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Research Article

Assessment of Acute Pain Management in Patients of Road Traffic Accidents in Accident and Emergency Department

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ABSTRACT:

The objective of our study was to access the pain management techniques, co morbid factors affecting pain intensity, choice for analgesia and satisfaction from pain management.100 patients presenting to Accident and Emergency Department after Road Traffic Accident were interviewed regarding their presentation to Emergency Department, Intensity of pain, pain management and satisfaction with pain management according to a pre-designed Performa during period from October 2016 to March, 2017. Demographic data was gathered from the respondents. Frequency tables were generated regarding research variables.100 respondents were interviewed about their pain intensity and management. 82% were of age below 50. Only 39% patients were transported within 15 minutes to emergency department. Out of total sample, 75% of the patients were conscious at the time of presentation, 20% suffered from head injury. 95% patients were given intravenous analgesia (injection Ketorolac), 40% were given infusions, 4% were prescribed oral medication and 72% of the patients were given intramuscular injection. 88% of the patients graded intravenous analgesia as most efficacious drug. Mean pain score using numeric rating scale (NMR) at the time of presentation was 8.14$\pm$1.645, while after management the mean pain score was 2.11$\pm$2.136.All of the patients were satisfied with their management of pain at Accident and Emergency Department.All of the patients presenting to emergency were satisfied with their pain management. Ideal analgesic medication for pain relief in trauma patient is intravenous analgesia.

Key Words: Road Traffic Accident, Pain management, Numeric rating scale, Analgesia

INTRODUCTION

Pain is subjective and unpleasant sensory and emotional experience that is associated with actual or potential tissue damage [1] Pain management has always been a challenging task since it is the most common reason for seeking medical attention. Pain is now consideredto be the fifth vital sign.Pain management is a considerable financial burden in medical practice.Preemptive pain management has considerably improved theclinical outcome of patient [2].Poor Pain control is associated with catabolic stress response and increases incidence of pulmonary complications, venous thromboembolic events and immunosuppressant leading to delayed recovery from ailment [3]There are different pain scales used for assessment of pain intensity such as Numerical RatingScale (NRS) or Visual Analogue Scale (VAS) [4]. Adequate analgesia requires early pain assessment and frequent reassessment 15-20 minutes later [5]. Narcotics are the main stay for controlof moderate to severe pain because of their potent efficacy. [6]

In preliminary studies, it was found that none of the analgesics including tramadol could acquire significant pain relief in trauma patients [7]. Latter, it was concluded that at centers where guidelines

for pain management are available, there is early treatment and increased opioid analgesic dose has resulted in better management of pain. [8]Multiple factors like unconscious state of patient, head trauma, facial injury, alcohol or drug abuse make assessment of pain a difficult task because pain is at most a subjective complaint[9]. Pain management in extension of ages is a specially challengingtask because at these ages there are multiple co morbid conditions and increased anxiety level.[10] In a study carried out in Khoula Hospital, Oman, it was found that road traffic accidents victims are treated successfully by most potent and safe analgesics available at Accident and Emergency Department.[11]No single acute pain management regimen exists that is suitable for all the patients. Type of analgesia and its dosing must be based on individual patient requirements, hispast and recent analgesic exposure. [12]. Diane G, in his study, Effective Pain Management and Improvements in Patients' Outcomes and satisfaction suggested that improvements in patients' pain management, pain education, outcomes and satisfaction can be improved by inter disciplinary approach. [13]. It's the patient's right to have the timely management of pain in setting of trauma because it prompts early healing, reduces patients stress response (SR), shorten hospital length of stay, lowers cost, diminishes risk of chronic pain due to neuroplasticity and altogether reduces rate of morbidity and mortality. [14]-[15].There is increase in number of Road traffic accidents due to multiple factors commonly resulting in crush injuries, head injuries and fractures of limbs resulting in severe pain and morbidity. Pain relief provided to patient in accident and emergency (A&E) is grossly inadequate as concluded by a large number of studies[16]-[17].Patients comfort and quality of care can be improved by adequate training of the staff and the use of validated therapeutic protocols [18] Synergistic use of analgesia targeting pain at different points along pain pathways can provide more widespread adoption of patients controlled analgesia and use of minimal invasive rather that open surgery .[19]Early recognition and thorough assessment can provide the patient and clinician with sufficient information so that they may tailor an appropriate analgesic regimen and achieve this goal. [20].

