Painful Discrimination in the Emergency Department: Risk Factors for Underassessment of Patients' Pain by Nurses

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Background: Unrelieved acute musculoskeletal pain continues to be a reality of major clinical importance, despite advancements in pain management. Accurate pain assessment by nurses is crucial for effective pain management. Yet inaccurate pain assessment is a consistent finding worldwide in various clinical settings, including the emergency department. In this study, pain assessments between nurses and patients with acute musculoskeletal pain after extremity injury will be compared to assess discrepancies. A second aim is to identify patients at high risk for underassessment by emergency nurses.

Methods: The prospective PROTACT study included 539 adult patients who were admitted to the emergency department with musculoskeletal pain. Data on pain assessment and characteristics of patients including demographics, pain, and injury, psychosocial, and clinical factors were collected using questionnaires and hospital registry.

Results: Nurses significantly underestimated patients' pain with a mean difference of 2.4 and a 95% confidence interval of 2.2-2.6 on an 11-points numerical rating scale. Agreement between nurses' documented and patients' self-reported pain was only 27%, and 63% of the pain was underassessed. Pain was particularly underassessed in women, in persons with a lower educational level, in patients who used prehospital analgesics, in smokers, in patients with injury to the lower extremities, in anxious patients, and in patients with a lower urgency level.

Conclusion: Underassessment of pain by emergency nurses is still a major problem and might result in undertreatment of pain if the emergency nurses rely on their assessment to provide further pain treatment. Strategies that focus on awareness among nurses of which patients are at high risk of underassessment of pain are needed.

Key words: Emergency department; Acute pain assessment; Discrepancies, underassessment; Risk factors

Pain is a multidimensional phenomenon in which pain experience of patients is determined by the interactions of physical, psychological, cultural, and sociodemographic factors.[1] Patients vary markedly in the intensity of their pain in response to an identical procedure, injury, or noxious condition. Because of the subjective nature of pain, it can be very difficult to quantify patients' pain. A clinically objective measurement for the experience of pain is not available. Therefore, the assessment of this inherently subjective symptom relies on patients' self-report. Underassessment of pain may occur when clinicians, such as emergency nurses, attempt to calculate the severity of patients' pain experiences, thereby placing patients at risk of inadequate pain relief.[2,3]

Although pain is the most prevalent chief complaint for patients visiting the emergency department,[4–6] undertreatment of acute pain appears worldwide, which is reflected by the high prevalence of moderate to severe

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pain at discharge and the low percentage of patients receiving analgesics. The proportion of adults receiving analgesics varies between 19% and 64%.[4,7–11] Moreover, the percentage of patients discharged with moderate to severe pain ranges from 52% to 74%.[4,6,8,11]

Accurate assessment of pain is a crucial step in providing effective pain management. Discrepancies between patients' and clinicians' assessment are identified as the most powerful predictor of poor pain management.[12,13] The consequences of inaccurate assessment are substantial. Underassessment of pain can lead to inadequate pain management, unnecessary suffering, and delay in recovery, while overassessment of pain can lead to overtreatment and potentially to iatrogenic disease.[14] Major underestimations in pain assessment are noted in patients with musculoskeletal pain, where the discrepancy in assessment of pain between patients and clinicians is considerable.[2,3,15] As a result, insufficient pain relief occurs frequently in these patients.[4,16–18]

Given the multidimensional nature of pain and the complexity of pain assessment, it is likely that different clinician, patient, and environmental characteristics are involved in accurate pain assessment.[14] In several studies it was found that experienced clinicians have a tendency to underestimate patients' pain. However, a study that investigated the agreement of pain assessment between patients and emergency nurses revealed that characteristics such as the nurse's sex, age, ED experience, nursing grade, and previous attendance to pain management courses were not associated with inaccurate pain assessment.[2]

Patients' behavior and characteristics may have an influence on the assessment. However, except for some demographic characteristics such as age and sex, not much is known about which individual injury factors play a role. Therefore, our goal is to identify patients for whom pain is likely to be underassessed by emergency nurses. Identifying risk factors for underassessment of pain might reduce pain rating discrepancies, optimize pain management, and as a result reduce unnecessary suffering and improve recovery and patient outcome.

Methods

STUDY DESIGN AND SETTING

This study is part of a prospective follow-up study; the "PROgnostic factors for the Transition from Acute to Chronic pain in Trauma patients" (PROTACT). The PROTACT study includes adult patients with isolated musculoskeletal extremity injury who attended the emergency department of Medisch Spectrum Twente in Enschede, The Netherlands. This 24/7 emergency service is accessible for 264,000 persons in the Twente region and treats approximately 27,000 patients annually. This study was approved by the regional Medical Research Ethics Committee on Research Involving Human Subjects (CCMO No. NL368.38044.11). Written informed consent was obtained from each participant.

STUDY POPULATION

Eligible patients aged 18 to 69 years were consecutively recruited in the study when admitted to the emergency department during a 22-month period from September 2011 until July 2013. Inclusion criteria for participation were (1) musculoskeletal isolated extremity injury caused by blunt trauma and (2) sufficient communication skills and a basic knowledge of the Dutch language. Exclusion criteria were (1) life- or limb-threatening conditions; (2) documented cognitive disability; (3) suffering from hallucinations, delusions, or suicidal ideation; and (4) alcohol or drug intoxication. For the purpose of this study, patients who did not fill in the questionnaires at ED admission and 6 weeks follow-up were excluded.

PROCEDURES AND DATA MANAGEMENT

Patients admitted to the emergency department who met the study criteria were informed by a (triage) nurse about the purpose of the study. Participants were asked to provide informed consent and to complete a questionnaire. Six weeks after the initial ED visit, patients received a follow-up questionnaire by (E)mail, according to their stated preference. The questionnaires consisted of validated questionnaires that are frequently used in pain research (described later). Furthermore, questions about sociodemography, lifestyle, injury, and treatment were included. Additional data from the ED electronic patient registration system were used. The registry is a fully electronic emergency medical record registry in which each entry, order, or activity is automatically time stamped for prespecified ED events. The registry includes patient demographics (date of birth, sex), triage urgency level, nurses pain score, and medical diagnoses—for example, injury type and location. If patients arrived by ambulance, additional data regarding the use and type of analgesic pain management were retrieved from the registry of the regional ambulance services.

The following validated questionnaires were used.

Pain Intensity

Pain intensity at ED admission was measured using a Numerical Rating Scale (NRS). Patients were asked to fill in a number from 0 to 10 to represent their pain intensity, where 0 is "no pain" and 10 "the worst pain imaginable." The NRS was validated for use in the emergency

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