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Pain Management and Its Related Factors in the Emergency Department of Besat Hospital in Sanadaj, 2016

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ABSTRACT

Background: A feeling horrible pain and discomfort as a result of stimulation of nerve endings and in particular create one of the most common reasons patients visit emergency departments (EDs). Pain can cause physiological changes such as increased heart rate and breathing, will be hypertension. That if not controlled, various effects on the lives and the different body systems, including the cardiovascular system, respiratory, creates. The aim of medical science to achieve and maintain health and at the same time reduce the suffering and the suffering of the disease. **Methods:** This cross-sectional study was performed on patients who referring to the ED of the hospital of Sanandaj with complain of pain as one of their compliance. Before and after the injection analgesia pain intensity is evaluated by a 10-point scoring system. Also, patients with pain and final diagnosis come in the form of a pre-designed questionnaire. Data were analyzed by SPSS20 software. **Results:** The majority of people have been admitted to the emergency caused by trauma with 54.3% and 57% of men and 43% women. The mean time to get analgesia in these patients was 26.4 minutes. There was no significant correlation between pain intensity and pain relief with age. There was no significant relationship between pain and sex. Also, reduces pain and relief pain to get analgesia in the patient's admission was significant. Apotel was the most analgesia agent that used in the ED. **Conclusion:** The study of proper pain may be more appropriate interventions to control pain and improve the quality of life.

INTRODUCTION

Pain is a distressing feeling as well as a discomfort which triggers as the result of a special stimulation of nerve endings, and it is also considered as one of the most common reasons for patient referrals to emergency departments (ED) (1,2). In this regard, more than a third of patients referring to the ED and 25% of those admitted to such departments affiliated with teaching hospitals are making complaints of moderate to severe pains (3,4). Constant pains affecting health status due to serious injuries, diseases, and other conditions also require healthcare services (5). In addition, to creating an unpleasant feeling, pain can similarly cause physiological changes such as increased heartbeat, breathing, excessive sweating, skin rash, low oxygen saturation level, pupil dilation, restlessness, and hypertension (6). Likewise, such changes can result in numerous complications in life and influence various body systems including cardiovascular, respiratory, gastrointestinal, and immune systems that in uncontrolled cases lead to uneasiness, loss of appetite, incontinence, anxiety, insomnia, eating disorders, hypoxia, metabolic changes, nocturnal panic attacks, delayed recovery, prolonged hospitalization, exacerbated diseases, and even death (7,8). Studies indicated that 87% of patients admitted to the ED had experienced moderate to severe pains (9).

These investigations have also demonstrated that most of the first experiences with hospitals among patients were associated with ED. Since patients are in dire need of emergency care and treatment, understating their expectations in the emergency departments are of utmost importance to provide necessary and favorable healthcare services (10). Moreover, there are obstacles and difficulties in terms of pain measurement and control including 1) insufficient knowledge and skills among personnel on how to assess and control pains, 2) unsuccessful management, 3) cultural prejudices and values, 4) lack of standard tools for pain measurement and 5) unwillingness to provide reports on pains among patients (11).

The 10-point Numeric Rating Scale (NRS) for pain assessment is a most common tool that used in the EDs. Such

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a rating scale reflects as well patient satisfaction with treatments. Given all its shortcomings, NRS is still the most accurate tool for pain measurement in which treatment should be conducted based on a 50% reduction in pain score or making it reach the third titration, not based on the maximum dose of analgesics consumption. Although the diagnosis is a priority considering the treatment of severe pains, it should not prevent symptomatic treatment of pain (12). Since medical science is to achieve health and maintain it, and also ease sufferings and pains, reducing pains among patients is taken into account as one of the most important issues. Therefore, the purpose of this study was to investigate the amount of sufficient pain management among patients referring to the ED of Besat Hospital in Sanandaj, Iran.