The rationale of this study is to assess acute pain after trauma in patients coming to accident and emergency department so that it may improve the standard of pain management after road traffic accidents. Literature has shown that majority of patients are satisfied by the treatment of pain given in emergency department but controversy is found in some studies. Secondly, the type of analgesic used for pain management can have a great impact on it as well as on the economy of the hospital. Through this study, the frequency of the patients satisfied with the treatment can be analyzed and assessed.

OBJECTIVE

To assess acute pain management in patients of road traffic accidents in accident and emergency department.

METHODS AND MATERIALS

Study Design:

Cross sectional

Study Setting:

Accident and Emergency Department, Mayo Hospital, Lahore.

Duration:

6 months.

Sample Size:

100 individuals.

Sampling Technique:

Simple random sampling

SAMPLE SELECTION CRITERIA

The sample was selected according to inclusion and exclusion criteria.

INCLUSION CRITERIA:

1. Adult male and females suffering from Road Traffic Accident

EXCLUSION CRITERIA:

1. unable to coordinate

2. Adult male and female who have not suffered from Road Traffic Accident

DATA COLLECTION PROCEDURE:

After taking informed written consent, data was collected by the researchers with the help of

Pre-tested data collecting tool (questionnaire)

Data was collected according to the variable of questionnaire which are as following:

1. Demographic data was taken from the participants
2. Questions was asked from the patients of Road Traffic Accidents, attending the Emergency Department of Mayo Hospital about their pain management.

DATA ANALYSIS:

The collected data was analyzed by SPSS (statistical package for social scientist) version 20. The data was reported using descriptive and inferential statistics. The quantitative variables like age, income etc. were reported using standard deviation, standard errors and mean.The qualitative variables like gender etc were reported using percentages and frequencies. The relationship of proportion was compared by Chi Square Test

SOCIAL AND ETHICAL CONSIDERATIONS

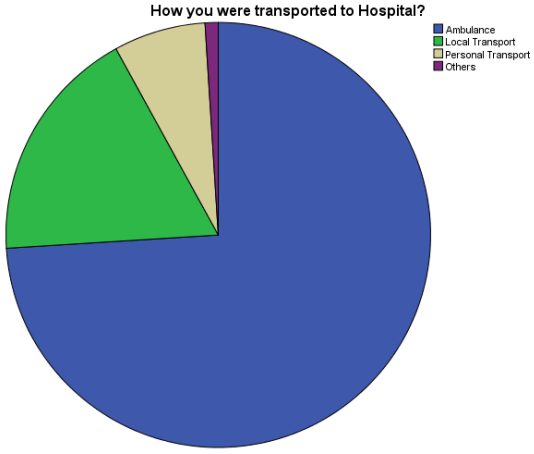
We got the synopsis approved by the ethical committee. Proper Consent was taken from the subjects.

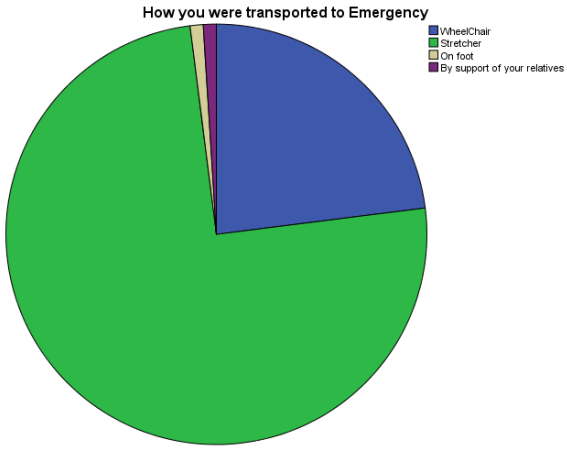
Results:

100 respondents who fulfilled the inclusion criteria were interviewed about their intensity of pain, analgesia requirements, relief from the pain and satisfaction regarding their pain management. Out of 100 respondents, 49 were female and 51 were male.82 % of the patients were of age below 50 while 18% were above 50 years of age.24% patients had blood group A^+, 31 percent were B^+, 2 % were AB^+, 25 % were O^+ while 18 percent had no knowledge about their blood group.53% of the total samples were uneducated and 47% were educated with most of them having education till middle secondary level.

