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Case Study

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A PROSPECTIVE OBSERVATIONAL STUDY OF PAIN ASSESSMENT AND MANAGEMENT IN ACCIDENTAL CASES IN TERITIARY CARE HOSPITAL

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ABSTRACT

Aim: To evaluate the Pain assessment and management in accidental cases. **Objectives:** To Evaluate the pain assessment and management in accidental cases. To study and observe pain score by using different pain scales and prescribing patterns in the management of pain in accidental cases. **Method:** The study was a prospective observational study on pain assessment by using different scales and management of pain in accidental cases at the Kims sunshine hospital, Secunderabad. Collecting information regarding pain assessment using different scales and initial treatment or the STAT medications prescribed for patients with acute pain in the accidental cases was done. The information pain assessment and prescribing patterns was studied, analyzed, and evaluated. **Results:** A Study population of 200 was enrolled in our study based on the inclusion and exclusion criteria. Among the 200, the percentage of males was 62% and females were 36%. Most of the patients were from the department of orthopaedics (98.5%). Most of the patients were assessed with pain score 4 was moderate (53%). Based on the assessment of the pain, paracetamol was the mostly employed medication (28.5%) in patients with mild pain, moderate pain and severe pain. Mostly employed dosage forms of medication is paracetamol injection (36.5%) (intravenous). Most of the patients assessed with pain score 4 more in orthopaedics department (63%). **Conclusion:** Our study has revealed that most of the cases belonged to the department of Orthopaedics (98.5%). Non opioids and NSAIDS were widely used class of drugs in treating pain. A numerical rating scale (NRS) was employed for the assessment of pain. Most of the study population were assessed with pain score 4 which is moderate.

KEYWORDS: A Prospective Observational Study, Pain Assessment, Accidental Cases, Teritiary care hospital.

INTRODUCTION

According to World Health Organization (WHO) injury is the leading cause of death among men and women age 15 to 44 years and will be the third leading cause of death and disability in all ages in 2020.[1] Road traffic crash (RTC) is one of the main causes of injury responsible for approximately 50 million injuries, per year, worldwide.[2]

Complaint of pain is one of the most prevalent condition among trauma patients in the emergency room settings. Pain management of the elderly and children is especially challenging because these patients often present with multiple chronic medical conditions or heightened anxiety, respectively.[3] Trauma patients, also, report low satisfaction with their pain management.[4] In addition, management of trauma patients has been one of the most resource-intensive medical care performed in resource challenged emergency room settings.[5,6]

Trauma patients include a wide spectrum of physiologically various patient populations including healthy young athletes, vulnerable children, and frail elderly. To provide optimum pain management care to these patients, it is necessary that practitioners are well prepared to and current with utilizing modern evidence-based knowledge and practices. Additionally, trauma patients who present with multiple injuries, substance abuse, delayed care, as well as psychological and emotional issues complicate the care process.[7,8]

Providing the appropriate and timely pain management to trauma patients is not only the patient right, also it prompts early healing, reduces patient's Stress Response (SR), shorten hospital length of stay, lowers costs, diminishes risk of chronic pain due to neuroplasticity, and ultimately reduces rate of morbidity and mortality.[9-13] Physicians often report concerns about increasing the pain medication prescription dose or analgesia for pain management. This roots in their worries about patients' adverse physiologic reactions such as risk of addiction,

instability in hemodynamic situation and depression of respiratory system. Others have pointed to lack of standardized protocols for analgesia usage for management of acute pain.[7,10,14-16]

The term "pain"refers to a fundamental bodily sensation evoked by a noxious stimulus, received by naked nerve endings, affiliated with actual or potential tissue damage, characterised by physical discomfort (such as pricking, throbbing, or aching), and usually results in aggressive action. The goal is to gradually raise function without exceeding pain and discomfort thresholds. Over a three-month period, patients have been known to increase their physical strength and endurance by 50 to 100 percent. Over-the-counter medications such as Tylenol (acetaminophen) or nonsteroidal anti- inflammatory drugs (NSAIDs) such as aspirin, ibuprofen, and naproxen can help with milder forms of pain. Acetaminophen and NSAIDs both relieve pain caused by muscle aches and stiffness, and NSAIDs also reduce inflammation (swelling and irritation). Topical pain relievers, such as creams, lotions, or sprays, are also available to relieve pain and inflammation caused by sore muscles and arthritis.

The main aim of study is prospective observational study on pain assessment and management in accidentalcases.

