Comparison of patient and caregiver perception of pain from commonly performed accident and emergency services procedures

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Objective To compare the perception by naive patients, emergency services clinicians and nurses, of healthcare-induced pain for procedures performed frequently by accident and emergency services.

Methods A prospective, three-part anonymous survey, given to caregivers and patients at arrival accident and emergency services. The primary endpoint was the a-priori estimated pain score for 10 procedures performed frequently by accident and emergency services. The same estimation was performed with the ‘willingness-to-pay’ method (amount allocated \textit{a priori} to avoid this pain).

Results Fifty surveys were analyzed in each group, with a significant difference for pain perception between caregivers and patients concerning four procedures: local anesthesia, fracture or dislocation reduction, dressing change and abscess incision. Caregivers always overestimated pain scores compared with patients. No difference was noted for the remaining five procedures: intravenous line insertion and removal, urethral catheterization, wound suture and nasogastric intubation.

Conclusion Caregivers should be aware of the most feared procedures by patients to establish pre-emptive analgesia when possible, inform patients and achieve reassurance. 

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Introduction

Acute pain is a major complaint for patients admitted to accident and emergency services. Healthcare can generate some pain in addition to the initial pain; this is defined as healthcare-induced pain.

Few studies have been carried out on the perception and evaluation by patients or caregivers of painful procedures performed during emergency care \cite{1–3}. No study has been carried out on the fear expressed by patients of these procedures. There may be a gap between the perception of pain evaluated by the patient and caregivers; thus, identifying this gap may be of importance.

The aim of this study was to compare the representation of healthcare-induced pain by naive patients, emergency clinicians and nurses in relation to procedures commonly performed by accident and emergency services.

Methodology

Study design

This study was a survey conducted at Toulouse University Hospital accident and emergency services.

Study objectives

The primary objective was to compare the perception of healthcare-induced pain for 10 simple procedures by patients and caregivers.

Secondary objectives were to compare the relative amount of money that patients, clinicians and nurses would pay to avoid healthcare-induced pain, and to rank the procedures from the most to the least painful.

Outcomes

The primary endpoint was the a-priori estimated pain score for 10 procedures performed frequently by accident and emergency services.

Secondary endpoints were based on the willingness-to-pay method \cite{4}, that is, distributing a certain amount of money based on the willingness to avoid healthcare-induced pain for each procedure. Each of the 10 procedures studied was then rated from the most to the least painful by patients, emergency clinicians and nurses.
(1) Group 1 included accident and emergency services clinicians from the centres participating in the study.
(2) Group 2 included nurses working at the same accident and emergency services.
(3) Patients admitted to adult accident and emergency services were included in group 3. Only naive patients were included (patients who had never experienced any of the studied procedures) to avoid a bias related to personal experience.

Exclusion criteria
We did not recruit patients who had experienced any of the studied procedures, those with cognitive impairment or requiring emergent procedures, and those who refused to take part.

Participant inclusion
The study was a three-part anonymous survey administered to caregivers (each had to fill it in once) and patients. Each participant was provided oral and written information, and oral consent was requested. According to French law, written consent is not needed for an anonymous survey.

Data collection
The survey was organized in three parts:

(1) The first part focused on demographic data (age, sex, professional experience for caregivers and presence/amount of pain at arrival for patients).
(2) The second part estimated the representation of healthcare-induced pain for 10 simple procedures (intravenous line insertion, intravenous line removal, urethral catheterization, lumbar puncture, local anaesthesia, wound suture, fracture or dislocation reduction, dressing change, abscess incision and nasogastric intubation). It was reported using an 11-point numerical rating scale.
(3) The third part used the ‘willingness-to-pay’ method. This concept is based on the correlation between representation of healthcare-induced pain and the money that each patient would potentially pay to avoid this pain. For this survey, patients and caregivers were given 100 virtual Euros for all the 10 procedures (no more and no less). More Euros were to be assigned to the most feared procedures. Each participant was provided the same written and verbal instructions, repeated as many times as needed.

Ethical considerations
This study was carried out in accordance with the French Public Health Code (Articles L.1121-1 in 1126-7). It has been submitted to the Commission Nationale Informatique et Libertés (CNIL), reference 1726828VO, on 6 December 2013. Oral and written information, and oral consent were mandatory; written consent was waived.

Data analysis
To calculate the sample size, we used data from an observational preliminary study with 10 participants in each group. A total of 45 individuals in each group was calculated with a 0.05 type I error and a power of 90%. We then decided to include 50 patients in each group.

Epi-Info software (CDC, Atlanta, GA, USA) was used for statistical analysis. Descriptive statistics were reported as means with SDs, medians with interquartile ranges and proportions with exact binomial 95% confidence intervals. Categorical data were compared using a χ²-test or Fisher’s exact test when appropriate. A P value less than 0.05 was considered significant.