As far as their socioeconomic status is concerned, 66% of our respondents belong to lower class,34 % to middle class and none from higher middle class.

As Road Traffic Accident was our inclusion criteria all of the patients that were recruited suffered from Road Traffic accident. After accident 74% were transported to hospital by ambulance, 18 % by local transport and 7 % by personal transport. Only 1 % of the sample used other means e.g. by air.After arriving at the hospital, 23 % were shifted to Accident and Emergency Department by wheel chair, 75% by stretcher, 1 % on foot and 1 % by support of their relative.

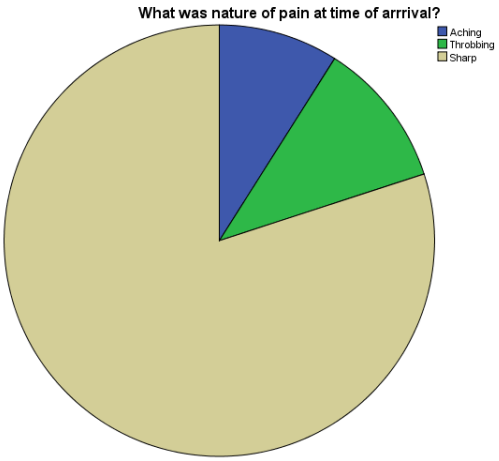




39% of the respondents arrived in emergency within 15 minutes after their accident while rest of them arrived after 15minutes. Of the total sample,

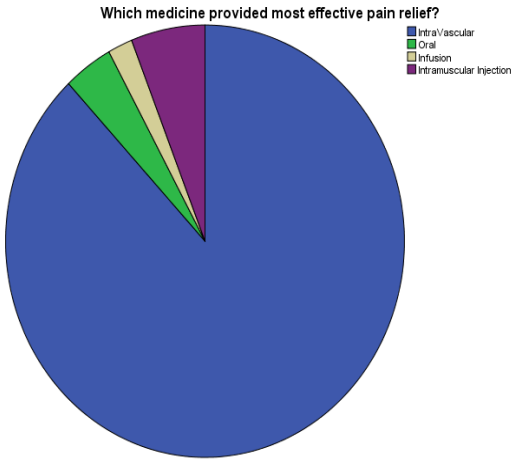
31 % suffered from aggravation of pain after arrival in Hospital.69% didn't had such aggravation.57 % of the respondents had fracture of bones and 43 % didn't had any fracture.84% had bleeding injuries and 16% didn't had any active bleeding. Of these, 39 % required blood transfusion whereas rest of the patients (61%) didn't require blood transfusion.

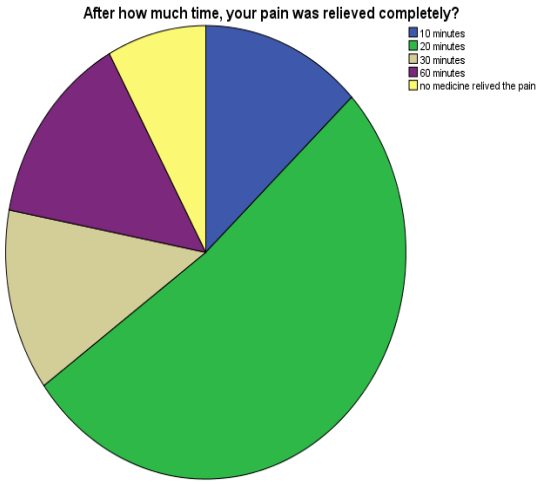
Only 75% of the respondents were conscious at the time of arrival in Accidents and Emergency department but only 20% had suffered from head injuries.09% of the patients described their pain as aching,11% as throbbing, 80% as sharp.



All of the patients were attended by nurse and a doctor after presentation in the emergency department.90% of the patients were attended within 10 minutes of presentation to Emergency while rest of the patients (10 %) were attended after 10 minutes of their presentation.

