain management was calculated to be 55 patients with power of >80% with a p-value of 0.05. Patients with acute musculoskeletal injuries such as, soft tissue injury, back pain or wrist/arm/leg/foot fractures and understanding Swedish
Table 1
Description of all patients (n = 160).

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention group, n = 80</th>
<th>Post-intervention group, n = 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female/male</td>
<td>35/44</td>
<td>45/35</td>
</tr>
<tr>
<td>Age at ED visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>15–97</td>
<td>16–92</td>
</tr>
<tr>
<td>Median</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Mean</td>
<td>33</td>
<td>51</td>
</tr>
<tr>
<td>Analgesics prior to ED visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y/N</td>
<td>42/38</td>
<td>37/42</td>
</tr>
<tr>
<td>Analgesics in the ED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y/N</td>
<td>33/47</td>
<td>54/26</td>
</tr>
<tr>
<td>Experience of pain in ED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y/N</td>
<td>73/7</td>
<td>76/3</td>
</tr>
<tr>
<td>NRS at arrival</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0–10</td>
<td>0–10</td>
</tr>
<tr>
<td>Median</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Mean</td>
<td>5.8</td>
<td>6.1</td>
</tr>
<tr>
<td>NRS at discharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0–10</td>
<td>0–10</td>
</tr>
<tr>
<td>Median</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Mean</td>
<td>4.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y/N, yes/no</td>
<td>45/33</td>
<td>52/26</td>
</tr>
</tbody>
</table>

Y/N, yes/no.

language were included in the study. Patients having an acute life-threatening condition were excluded. The patients were included as a convenience sample, and the pre-intervention data collection started on the 1st of March 2010, seven months before implementation of the mandatory documentation of pain assessment in the ED, and it ended on the 11th of March, when 80 patients had answered the questionnaire. The post-intervention started on the 1st of November, and ended when 80 patients had answered the questionnaire. There was no missing data.

2.3. Data analysis

The data from the questionnaire was entered into Excel (Microsoft) before using SPSS version 20.0 (IBM Corporation, Route 100 Somer, NY 10589) to analyse the data. The data about patients’ pain management and patients’ satisfaction of the pain management in the ED were dichotomized as yes/no. Intensity of pain was analysed as a continuous variable (0–10). Descriptive statistics were calculated for all variables, and categorical variables were compared by means of Fisher’s exact two-tailed test and Pearson Chi-square tests. p-values less than 0.05 were considered significant.

3. Results

A total of 160 (80/80) patients answered the questionnaire. In the pre- and post-intervention groups 91/95% reported having pain in the ED. In both groups, 52.5/46.8% had taken analgesics prior to the ED visit, as displayed in Table 1. A significant difference was found during the post-intervention period, with more patients (68%) receiving analgesics compared to 41% in the pre-intervention group (Chi² = 11.73, df = 2, p = 0.003). A significant decline in patients’ own reported pain intensity at discharge was found between the groups (Chi² = 8.64, df = 3, p = 0.03). The result also showed that nine patients scored Numeric Rating Scale (NRS) ≥ 10 at discharge (six patients in the pre-intervention group and three patients in the post-intervention group). The patients’ experience of pain according to NRS decreased from admission to discharge in both the pre-intervention group (3.8 vs. 4.6) and the post-intervention group (6.1 vs. 4.3). The patients’ own reported satisfaction on pain management in the ED showed that 65% were satisfied in the post-intervention group compared to 51% in the pre-intervention group, the difference was not significant (Chi² = 0.22, df = 1, p = 0.6).

4. Discussion

The aim of this study was to explore patients’ satisfaction of pain management in the ED before and after the implementation of mandatory documentation regarding pain assessment. The findings show that the implementation regarding pain assessment did make a difference with more patients receiving analgesics in the post-intervention group. With increased amount of analgesics, the NRS at discharge from the ED showed a significant improvement between the two groups and 65% of the patients in the post-intervention group expressed that the pain management in the ED was satisfying. However, the result shows that increased administration of analgesics may not be the only reason to improve patient satisfaction and better pain management in the ED; instead, there may be other factors than the amount of analgesics affecting patients’ experiences and satisfaction on pain management. Communication between patient and personnel combined with shared decision-making on pain management may be an additional way to improve the pain management [17].

