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Editorial comment

Opioids in emergency medicine – Are we treating pain adequately?

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Pain is considered to be the most common cause of distress of patients seeking care in the emergency departments [1]. This brings a lot of pressure on the emergency personnel in their efforts to manage acute pain adequately and proficiently, even in the prehospital setting. Due to a large variation between both the patients and the conditions, the optimal pain management in these varying situations is quite challenging. Pain management is complicated by the lack of information which would be necessary for the individual treatment of pain. Pain experiences also vary because of differences in age, gender, clinical situation and context, previous experiences, present expectations and a host of other psychological and physiological conditions. Personal characteristics and emotional reactions also play a major role in the way an individual reacts to pain on these occasions, which often occur abruptly and unexpectedly. Thus, perceived pain is not always proportional to the intensity of the tissue damage or the undesirable stimulus. In order to further develop pain management in the field of emergency medicine, there is obviously a need for systematic reviews in this area.

In the current issue of the Scandinavian Journal of Pain Niemi-Murola et al. present a systematic review of the efficacy and safety of parenteral opioids used in the emergency medicine [2]. This qualitative review neatly collects the relevant literature documenting the number of studies in this area and describes the incidence of opioid-related adverse drug reactions. The main outcome measures of this qualitative review of randomized controlled trials on parenteral opioids for acute pain treatment in adult emergency patients were the type and dose of opioids, analgesic efficacy and adverse effects. Twenty double-blind randomized controlled trials with results from 2322 patients were finally included in the current systematic review. The majority of the studies included were performed in the emergency department. Only five of them were carried out in the prehospital setting. However, the studies that took place outside the hospital are the most interesting ones, since they are scarce. The main part of the studies dealt with acute abdominal pain. In four out of five studies on abdominal pain the opioid administered did not change diagnostic, clinical or radiological accuracy, which once again supports the early use of opioid analgesics also in this patient group. All opioids studied showed analgesic effect comparable to morphine. The most commonly used morphine dose in the emergency departments was 0.1 mg/kg. Reports on opioid adverse effects were very variable, the incidence of adverse effects being 5–38% in the prehospital setting and 4–46% in the emergency departments, respectively. Nausea or vomiting was reported in 11–25% of patients given opioids. Nausea and vomiting may limit the effective dosage since they have a negative impact on treatment efficacy and successful patient management. Only one patient out of 1266 (0.08%) was given naloxone for drowsiness. Ventilatory depression occurred in seven out of 756 (0.9%) patients.

It is a well-known fact that there are several obstacles prohibiting adequate pain treatment in the area of emergency medicine. Nevertheless, these obstacles, for instance the fear of adverse effects, inadequate education and training, time demands, lack of institutional commitment, lack of patient–physician continuity, diagnostic uncertainty, are common to all medical specialities. Most of our patients with acute or chronic pain can be treated with opioids without too high a risk for ventilatory depression. Nevertheless, health care professionals are taught early in their training to fear the adverse effects of opioids, especially the potentially fatal ventilatory depression. In selected cases these concerns are surely justifiable. However, the fear of ventilatory depression may also hamper sufficient pain treatment. Most likely the patients with the most complicated diseases and conditions have also the greatest risk of being left untreated. Since elderly patients may have an increased potential for drug–drug interactions and adverse effects of pain medication in all, they constitute an even more challenging population [3]. According to the current review, ventilatory depression is very unlikely, suggesting that the use of opioids is relatively safe in emergency medicine, if appropriate titration regimens are used. The incidence of opioid related ventilatory depression seemed low, although it could not be reliably estimated, due to the small number of patients, methodological problems and variable reporting in the original studies. Ventilatory depression, although defined with variable criteria, occurred in 7 out of 756 cases (0.9%) and only one patient out of these 1266 emergency department patients was administered naloxone for drowsiness. The safety of opioid administration is supported by a recent study on prehospital patients. None of the patients needed an opioid antagonist or presented a ventilatory rate below 10/min

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[4]. However realistic or even exaggerated, the fear of ventilatory depression still represents a major obstacle to the most effective use of opioids. As with all pain medication, there is always a walk on a tight rope between effective pain treatment and adverse effects. It is essential that the initial dose is high enough to provide an adequate analgesic response, yet safe enough to avoid ventilatory depression.