METHODOLOGY

- In this observational study methodology is as follows:

1. Study site

- The prospective observational study on treating pain in accidental cases was performed at SUNSHINE HOSPITAL, SECUNDERABAD, and a tertiary care hospital.

2. Study period

- The study was conducted for a period of 6 months.

3. Study design

- The design of this study is a prospective observational study.

4. Sample size

- A total of 200 prescriptions were included in the study and followed for the evaluation study of drugs.

5. Study approval

- The study protocol was written in a informed consent for and approved by the ethicalcommittee at the hospital.

6. Study criteria

- The study criteria are in-patients of medicine, ICU, and casualty patients who were Treated For Pain Assessment.

6.1. Inclusion criteria

- Patients aged between 13-90 years.
- Patients suffering from mild to severe pain (pain score between 2-10),

6.2. Exclusion criteria

- who are pregnant and lactating women
- infants
- patients who are not willing to give the consent

7. Source of collection of data

Patient consent form

- Informed consent was obtained from all the patients before conducting the study.

Patient data collection form

- A well designed patient data collection form which contains patient demographic details like gender, age, weight, date of admission, date of discharge, medical history, medication history, previous allergies, pain score, physical examination, provisional diagnosis, laboratory findings, investigations, medication charts, final diagnosis, plan of care, progress chart and discharge advice chart used for the enrollment of patients specific information.

8. Sources of data

- Patient data which is relevant to the study was collected from the following sources.

Impatients

- Patients case records, medication charts and laboratory reports.

9. Study procedure

- This is a prospective observational study. Protocol was prepared and submitted, which wasapproved by Institutional Ethics Committee of KIMS-SUNSHINE hospitals, secunderabad, which is a multi -super speciality tertiary care hospital. In this study 200 patients wereenrolled after obtaining the consent. The data collection was collected, prepared and used.

This form mainly includes the demographic details of the patient, medicationhistory, diagnosis and treatment of the patient.

- This study was carried out in In-patients (IPD) of KIMS – SUNSHINE hospitals, secunderabad, which is 500+ bedded Multi-super speciality tertiary care hospital. 200 patients were randomly enrolled in to the study based on study criteria. Patients from out-patients and psychiatric patients, pregnancy women and lactating women were excluded during this study. A self-designed patient data collection form was developed and used for this study. Patient records from the inpatient wards of the selected department of the hospital were obtained. A total of 200 prescriptions with pain assessment were

collectedfrom the wards and analyzed. Latest edition of DRUG TODAY manual was used to decodebrand name of drugs to generic names for the purpose of analysis. Microsoft word and Excelhave been used to generate graphs, tables etc, study was conducted in KIMS -SUNSHINE HOSPITALS. After the data collection it was analysed for statistical significance. Data wasanalysed using descriptive statistics namely total numbers, mean, standard deviation, and percentage wherever applicable.

9.1 Patient demographics

- Age
- Gender
- History of present illness
- Past medical history
- Socio -economic habits
- Diagnosis
- Treatment

9.2 Drug details

- Name of the drug
- Dosage form
- Category
- Duration of treatment
- Route of administration

10. Statistical analysis

- Descriptive statistics and Graphical representation of our project "PROSPECTIVE OBSERVATIONAL STUDY ON PAIN ASSESSMENT IN ACCIDENTAL CASES values are expressed as percentage. In the Analysis performed the p value < .00001 is considered as statistically significant variation.

RESULTS

A Total of 200 cases were collected in the Inpatient Departments of KIMS Sunshine Hospital, Secunderabad for 6months. The following evaluation was made from the collected data.

Table 1: Gender wise distribution of data.

Gender	No of patients	Percentage%
Male	124	62%
Female	76	38%
Total	200	100%

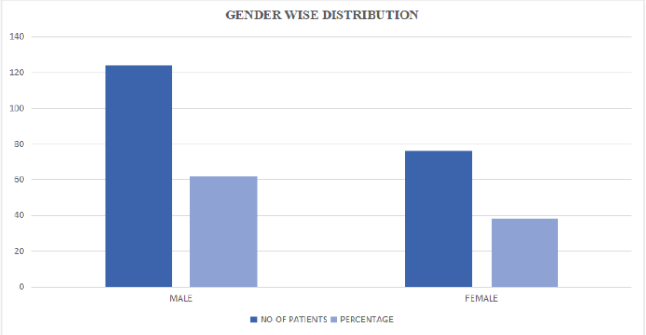

Figure 1.1: Graphical presentation of gender wise distribution.