METHODS

This study was of descriptive-analytical research type in which the study population included all the patients admitted to the ED with chief complaint of pain as one of their complaints. The inclusion criteria were comprised of severe pain intensity higher than 3, age over 15 years and specific causes of pain with physical origins. Using the results of the study conducted by Todd *et al.* (mean=8, SD=2 for pain) and taking the 95% confidence interval and the absolute accuracy of 0.3 for pain into account, the sample size using the relation $n=(ZS/d)^2$ was calculated to equal to 175 individuals. It should be noted that before and after analgesics injection, pain intensity was assessed by a 10-point scoring system. Also, demographic characteristics of patients along with causes of pain and final diagnosis were entered into a pre-designed questionnaire. For each patient using various analgesia and admitted to the ED, the pain was measured at different time (15, 30, 60, 90, and 120 minutes) and then evaluated after receiving analgesic drugs and classified according to various age groups. The data collected were entered into the SPSS V.20 Software and then analyzed. In this respect, concentration and dispersion indices related to pain were estimated in general and regarding the independent variables with their 95% confidence intervals. To examine the research hypotheses, non-parametric tests including Mann-Whitney test and Kruskal-Wallis test were used. The P=0.05 was set as the significance level.

RESULTS

In this study, 65.7% of individuals referring to the ED were male and 34.3% were female. Also, 72.6% of patients were city-dwellers. Regarding education level, most of the patients (31.5%) were academic degrees, and 5.2% of these individuals had junior high school education (Table 1).

The most common analgesic agents received by patients referring to the ED were Apotel (58.3%) and Pethidine (18.3%), respectively. Moreover, most of the individuals had referred to the ED due to Trauma (76.6%) with an average initial pain equal to 8 and also due to abdominal pain (12.6%) with a mean initial pain score of 8 (Table 1).

The mean scores of age and weight in this study were 37.7±18.6 years and 67.1 ±14.3 kg. Furthermore, the mean time of between referral and administration of analgesia among these patients was 26.4 minutes (Table 2).

The results of this study showed no significant correlation between pain intensity in patients, administration of

Table 1. Frequency of some demographic variables and analgesic medications among patients

Variable	Frequency	
	Number	Percent
Sex		
Male	115	65.7
Female	60	34.3
Place of residence		
Urban	127	72.6
Rural	48	27.4
Level of education		
Illiterate	45	25.8
Primary school	14	8
Junior high school	9	5.2
High school	52	29.7
Academic	55	31.5
Medications		
Apotel	102	58.3
Apotel & Phentanyl	3	1.7
Ketorolac	2	1.2
Morphine	8	4.6
Pethidine	32	18.3
Fentanyl	26	14.8
Causes of refer		
Fentanyl & Morphine	2	1.2
Abdominal pain	22	12.6
Trauma	134	76.6
Other	19	10.8

Table 2. Mean scores for age, weight, and time distance between referral and administration of analgesics

Variable	Mean (SD)	Minimum	Maximum
Age	37.3 (18.6)	15	95
Weight	67.1 (14.3)	6	88
Time distance between referral time and analgesics administration	12.02 (26.4)	4	73

Table 3. Relationship between pain intensity, age, and administration of analgesics (Spearman's correlation)

	Correlation	P value
Time of analgesics administration	–0.077	309.0
Age	0.082	0275

analgesia, and age (P>0.05, Table 3). However, there was a statistically significant relationship between pain intensity, sex, and the type of analgesics received (P<0.05, Table 4).

The findings of this study also revealed that reduction of pain was not significantly correlated with age, sex, referral time, and administration of analgesia on patients (P> 0.05, Tables 5 and 6). Those individuals who had received analgesic drugs at the time distance of 0-15 minutes (80%) were highly satisfied with their treatments.

Moreover, the patients receiving the analgesic drug at the time distance of 15-30 minutes (90%), 30-45 minutes (96.3%), and 45-60 minutes (92%) were to a great extent satisfied with their treatments.

Also, about 70% of these patients receiving analgesics at the time distance of 60 minutes were to a large degree satisfied with their treatments (Figure 1).