Another obstacle to effective and timely pain treatment in the emergency medicine is the fear of delay in the diagnosis because of masking the symptoms. This concerns especially the patients with acute abdominal pain, even though we have had since as early as the 90s well-designed emergency medicine studies on the issue [5]. A recent Cochrane review from this year concluded that the use of analgesia for acute abdominal pain does not mask clinical findings, nor does it delay the diagnosis [6]. The Cochrane review and the review by Niemi-Murola et al. both support the early use of opioids in abdominal pain patients presenting for emergency departments [2,6]. Actually there should not be any obstacles hindering proper pain medication of the patients suffering from acute abdominal pain any longer, but changes in attitudes may be quite slow.

Without consistent and objective measuring and reporting of pain it is impossible to evaluate the success of pain management. Appropriate documentation of pain is a necessary step in the right direction. In a recent retrospective study of trauma patients, a systematic pain assessment with Numerical Rating Scale (NRS) was conducted in only one-third of the patients in pain [7]. This emphasizes the need of validated appropriate pain measurement protocols. When trying to detect the reasons for inadequate pain management, one easily identifiable characteristic of a patient's poor response to acute pain medication is a high initial pain score. This has been shown to predict poor response at least in the prehospital setting [4]. However, the measurement of pain in emergencies is not always unequivocal. The accuracy in the assessment of pain severity may affect the physicians' willingness to administer analgesics. Healthcare workers tend to underestimate the pain level experienced by patients. Underestimation of pain has been confirmed in several studies comparing patients' pain scale values with those of the health care professionals. The results have been similar both for NRS and Visual Analogues Scales (VAS). It appears that nurses tend to underestimate the pain level experienced by patients even more than physicians do [8]. In order to accurately estimate the level of pain we must critically estimate the tools used for measuring pain in varying situations, since the underestimation of patients' pain may also be due to the limitations of the assessment tools. It has recently been shown that the widely used VAS appears to be an unreliable pain scale for perioperative use in elderly hip fracture patients. On the other hand, in patients with a lower limb trauma VAS, Verbal Rating Scale (VRS), Red Wedge Scale (RWS) and NRS all provided excellent applicability. VRS and RWS were easy to understand, being the most useful scales. These results suggested that VAS, the gold standard, is not an ideal tool for pain measurement in the elderly [9].

In the emergency setting, where the medical therapy is administered by the ambulance personnel or paramedics, education, training and regimens for the titration of the analgesic dose are necessary. In a previous study, 60% of the patients arriving at the emergency department experienced pain as the most acute symptom, but only 34% of them had received some kind of analgesic before arriving at the emergency department [10]. Before arriving at the hospital the first aid personnel does not always have access to the patient records for information on the patient's medication and previous medical history. With modern information technology, electronic patient records and databases should be available online in the prehospital setting already. Incorrect doses or potentially hazardous drug–drug interactions might be detected. The information technology should improve patient safety and allow clinicians to focus on patient care and data interpretation, rather than a time-consuming search for information.

There are obviously many things which must be accomplished before we can be satisfied with the management of pain in emergency departments and in the prehospital setting. In addition to the development of different pain management protocols and guidelines, we must invest time in continuous training of the emergency personnel. We must also institute quality assurance systems to be able to measure how well we are doing. This is the only way to improve pain management. With modern online patient records, the documentation of pain is as important as the documentation of other vital signs. The systematic review by Dr. Niemi-Murola and her co-workers explains the current use of opioids in emergency medicine [2]. Hopefully it will serve as a trigger for future studies and development of pain management protocols in this challenging area.

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