- In our present study, it was found that more male patients were admitted in the variousdepartments in the hospital, when compared to female patients. Out of 200 patients enrolled the number of male patients was found to be 124(62%) while the number of female patientswas 76(38%).

Table 2: Age wise distribution of data.

Age	No of patients	Percentage%
10-19	22	11%
20-29	35	17.5%
30-39	53	26.5%
40-49	21	10.5%
50-59	15	7.5%
60-69	19	9.5%
70-79	21	10.5%
80-89	9	4.5%
90-99	5	2.5%
TOTAL	200	100

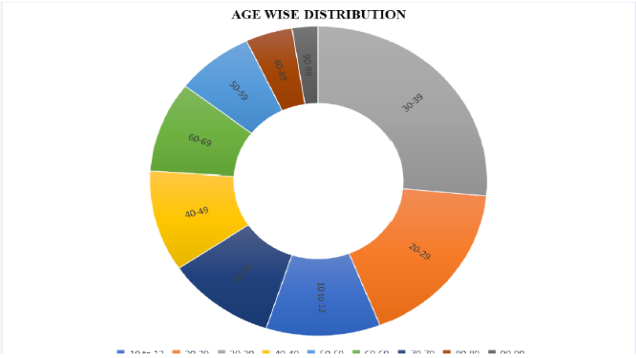

Figure 2.2: Pie chart presentation of age wise distribution.

Out of 200 patients, the maximum number of patients are 53(26.5) were distributed among the age group 30-39 years, and the least being 5 patients among the 90-99 years.

Table 3: Department wise distribution.

Departments	No of patients	Percentage%
Orthopaedics	197	98.5%
Neurology	3	1.5%
Total	200	100%

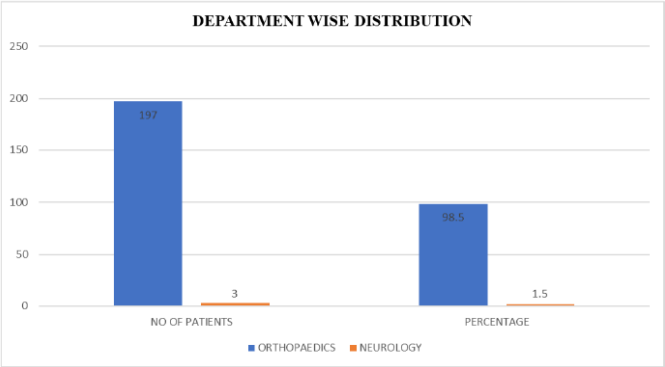

Figure 3.1: Graphical presentation of department wise distribution.

The highest number of patients 197(98.5%) belonged to the department of orthopaedics andthe lowest number of patients 3 (1.5%) belonged to the department of neurology.

Table 4: Pain score based distribution.

Pain score	No of patients	Percentage%
2	37	18.5%
3	27	13.5%
4	106	53%
5	13	6.5%
6	9	4.5%
7	6	3
8	1	0.5%
9	1	0.5%
10	0	0
TOTAL	200	100

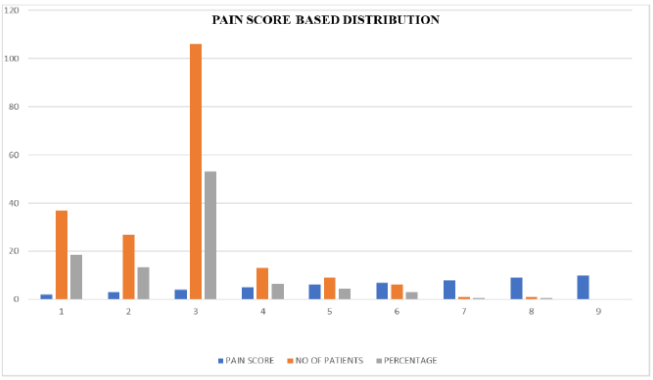

Figure 4.1: Graphical presentation of pain score distribution.

The highest number of patients 106 (53%) were admitted with pain scoring 4 which is moderate and the lowest number of patients 1(0.5%) with each pain scoring 8 and 9 which is severe were admitted in hospital. The P value was found to be < .00001.

Table 5: Distribution of pain score in differentdepartments.