DISCUSSION

Pain is one of the common clinical problems since patient reactions to the pain depend on numerous factors whose unsuccessful management can lead to patient dissatisfaction with treatments (13). It can also be stated that the most frequent complaints made by patients referring to EDs are pains, but no appropriate management measures are taken to reduce pain in most EDs despite patients' expectations (14). Given that the purpose of medicine is to relieve sufferings and pains among patients, an investigation into the adequacy of pain management and related factors among patients as one of the crucial issues in this respect is of utmost importance.

For example; in a prospective study by Dale and Peter, the mean age of patients was 58 years, and 52% of patients were female. In this study, 77% of patients admitted to the ED had been questioned about the adequacy of pain relief. The most common pain complaints were related to abdominal pain, chest pain, breathing problems, mental disorders, and infection. As well, 58% of patients had reports of pain and 66% suffered from the severe type. The mean pain score among patients in the ED was equal to 9.4, and no significant difference was reported between the pain scores for patients treated and those untreated. In patients with moderate and severe pains, 14% had also been treated with analgesics. No significant difference was similarly observed between age, sex, and type of analgesics received (14). In another study, Todd *et al.* examined 2841 patients; out of them, 994 patients (35%) had mild or no pain, and their pain intensity score was lower than 4. The score range for pain was from 4 to 10, and the mean score for pain was 8. The majority of patients (56%) were female, and the mean age was 34.5 years. Approximately 32% of the pain complaints were associated with injuries and trauma and other common diagnoses of back and neck pain, abdominal pain, headache, and upper respiratory tract infection. Also, 34% of patients had not experienced changes in their pain intensity during hospitalization in the ED, and 7% of such patients had got through increased pain intensity, and 29% of patients with moderate pain intensity had been discharged. Moreover, 70% of patients affected with moderate to severe pains had received analgesics and other analgesics agent included opioids (59%), morphine (20%), and ibuprofen (17%), respectively (15). Furthermore, 62.2% of patients in the study by Rahimian *et al.* were female, and the majority of cases were in the age group of 25-54 years old. Patients with a score of 1 and 2 were placed in the group with mild pains and those individuals who had scored 3-6 were placed in the group with moderate pains. Also, patients receiving scores of 7-10 were

Table 4. Relationship between pain intensity, sex, and type of analgesics received (Mann-Whitney test)

		Total rating	P value
Sex			
Male	115	10767	380.0
Female	60	4632	
Type of analgesics			
Apotel	102	7716	<001.0
Apotel & Phentanyl	3	372	
Ketorolac	2	186.5	
Morphine	8	965.5	
Pethidine	32	2445.5	
Fentanyl	26	3432	
Phentanyl & Morphine	2	282	

Table 5. Relationship between reduction of pain (palliation) and age (Spearman's correlation)

	Correlation	P value
Age	–0.041	582.0
Time distance between referral and analgesics administration	–041.0	582.0

Table 6. Relationship between reduction of pain and sex (Mann-Whitney test)

		Total rating	P value
Male	115	9763	177.0
Female	60	5637	

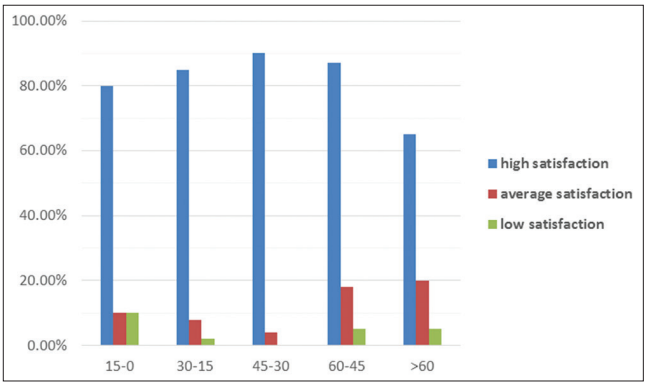

Figure 1. Level of satisfaction with treatment in terms of time distance between referral time to ED and administration of analgesics

placed in the group with severe pains. The average pain intensity was higher than 79.4%, and also the percentage of no pain control was higher than of pain control (P=0.001) (16).