Results
Patient and caregiver characteristics
Between 10 December 2013 and 28 January 2014, 52 patients agreed to respond to the survey out of 112 patients assessed (46.4%). Fifty-five nurses out of 57 (96.5%) and 52 emergency clinicians out of 76 (68.4%) agreed to respond. Figure 1 shows the results for the evaluation of pain induced by the procedures on a numeric scale. There was a significant difference in pain perception between caregivers and patients for four procedures: local anaesthesia, fracture or dislocation reduction, dressing change and abscess incision. Caregivers always overestimated pain scores compared with patients.

In terms of differences in pain between the groups of caregivers, two noticeable differences were found: clinicians reported a higher estimation of lumbar puncture and nurses reported higher estimation of dressing change. Overall, no difference was noted for the remaining five procedures: intravenous line insertion and removal, urethral catheterization, wound suture and nasogastric intubation.

In terms of the procedures feared by patients and caregivers evaluated using the willingness-to-pay method, there was a significant difference between clinicians and patients in urethral catheterization, fracture or dislocation reduction, dressing change and abscess incision. No differences were found in three procedures: intravenous line removal, wound suture and nasogastric intubation.

Table 1 shows the 10 procedures, ranked from the most to the least painful, for patient, clinician and nurse groups. Fracture or dislocation reduction appeared to be the most feared for all groups, with noticeable differences in the others.

Discussion
This study, to our knowledge, is the first prospective study on a-priori perception of pain by patients of procedures frequently performed by accident and emergency services. Caregivers and patients did not share pain perception for four procedures. Caregivers always tended to overestimate patients’ fear of painful procedures. Another
study by Singer et al. [2] compared patients’ and caregivers’ pain assessments in relation to painful procedures performed in accident and emergency services. It should be noted that these assessments were performed after the procedure. Patients’ and caregivers’ evaluations were similar, but clinicians tended to overestimate the pain caused by the procedures studied. In contrast, a Canadian study by Guru and Dubinsky [3] showed an overall underestimation by caregivers (clinicians and nurses) of acute pain on arrival at accident and emergency services.

Previous studies were carried out based on the ‘willingness-to-pay’ method [4] for postoperative events [5,6], acute paediatric pain [7,8] and chronic pain [9].

It should be noted that nurses and clinicians do not share the same representation for some procedures. In relation to medical procedures (e.g., lumbar puncture), clinicians have a higher estimation of healthcare-induced pain. For paramedical procedures (e.g., intravenous line removal and dressing change), nurses have a higher estimation of healthcare-induced pain. Performing a procedure could lead to overestimation of the representation of healthcare-induced pain.

We noted some differences for pain estimation using the numerical scale and willingness-to-pay methods for ranking procedures. Representation of pain may not be the only factor to determine fear and representations of the procedure.

In 2010, the French study PALIERS highlighted the procedures considered the most painful, that is, fracture or dislocation reduction and local anaesthesia [10]. In another study, Singer et al. [2] found that the procedures considered to be the most painful were nasogastric intubation, abscess incision and fracture or dislocation reduction; these results are comparable with those obtained in our study.

Our results could help to anticipate the patients’ concerns: caregivers may inform them a priori to improve the quality of care by accident and emergency services. Implementing pre-emptive analgesia whenever possible, as recommended by many guidelines, should also help.
Nevertheless, the best way to lower healthcare-related pain may be simply to assess the need for any procedure and to systematically suggest painless alternatives.

Another ethical concern could be the need for specific treatment for feared rather than painful procedures. Some procedures are highly feared because of sociological, cultural or historical reasons. For these procedures, it could be of interest to develop protocols aimed at reducing both pain and anxiety for these patients. Anxiety should then be assessed systematically and repeatedly in all accident and emergency services.

The inferences that can be drawn from these data are limited in several respects. We excluded patients who had ever experienced one of the studied procedures to avoid a memorization bias. Consequently, more young patients were included, with no medical history; thus, our population does not necessarily reflect the general population. Finally, we have not classified the responses according to age, sex and work experience of caregivers, and also the presence of pain for patients.

Healthcare-induced pain is a frequent event in emergency medicine. Its management is an indicator of the quality of the healthcare system; it is also an ethical imperative. Caregivers should be aware of the most feared procedures by patients: fracture or dislocation reduction, lumbar puncture, nasogastric intubation and urethral catheterization to establish pre-emptive analgesia when possible, inform patients and provide reassurance. Whether clinicians can improve the quality of global care by designing analgesic strategies that more closely meet each individual patient’s fears of healthcare-induced pain deserves further study.

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Conflicts of interest
There are no conflicts of interest.

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