Departments	Mild painScore(1-3)	Moderate pain Score(4-6)	Severe painScore(7-10)
Orthopaedics	63	124	9
Neurology	2	2	0
Total	65	126	9
Percentage	32.5%	63%	4.5%

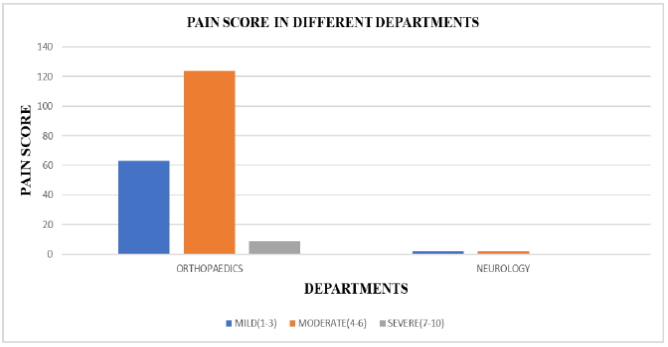

Figure 5.1: Graphical presentations of pain score departments.

Among all the other departments, the department of orthopaedics has the highest number of patients with mild (32.5%), moderate (63%) and severe pain(4.5%).

Table 6: Distribution of medication based on pain score.

Pain score	Diclofenac	Parac etamol	Fentanyl	Tramadol	Buprenorphine	Chymoralforte
Mild	16	16	8	10	12	12
Moderate	31	37	4	27	4	12
Severe	4	4	0	3	0	0
Total	51	57	12	40	16	24

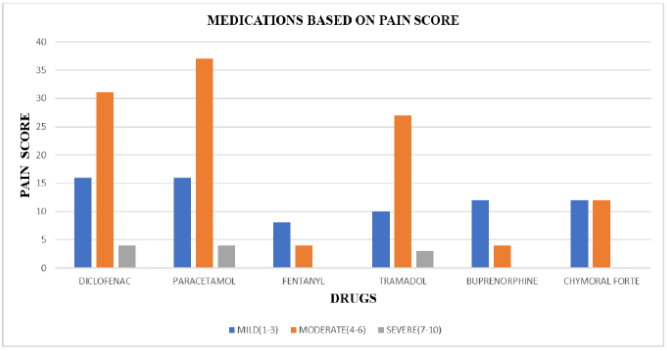

Figure 6.1: Graphical Presentation of medications based on pain score.

Paracetamol and diclofenac were prescribed more often in patients with mild and severe pain scores, while only paracetamol was prescribed more often in patients with moderate pain scores.

Table 7: Distribution of medication based on gender.

Drugs	Male	Female	Total	Percentage%
Paracetamol	50	27	77	38.5%
Diclofenac	20	14	34	17%
Tramadol	23	20	43	21.5%
Fentanyl	8	2	10	5%
Buprenorphine	3	3	6	3%
Chymoralforte	22	8	30	15%

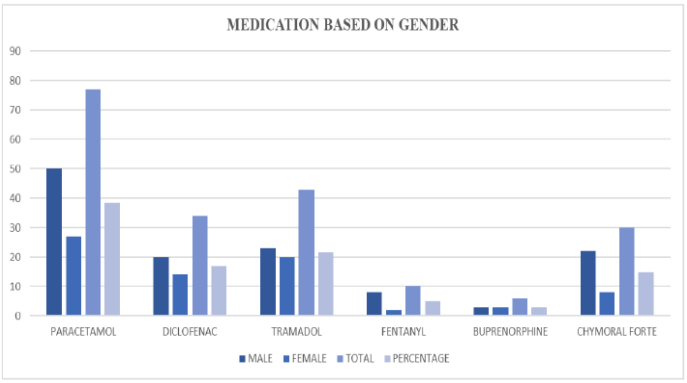

Figure 7.1: Graphical presentation of medication based on gender.

Paracetamol was the most prescribed medication in both males and females, while buprenorphine was the least prescribed medication in males and fentanyl was least prescribedmedication in females.

Table 8: Medication based on age group.