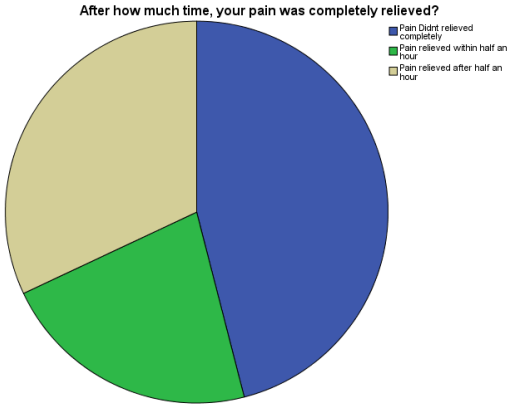
95% of the patients received intravenous analgesia in the form of Injection Toradol (Ketorolac), 4 % received oral analgesic medicine. 40% required infusion and 72% got intramuscular injection.90 % patients experienced pain relief after the medication while 10 % didn't get their pain relieved.88 % graded intravenous analgesia (Injection Ketorolac) as the most soothing medicine .4% graded oral medication .2 % of the patients got maximum relief with infusion .6 % patients were relieved with intramuscular injection

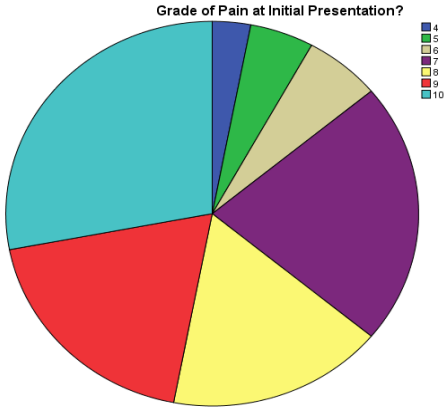


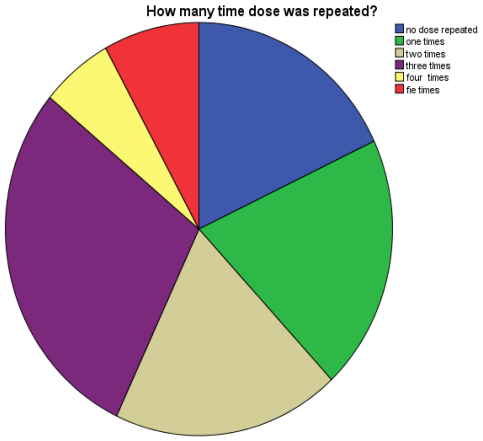


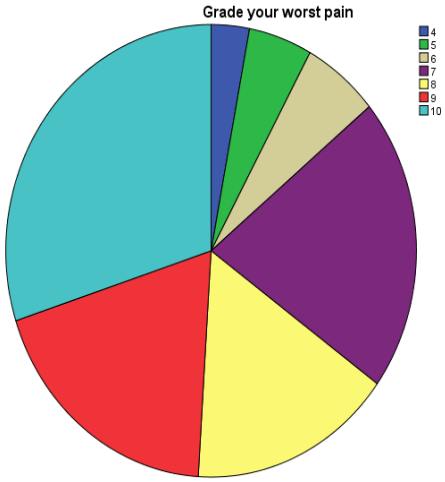
13% of the patients got relief within 10 minutes, 52% within 20 minutes, 13 % within 30 minutes and 14% within 60 minutes while only 8 percent patients didn't get any relief with analgesia.

96 % of the patients under went radiological investigations, 21 % got X Ray skull.62 % had x Ray limbs.33 % had X Ray chest.12 % got x Ray cervical spine24 % had ultrasound abdomen .only 3 % required FAST scan . 25% required CT scan brain. Cervical spine was immobilized in only 11 % of the patients.55% of the patients had complete relief of their pain while rest of 45% still suffered from pain.22 % of the patients had complete relief within half an hour while 32% got their pain relieved after half an hour but 46% patients didn't get complete relief after pain management.









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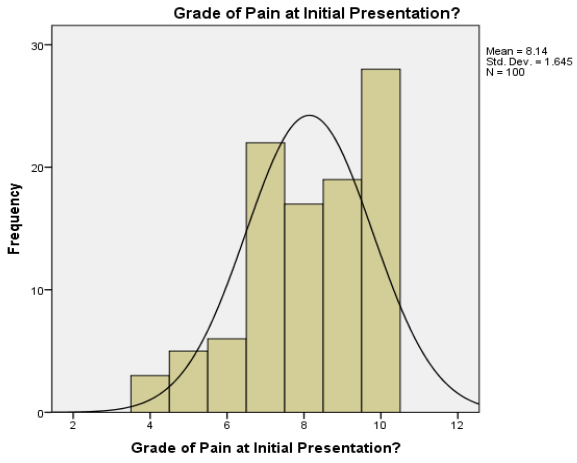
% were satisfied with their pain management while only 8 % were dissatisfied. Only 6 % of the patients had some information about patient controlled analgesia.82% patients required repeated dose of analgesia while 17 % didn't demanded any repeated dose of analgesia.21 % required single dose repetition , 19 % required 2 times dose repetition , 29 % required 3 times dose repetition ,6 % required 4 times dose repetition, 8 % required 5 times dose repetition.

