Improving Pain Management in the Emergency Department

David E. Fosnocht, M.D. and Eric R. Swanson, M.D.

Abstract

The University of Utah has established a program to improve pain management in the emergency department. Initial work revealed that only 45% of patients presenting with pain receive pain medication in the emergency department. In addition, actual time to delivery of pain medication fell far short of patient expectation for time to delivery of pain medication (78 minutes vs. 23 minutes). Institution of a triage pain protocol has decreased the time to pain medication delivery from 78 minutes to 39 minutes and increased the number of patients receiving pain medication from 45% to 75%. The development of an interactive pain registry is planned in order to establish and test evidence-based standards for the treatment of pain in the acute care setting of the emergency department.

Pain is the most common chief complaint for patients in the emergency department (ED), with 70% of ambulatory patients presenting with pain (Ducharme, 1994; Johnston, Gagnon et al. 1998). Inadequate treatment of pain in the ED is common and has been well documented (Wilson and Pendleton, 1989; Ducharme and Barber, 1995; Jones, 1999). The reasons often cited for this lack of pain management in the ED have included inadequate research and a subsequent limitation of options for practicing emergency physicians (Bonica, 1987). Individual emergency physicians and nurses as well as the American College of Emergency Physicians have advocated additional research in the area of pain management for acute injury and illness (Cordell, 1996; Ducharme, 1996; Terndrup, 1996).

Results

The University of Utah has recently established a program to improve pain management in the ED and lead national research in this area. A quality assurance ED pain survey was initiated in 1999 to assess current pain management practices in the ED and define patient expectations for pain management in the ED. In a review of 458 patients presenting to the to the University of Utah ED in 1999, it was found that only 45% of patients presenting with pain received pain medication in the ED (Fosnocht, Swanson, et al., 2001). This was similar to other sites nationwide (Wilson and Pendleton, 1989; Lewis, Lasater, et al., 1994; Beel, Mitchiner, et al., 2000). The actual time to delivery of pain medication at the University of Utah was a mean of 78 minutes (95% confidence interval (CI) 70-87) after arrival in the ED (time the patient first checks in at the desk or is brought into the ED by ambulance) while patient expectations for time to delivery of pain medication was a mean of 23 minutes (95% CI 20-25) (Fosnocht, Swanson, et al., 2001). Patient satisfaction was a mean of 83 mm (95% CI 80-85) when patient needs for pain relief were met compared to 51 mm (95% CI 44-58) when patient needs for pain relief were not met (Fosnocht, Swanson, et al., 2001). Assessment of an additional 522 ED patients in 2000 found that patients expect a mean of 72% reduction in pain and a relatively large number of ED patients (18%) expect complete relief of pain. All pain assessment and measurement of pain relief was performed using a previously validated 100-millimeter (mm) visual analog scales (VAS) (Huskisson, 1983; Wallenstein, 1984). These expectations have been found to be consistent in both Hispanic and Non-Hispanic White patients (Lee, Burelbach, et al., 2001).

The first step to improving pain management in the ED at the University of Utah has been the establishment of pain protocols implemented at triage by nursing staff. All patients presenting to the ED with extremity or back pain are asked to mark
a 100 mm pain VAS at triage. Those with mild pain (VAS 1-33 mm) receive ibuprofen 600 milligrams (mg), moderate pain (VAS 34-66 mm) receive ibuprofen 600 mg and acetaminophen 650 mg/hydrocodone 10 mg, and those with severe pain (VAS > 66) receive either acetaminophen 650 mg/hydrocodone 10 mg or IV morphine titrated to pain relief. These medications may be administered at triage or at the time of placement into a treatment room prior to physician evaluation. Protocol driven pain management for patients presenting with extremity injury and back pain has resulted in substantial improvement in time to delivery of pain medication and the number of patients receiving pain medication. Mean time to delivery of pain medication has improved from 78 to 39 minutes, and the percentage of patients receiving pain medication has improved from 45% to 75%. Compliance with the triage protocol is high and 80% of all eligible patients are enrolled.

Future Directions

The next step in improving ED pain management is the expansion of the current ED pain survey to encompass an interactive pain registry (IPR). The IPR system will continuously build a pain database, process the data upon request to yield clinical and scientifically useful information in a just-in-time fashion, and foster the translation of that information into clinical and scientific knowledge about pain. A major focus of the initial data collection will be to establish and test evidence-based standards for the treatment of pain in the acute care setting of the ED. The interactive pain registry will attempt to improve pain management in the ED on several fronts. The first step will be the definition of the basic elements of pain assessment. This seemingly fundamental step in research design is lacking in consensus within the ED research community. The second step in the IPR will be the development of a hardware/software system to allow integration of pain assessment and pain management data into electronic medical records systems. A critical third step in the IPR will be the programming of an automated system to allow follow-up of pain management protocols that are started in the ED. At the present time there are few studies in the emergency medicine literature that address the efficacy of ED pain management following discharge from the ED.

Through the development of the interactive pain registry, the University of Utah hopes to answer a national call to develop patient oriented pain management outcome measures (Todd, 2001).

References


About the Authors

David Fosnocht and Eric Swanson are assistant professors and attending physicians in the University of Utah Emergency Department. Questions and comments should be directed to (801) 581-2730 or davefosnocht@home.com.

Utah's Health: An Annual Review Volume VIII