Age	Diclofenac	Paracetamol	Tramadol	Fentanyl	Buprenorphine	Chymo ralforte
10-19	5	20	9	0	0	5
20-29	9	13	6	1	2	4
30-39	9	14	11	2	2	10
40-49	4	5	3	3	0	1
50-59	2	9	1	3	0	1
60-69	1	6	7	0	1	3
70-79	3	10	1	0	2	4
80-89	1	2	1	0	1	2
90-99	0	0	0	1	0	0
Total	34	79	39	10	8	30
Percentage%	17%	39.5%	19.5%	5%	4%	15%

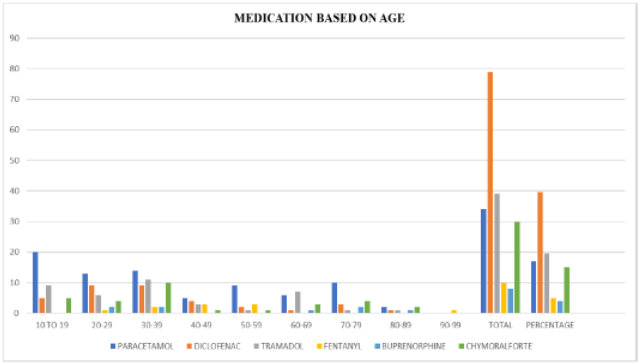

Figure 8.1: Graphical presentation of medication based on age.

Paracetamol is the most prescribed medication in almost all age groups, while buprenorphine is the least medication prescribed in almost all age groups.

Table 9: Distribution based on classification of drugs.

Classification ofdrugs	No of patients	Percentage%
Opioids partialagonists	9	4.5%
Analgesics	66	33%
Opioid analgesics	50	25%
Nsaids	64	32%
Opiate analgesics	11	5.5%
Total	200	100%

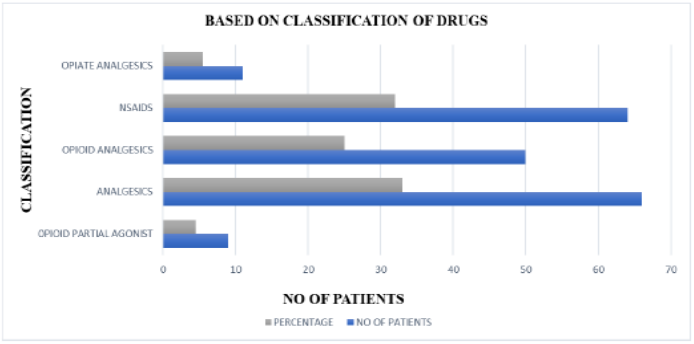

Figure 9.1: Graphical presentation based on classification of drugs.

Analgesics were highly prescribed classification of drugs for the management of the pain and the less prescribed classification of drugs were opioids partial agonists.

Table 10: Distribution based on dosage forms.

Drugs	Tablet	Iv	Patches	Total	Percentage%
Paracetamol	20	50	3	73	36.5%
Diclofenac	7	31	3	42	21%
Tramadol	7	38	4	49	24.5%
Fentanyl	2	4	4	10	5%
Buprenorphine	1	2	7	10	5%
Chymoral forte	10	2	4	16	8%

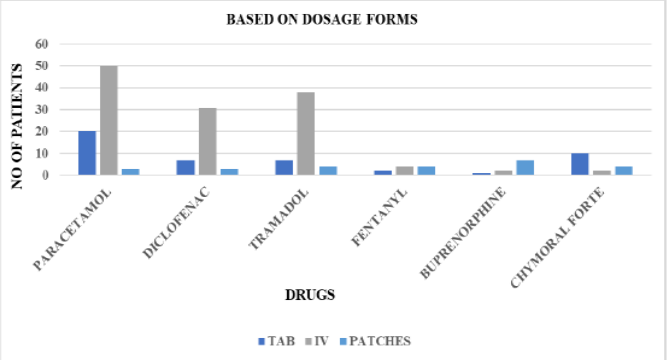

Figure 10.1: Graphical presentation based on dosage forms.

The Intravenous route was mostly used route of administration as they are more effective intreating pain when compared to other route of administration.