The findings of the present study showed that the mean score for initial pain in patients admitted to the ED was equal to 7 and the most of the patients had referred to the ED due to trauma (76.6%) and then abdominal pain (12.6%). In the study by Downey *et al.* (17), 36% of cases had complaints about abdominal pains, 23% of the patients suffered from chest pain, and 16% of them had pains in their other body organs. Moreover, the mean age and weight of patients examined in this study were 37.7 years and 67.1 kg. In the investigation by Downey *et al.* (17), all the patients had received medications as they had been admitted to the hospital. The most frequent individuals referring to hospitals in this study were those with various occupations (39%) and self-employed individuals (33.2), respectively. The least frequent number of individuals in this respect were workers.

According to the results of this study, no statistically significant relationship was found between pain intensity, reduction of pain, and patient's age that was consistent with the findings of other studies (2,14,17,18). Nevertheless, pain intensity was significantly correlated with sex, while there was no significant relationship between sex and reduction of pain. In general, the review of the related literature showed that the relationship between pain intensity, patients' age, and sex was significantly different in some other studies (15,19,20). Regarding explaining the relationship between sex and the amount of pain felt, it was also argued that the differences between females and males in this context were caused by physiological differences in pain perception in both sexs. These factors can have direct or indirect effects. For example, the distribution of body fat in women is higher than that in men, and thus such a difference may influence the effectiveness of analgesic medications and their metabolism in the body (21,22). Furthermore, differences in immune-related responses among men and women as one of the other factors could cause differences in their reactions to inflammations and nerve pains (23,24). Other differences can also be found in terms of hormones such as estrogen, progesterone, and androgen which regulate the nervous system and affect its activity (25,26). Even changes in blood pressure in men and women can also lead to differences in pain responses (27). In terms of the relationship between age and amount of pain perception, older adults have fewer complaints of severe pains. To justify this issue, it is argued that aging reduces abstract thinking power and pain perception in such individuals (28).

Our results suggested that pain intensity and pain relief in patients were not correlated with time distance between referral and administration of analgesics and such a difference was not statistically significant. Furthermore, the most frequent analgesics received among patients referring to the ED in our study were Apotel (58.3%) and Pethidine (18.3%), respectively. Also, our results suggested a significant difference between pain intensity and type of analgesics administered. It was revealed that the combination of Fentanyl and Morphine was consumed more than other analgesics in cases of severe pains. Nowadays, one of the common medications for pain control in operating rooms and various hospital wards is intravenous Acetaminophen (Apotel) whose consumption among patients was more than other analgesics. It should be noted that administration of analgesics can obviously relieve pains without leaving any undesirable impacts on diagnosis and clinical symptoms (29). In some other investigations, it was also acknowledged that analgesics could hide symptoms and signs of severe abdominal pain and also cause delays in diagnosis. This issue could in turn influence the mortality rate due to delays incorrect diagnosis or treatment (30).

Although 85% of medical practitioners working in emergency departments believe that administration of painkillers does not affect important clinical findings and such medications are totally safe if administered to patients suffering from chronic abdominal pains have no need to undergo surgery (31,32).

CONCLUSION

Given that pain is considered as one of the major complaints in hospital EDs, its control and management are among critical challenges to these departments, and thus this dimension of patient complaints should receive special attention. It should also be noted that failure to control pain among patients can lead to physical, mental, psychological, and social health-related problems in a way that the prevalence rate of mental problems such as depression and anxiety among those inflicted with severe pains compared with ordinary people is reported higher. Therefore, proper examination of pains can provide suitable interventions to control and manage pains among patients and consequently promote their quality of life.

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AUTHORS CONTRIBUTION

All of authors contributes in this study equally.

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