Correlation between pain relief and patient satisfaction

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Pain is one of the most common complaints in patients referred to the emergency departments (ED). Accurate assessment of pain intensity, which is a necessary prerequisite to rational choice of analgesics, represents a clinically challenging proposition.[1] Inadequate pain management is frequently seen in the ED's. Lack of adequate pain relief remains a major challenge for health care providers. Patient satisfaction is influenced by multiple factors, and it is defined as a personal evaluation of treatment effectiveness, healthcare services and providers, which is subjective. It is important to mention that patient satisfaction at its most basic level does not necessarily reflect what really happened, but rather the patient's expectations and perceptions of his or her experience from provider, and treatment performance.[2] The objective of this study is to measure the correlation between pain relief and patients satisfaction at discharge and 7 days later, in which data were gathered through telephone interview.

A prospective, observational study of patients with pain who presented to the ED of Hazrat Rasool Akram Hospital, Tehran, Iran from July 2005 to December 2005 was performed. This ED admits approximately 40,000 patients per year. A consecutive sample of patients presenting with an acute or recent (<3 months) painful injury was included in this study. Exclusion criteria were: patients younger than 18 years of age, and any patient with severe, multiple trauma designated to receive special trauma team care, any patient with altered level of consciousness or psychiatric disorder, and refusal to participate. As survey tool, we utilized the visual analog scale (VAS) 2, both at the admission and discharge time from the ED. In addition, patients were asked how they were satisfied on their pain relief in the ED on a 5 point Likert scale.[3] Patients did not have access to their previously marked pain VAS. At the time of discharge, researchers asked the patients if their pain was relieved or not (on a 5 point Likert scale). Responses available on Likert scale were designated as follows: 1 - poor, 2 - fair, 3 - good, 4 - very good, 5 - excellent. For analysis, satisfaction scores were converted to a binary score (1,2 - unsatisfied), and (3,4,5 - satisfied). Trained research associates who administered the survey recorded additional information on the patient's chief complaint, age, gender, and the time from coming to the ED to receiving pain medication (waiting time) on the questionnaire. Patients who agreed for a telephone interview were called 7 days later, if they were satisfied with the care given in the ED, or not. The study was approved by the Ethics Committee of the Faculty of Medicine of the hospital.

The results include descriptive statistics, and analysis of differences between means was calculated utilizing the Mann-Whitney method for nonparametric data, and categorical variables were analyzed with Chi square test. A *p*-value of less than 0.05 was considered significant. Statistical analysis was performed using SPSS version 15 for Windows.

During the study period, 800 patients were admitted to the ED, and 641 of these patients (80.2%) complained of acute pain. Out of these, 405 patients had completed the data, and fulfilled the inclusion criteria accurately. Ninety-eight patients (24%) received pain medication with actual waiting time of 24.9 ± 3.9 minutes (95% CI: 17.1-32.6), and 307 patients did not receive any drug. The patients who did or did not receive pain medication were compared regarding pain intensity at the time of presentation and at discharge, and satisfaction at discharge and 7 days later (**Table 1**). A total of 50.4% of patients reported that their pain was not relieved in the ED. The mean decrease in pain intensity between the time of admission and discharge for patients who did have pain relief was 46.2 mm, or did not have pain relief was 0.8 mm.

In our study, only 24% of patients received pain medication with a waiting time of 24.9 ± 3.9 minutes compared to another study, in which 45% of patients

Table 1 - Comparison between patients receiving (Group I), and not receiving pain medication (Group II).

Variables	Group I	Group II	*P*-value
Mean age, years	39.5 ± 1.6	35.2 ± 0.9	NS*
Male, percent	52.0	60.2	NS*
Pain intensity at time of admission (VAS) mm, mean ± SD	75.5 ± 2.1	41.7 ± 1.5	<0.001*
Change in pain intensity between admission and discharge (VAS) mm, mean ± SD	52.1 ± 2.8	19.9 ± 1.0	<0.001*
Pain intensity at time of discharge (VAS) mm, mean ± SD	23.5 ± 2.0	23.5 ± 0.1	NS*
Patients who had their needs for pain relief met, %	33.6	55.7	<0.001*
Percentage satisfaction (good to excellent) at the time of discharge, %	67.4	65.2	NS†
Percentage satisfaction (good to excellent) 7 days later on telephone interview, %	81.3	62.8	<0.001†

SD - standard deviation, VAS - visual analog scale, *Mann-Whitney test, †Chi square test, NS - non significant

received pain medication with a waiting time of 78 minutes.[4] The mean decrease in pain intensity between the time of admission and discharge for patients whose need for pain relief was met were significantly different (46.2 mm versus 0.8 mm). These finding are in contrast with Fosnocht findings (22 mm versus 22 mm).[4] In our study, 50.4% of patients had their needs for pain relief met in the ED, compared to a previous study that was 70%.[4] In addition, patients whose pain was not relieved had a significantly higher mean pain intensity at the time of admission to the ED, than patients whose pain was relieved (70.6 mm versus 49 mm), and a significant decrease in pain intensity at time of discharge in the 2 groups (24 mm versus 48.8 mm). This suggests that patients with more severe pain had been considered more for receiving pain medication, and had larger decrease in pain intensity, than patients with less severe painful illnesses. In our study, patients whose pain was relieved and those who received pain medication were not more satisfied with their ED care at the time of discharge. The delivery of pain medication or pain relief may not be used as a single measure to assess the adequacy of pain treatment and patient satisfaction. Factors other than the delivery of pain medication influence patient satisfaction. Similar to our findings, a previous study by Kelly[5] had shown that patient satisfaction does not correlate with changes in VAS score. This contradicts Fosnocht findings, which reported significant satisfaction in patients with pain relief.[4]

On telephone interview 7 days later, patients with pain relief were more satisfied than the others ($p<0.001$). This suggests that pain relief is one of the determinants of patient satisfaction 7 days later after discharge.

There are several limitations to this study. It was carried out only in one center, and accomplishing it in a multicenter ED would have more valuable results. The other one is the broad range of painful injuries or illnesses (including abdominal pain, or traumatic extremity pain), which influence pain management as carried out by health care providers, and patients expectation and satisfaction with care. This study overcomes some limitations of previous studies such as, enrolling all patients with acute or recent pain, and evaluation of patients' satisfaction 7 days later.

In conclusion, our findings showed acute pain is frequently under treated in the ED's. Meeting patients' need for pain relief influences their satisfaction. The ED improvement efforts must focus on pain management along with other factors such as, quality of care and patient communication. Further investigation of the factors that influence patient satisfaction is suggested.

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