

Original article

A Study on the Pain management practices followed at a Tertiary Care Centre

Divya Amaravadi^{1,*}, Aparna Yerramilli²

¹Assistant Professor, Department of Pharm D, CMR College of Pharmacy, JNTU-Hyderabad Telangana India;

²HOD, Department of Pharm.D, Sri Venkateshwara College of Pharmacy, Osmania University Hyderabad Telangana India

ARTICLE INFO:

Received: 08 Jan 2023

Accepted: 21 Feb 2023

Published: 28 Feb 2023

Corresponding author *

Dr. Divya Amaravadi,
Assistant Professor,
Department of Pharmacy Practice,
CMR College of Pharmacy,
Hyderabad, Telangana – 501401.
E-mail: div4075@yahoo.com

ABSTRACT:

Pain is a major public health issue throughout the world and represents a major clinical, social and economic problem. A single centre prospective, observational study was done at Apollo hospitals, Jubilee hills, Hyderabad for a period of 6 months. A total of 121 patients were considered of the age group (18-80) years with complaints of pain admitted in intensive care units (ICU) of neurology, general medicine and surgery. The cases were observed for types of pain which was observed to be as nociceptive pain, the most common. The pain medications prescribed consisted of opioids and non-opioids depending on the severity of pain. In sedated patients, Fentanyl was commonly prescribed and in non-sedated patients Tramadol was the drug of choice to relieve pain. The routes of administration considered were mostly intravenous (IV), oral, transdermal and infusion. Pain is a very subjective perception which varies from person to person. Also considering that the opioids have many side effects, it is important to prescribe medications by assessing the patient's pain severity appropriately in order to avoid any untoward reactions.

Keywords: Pain, opioids, non-opioids, medications.

1. INTRODUCTION

Pain is a major public health issue in the world. It represents a major clinical, social and economic problem [1]. The Veterans Health Administration recognized the value of pain management approach and included pain as the 5th Vital Sign in their national pain management strategy [2]. According to The International Association for the Study of Pain (IASP), Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. Pain is an individual and subjective experience modulated by physiological, psychological and environmental factors such as previous events, culture, prognosis, coping strategies, fear and anxiety. So, health professionals rely on the patient's own description of the type, timing and location of pain [3].

1.1. Epidemiology: It is estimated that up to 50% of Americans experience chronic pain or intermittent repeating pain during their lifetime. According to the National Ambulatory Medical Care Survey pain complaints account for more than 40% of all symptoms related to outpatient visits or over 100 million ambulatory encounters in the USA alone each year [4]. Low Back Pain accounts for one-fifth of visits to medical clinics and is second only to upper respiratory illness as a symptom-related reason for a visit. Up to 75% of patients with advanced cancer report being in pain [5].

Importance of controlling pain: Inadequately managed pain can lead to adverse physical and psychological patient outcomes for individual patients and their families [6].

1.2. Under-treatment of pain: The under-treatment of pain was first documented in a landmark study by Marks and Sachar in 1973. These researchers found that 73% of hospitalized medical patients had moderate to severe pain. Thirty years later in 2003, Apfelbaum and others found that 80 percent of surgical patients experienced acute pain after surgery and 86 percent of those had moderate to extreme pain [6]. Underassessment of pain is a major cause of inadequate pain management. In fact, the most common reason for the under-treatment of pain in hospitals is the failure of clinicians to assess pain. This situation has prompted recent efforts to raise clinicians' awareness of the importance of pain assessment [7]. Hence, the inability of intensive-care unit (ICU) patients to report pain because of mechanical ventilation, concomitant use of sedatives, or as a consequence of loss of consciousness should not preclude pain control [8].

1.3. Types of Pain

1) Acute Pain: It is usually transient in nature lasting for several minutes to several days and caused by tissue damage associating with some degree of inflammation [3].

2) Chronic Pain: Persists for at least 3 months and occurs in association with a non-healing lesion, or pain that recurs frequently over a period of months [9].

3) Mixed: This involves both Nociceptive and Neuropathic types of pains [3].