DISCUSSION

- Each data set was gathered from 200 patients in the emergency room who had received pain management treatment. The patients were chosen based on inclusion and exclusion criteria.
- The category with the highest percentage of patients was 30-39, representing 26.5% of the total number of patients, and the category with the lowest number of patients was 90-99which illustrate the 2.5%
- In the study population of 200 people, 38% were female and 62% were male.
- When pain was evaluated in the study population, the majority of patients received a pain score of 4, which is moderate and least being pain score 9 which is severe
- An assessment of pain and understanding of the patient's physical and psychological edition are important considerations when treating pain.
- The orthopaedic department had the highest percentage of study population (98.5% in the study). The orthopaedics department also has the highest number of patients with severe, moderate, and mild pain scores
- In this study, we discovered that the most commonly prescribed drug was Acetaminophen is used in both male and female patients, followed by tramadol, which is also mostcommonly prescribed drug by physicians
- Analgesic drugs are the most commonly used drug classification in terms of pain score, followed by NSAID's drugs for patients with pain intensity ranging from moderate tosevere.
- As previously stated, acetaminophen is the most usually prescribed drug among others, and it is typically prescribed in the dosage form of injection (intravenously) followed by tramadol (intravenously)
- Paracetamol 1gm IV was most commonly prescribed to patients suffering from moderate to severe pain.
- In this study, two different departments were included, Orthopaedics accounts for 98.5% of the population, neurology 1.5% of the population
- The age group between 10-19 years received the most analgesics (10%), followed by the age group between 30-39 years (7%), the age group between 20-29 years (6.5%), the age group between 70-79 years (5%), the age group 50-59 years (4.5%), the age group between 60-69 years (3%), the age group between 40-49 years (2.5%), the age group between 80-89 years (1%),
- According to the study's, primary and secondary objectives, pain was assessed using numerical rating scale (NRS)
- Pain is classified as mild, moderate, severe, or excruciating based on the assessment.
- In this study, orthopaedics department has the highest moderate pain score(62%) followed by mild(31.5%) and severe pain score(4.5%); where as in the department of neurology has mild(1%), moderate(1%) has lowest pain score
- In this study, the paracetamol is prescribed more frequently in moderate pain (18.5%) followed by mild pain (8%) and then severe pain (2%), chymoral forte is prescribed during the mild(6%) and moderate pain(6%)
- In this study, the pcm is most prescribed drug in both male (25%) and female (13.5%) whereas buprenorphine is least prescribed in both female (1.5%) and male (1.5%)

CONCLUSION

- Pain is one of the most frequent complaints of hospitalized patients, accounting for nearly 80% of the reason for referral in accidental cases.
- In an accident, pain management treatment is one of the qualities of treatment that can be used as a marker for assessing cure.
- In our current study, we discovered that physicians chose non-opioids analgesics and NSAIDs over opiate analgesics to treat pain because they are more effective and safe for all age groups.
- Paracetamol were the most commonly prescribed drugs to patients, while diclofenac drugs were chosen by the physician to treat severe pain.
- In our study, we included two departments that combined all analgesics Prescribed from all analgesic categories

- According to the pain assessment, opioids analgesics and other opiate analgesics were prescribed.
- The doctor usually prescribed paracetamol and diclofenac intravenous forms to treat mild to severe pain.
- Injection was the drug of choice for severe pain, tramadol injection was also chosen.
- The intravenous route was mostly chosen for analgesic administration because it is more effective in treating pain than other routes of administration.
- During a 6-month study, we have documented more cases from the orthopaedics department

Future directions

- Pain can be effectively controlled in the emergency department with proper care and safety
- Patients may benefit from being advised on new analgesic medications.
- The role of the emergency physician and team support in determining prophylactic treatment in ACCIDENTAL CASES is critical.
- Our safety highlighted the importance of increasing awareness among emergency practitioners and clinicians about accidental cases and health issues related to pain.
- In the accident scenario, analgesics play a critical role in patient management.
- Analgesics were frequently prescribed in the orthopaedics department, with various routes of administration.
- Ongoing education strategies to promote physician drug therapy at various levels may empower more rational prescribing.
- Choosing different departments to study may help you learn about the various emergency medications prescribed in hospitals.
- The use of a pain scale to prescribe emergency medicine aids in understanding the rationale. People with mild pain who are not hospitalised use OTC medications, which may be safe at the time, but serious side effects may occur later, leading to an emergency, so proper educational interventions must be implemented to educate people about OTC medications.
- Understanding a patient's co morbidity is always important, but in the case of an accident, some severely injured patients may be unable to explain their past medical history, so low-risk medications can be used as a first-line treatment.
- It is preferable to always prescribe drugs with a generic name, which reduces the risk of lookalike drugs.
- Future research should concentrate on emergency medicine with common co morbidities such as hypertension and diabetes, as this will aid in the patient's overall health.

Limitations

- The main limitation for this study was time for data collection
- Lack of direct interactions with patients
- No resource to monitor patients directly and closely
- Patients not reconsulting for further evaluation
- In this study, we are not able to collect data from ICU patients
- Patients choice of taking generic drugs with low dose for less cost
- Patients not perform regular exercise for maintaining proper weight
- Lack of availability of some parameter for some cases (pain score)
- Lack of some patients past medical reports for proper evaluation

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