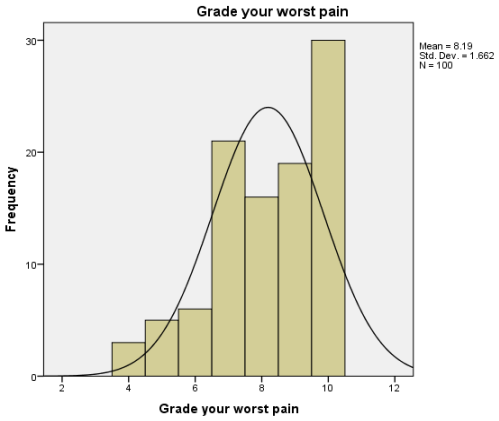
12 % required repeated analgesia within half an hour, 16 % required within an hour, 24 % required within one and half hour, 30 % required within two hours.

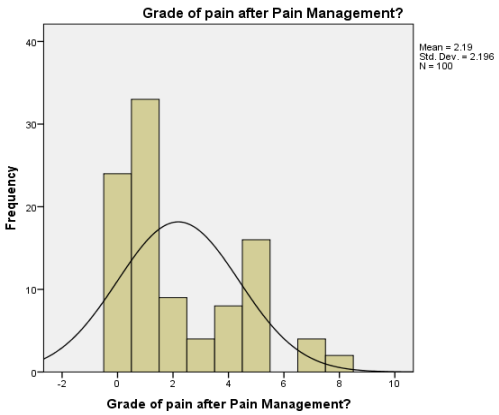
Patients were told about Numeric Rating Scale of Pain Gradation. 3 % graded their pain intensity as 4.5 % as 5 ,6 % as 6, 22 % as 7,17 % as 8,19 % as 9, 28 % as 10.When asked to grade their worst pain According to Numeric Rating Scale,3 % graded their worst pain as 4, 5 % as 5, 6 % as 6, 21 % as 7,17 % as 8, 18 % as 9 and 30 % as 10.

After pain management,patients were asked to grade their pain .24 % said their pain intensity has decreased to 33 % to 1, 10 % to 2, 7 % to 3, 7% to 4, 13 % to 5, 4 % to 7 and 2 % to 8.

Mean pain score at initial presentation was 8.14 (SD=1.645).Mean of worst pain score was 8.18 (SD=1.660).After pain management, mean pain score was 2.11(SD=2.136)







DISCUSSION:

Most of the patients in our study were satisfied with pain management in emergency department. Same results were found in a study done by Carroll KC which states that majority of the patients were satisfied with the treatment given for pain relief.[21]

We found in our study that early and appropriate analgesia according to requirement of a patient causes effective remedy of the miseries. It was seen in a study done by Todd KH that there is less usage of analgesia and the start of initial treatment is postponed. A considerable improvement is required in emergency medicine.[22]

We found that early transport facility to emergency department and minimal handling results in lesser aggravation of the pain. The same results were found in study carried by Seid M who said that immediate preventive measures and early treatment in patients of road traffic accident is associated with effective pain relief, decreased morbidity and mortality.[23] The results of the study done by Badrinaryan M at Nepal showed that there is a remarkable improvement in agony of the victims of road traffic accidents who are transported to hospital early. So, mobile emergency transport services, trauma care centers and post trauma management should be upgraded to improve the recovery status of road traffic accident victims.[24]

We concluded that intravenous analgesia provides better and effective relief of pain as compared to oral and intramuscular analgesia. The results of a study done by Ahmedi A had shown that systemic pharmacologic therapy is mainly used as analgesia in road traffic accident patients. Intravenous administration of small doses of opioid has provided better pain relief than intramuscular and subcutaneous analgesia.[25]

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