The result shows that there were patients discharged from the ED with NRS of 10 despite the nurse-initiated analgesic protocol on pain management suggesting that NRS above four should be treated. This study does not show whether patients’ pain is controlled to a degree that facilitates function and quality of life at discharge as described as a goal in pain management by the American Pain Society [18]. The study neither answers if the high NRS at discharge is caused by slow onset of analgesia if the patients received orally administered analgesics. Nevertheless, if patients’ pain is controlled to a degree that facilitates function and quality of life at discharge it has to be investigated further to deepen the knowledge on how to improve the acute pain management in the ED. Existing national and local guidelines are based on the knowledge from pain studies concerning cancer pain and patients suffering from postoperative, and not from acute musculoskeletal pain. Whether or not there is a difference has not been investigated.

Anxiety may be under-recognized and undertreated in patients presenting with pain-related complaints [19]. Cravens et al. showed that patients reporting severe anxiety were less likely to request satisfaction with the treatment of pain, despite higher rates of analgesic administration [19]. When investigating a patient’s experience of pain, it might be necessary to include questions of anxiety and not just pain in order to really understand the patients’ perspective. As suggested by Muntlin et al., patient care in an ED should be evidence-based and patient-centred; therefore, acute care of pain should be highlighted during educational efforts with nurses and physicians to ensure evidence-based pain management [20].

According to the results of this study, majority of patients (65%) were satisfied with the pain management during their stay in the ED. Studies have shown that effective pain management in ED is often associated with increased patient satisfaction [21]. On the other hand, some studies have demonstrated inconsistent findings regarding the association between pain management and patient satisfaction [6,22]. Nearly one-third of the patients in both pre- and post-intervention groups reported ‘not satisfactory’ on pain management. This result is worse than Muntlin presents, where 20%
of the patients reported that they did not receive effective pain relief in the ED [20]. There is no answer why the patients participating in this study were unsatisfied with the pain management. Dissatisfaction on pain management could be due to lack of communication between the patient and health care personnel and the lack of patient’s possibility to be involved in the decision-making process around their pain management [17]. There is a need for further studies with the intention of increasing knowledge about patients’ preferences regarding pain management within the ED context.

4.1. Limitations

There are some limitations that have to be considered in our study. The sample size could have had an impact on the results as well as the convenient enrolment of patients reduces the credibility of the results. However, the number of patients was considered to be sufficient in order to detect a change in pain management.

A single ED participating in the study reduces the potential of generalising the results to a wider context. The results may also have been affected by external factors such as the extent of overcrowding, lack of personnel, skills of new employees, and the patients’ own characteristics for example if they suffered of chronic pain before visit ED. The examples of external factors that may have affected the results, is a part of daily work in an ED, and another study design, such as using an RCT, would reduce this bias. Estimating patient’s satisfaction (an insensitive outcome-variable) on pain treatment with Yes/No may be seen as a bit simplistic, but the question requires a standpoint from the patients who respond to the question. One option would have been to use a graduated measuring scale, for example, a Likert scale to find out the degree of satisfaction. However, in order to reach a deeper understanding and explore patients’ experiences of pain management in the ED, a qualitative study design could be used. A qualitative study could have explored and reached a deeper knowledge of patients’ experiences of pain management in the ED.

5. Conclusion

Patients’ satisfaction with pain management increased, but not statistically significantly. However, both percentages of patients receiving analgesic drugs increased and pain intensity decrease at discharge were statistically significant after the intervention that made nurses obliged to register pain.

Clinical implications

According to the findings of this study, mandatory pain documentation facilitates pain management in the ED, but there is still room for improvement. Additional actions are needed to improve patients’ satisfaction on pain management in the ED. Mandatory pain documentation in combination with person-centred care could be a way of improving patients’ satisfaction on pain management. Effective pain management is an important quality measure, and should be focused on in acute care in the ED. By routinely asking patients to report the pain intensity at discharge, the ED personnel can have direct feedback about the factual pain management. RNs may also be encouraged to use intravenous analgesics in higher extent when the patients have very severe pain.

Ethical issues

The study was approved by the Medical Research Ethics Committee, Stockholm, Sweden (2010/1197-32). Written consent was obtained from all participants.

Conflict of interest

The authors have no conflicts of interest to disclose.

References