1.4. Treatment:

Non-Pharmacological Treatment: It is defined as ‘therapies that do not involve taking medicines or any other active substances. They refer to non-medicinal measures used in common practice by clinicians (e.g. breathing exercises, massage and positioning and music therapy. Some researchers have divided non-pharmacological interventions into five categories: (a) cognitive-behavioural, (b) physical, (c) emotional support, (d) helping with activities of daily living and (e) creating a comfortable environment [10].

Pharmacological Treatment: An initial comprehensive assessment of each individual case may help design a tailored treatment plan that balances effective pharmacological treatment for both addiction and pain [4].

1.5. Non-Opioids: The long-term trajectory of chronic pain that may have promoted the development of opioid addiction can be prognostically improved if nonopioid agents are effectively used early in treatment. Some of these medications can be utilized for breakthrough pain, hyperalgesic rescue or as an adjunct to opioid treatment. Most studies support adjunctive medication usage in both neuropathic and fibromyalgic pain. Examples of drugs include: Non-steroidal anti-inflammatory drugs NSAID’s are effective for mild pain, especially pain with an inflammatory component [5]. Anti-convulsants: Gabapentin was found to be useful in the treatment of neuropathic pain. Pregabalin became the first FDA- approved drug for the treatment of fibromyalgia in June 2007. Pregabalin has been found to be effective in both neuropathic pain and fibromyalgia [4]. Carbamazepine has some efficacy in neuropathic pain such as trigeminal neuralgia and diabetic neuropathy [5].

1.6. Opioids: The term opioid refers to all compounds that bind to opiate receptors [9]. Morphine is a natural product that produces effective analgesia following multiple routes of administration. Other Opioids to be named are: codeine, Fentanyl, Tramadol, Buprenorphine, methadone etc. So, this study focuses on to analyze the various types of pain observed in the hospital setting and the management practices followed.

2. METHOD

Study Methodology: It is a single centre, prospective, observational study conducted at Apollo Hospitals, Jubilee hills, Hyderabad for a period of 6 months. The selected patients included in the age group of 18-80 years admitted to in-patient departments with complaints of pain. Data was collected from intensive care units (ICU) of neurology, general medicine and surgery. Patients with cancer pain, pediatrics, pregnant women and lactating mothers, self harm admissions were excluded from the study. A total of 121

cases were collected out of which 60 sedated patients and 61 non-sedated patients. A data collection form (DCF) was designed to collect the demographic details of the patient.

Data handling and management: Data collection form was enclosed. MS Excel format was used for collecting data. Patients were assigned a specific case number along with their initials and only this was used while collecting relevant information. Strict privacy and confidentiality was maintained during data collection.

Study assessment/method: The subject’s pain was assessed and documented by the nurses. Pain assessment scores were given by noticing all clinical and medical situations of the patient. This was done in sedated & non sedated patients.

Results and statistics: Descriptive statistics was used for data analysis.

Ethics approval: Study was initiated after the approval from the ethics committee.

3. RESULTS AND DISCUSSION

A total of 121 cases were collected in this study. Out of which in 61 non-sedated patients maximum were males of (44 cases, 72%) and (17 cases, 28%) were female patients. In 60 sedated patients (30 cases, 50%) were males and other (30 cases, 50%) were females. The majority of patients (55%, 33 cases) sedated and (31%, 19 cases) non-sedated belonged to the age group (54-71) years among the 121 cases collected.

It was observed that among non-sedated cases maximum patients were from medical wards (51 cases, 83%), followed by patients from neurological ICU (4 cases, 6%), surgical ICU (3 cases, 5%), medical ICU (2 cases, 3%) and cardiac ICU (1 case, 2%). Among sedated cases maximum patients belonged to surgical ICU (21 cases, 35%), neurological ICU (17 cases, 28%), medical ICU (10 cases, 17%), cardiac ICU (8 cases, 13%) and medical wards (4 cases, 7%). Among all the cases the most common type of pain observed was nociceptive pain (63%) in sedated patients and 41% in non-sedated patients as seen in **Table-1**.

Table 1: Types of Pain

Types of Pains	Sedated cases(N=60)	Percentage of Sedated cases	Non-Sedated cases(N=61)	Percentage of Non-Sedated cases(N=61)
Chronic Pain	4	7%	16	26%
Nociceptive Pain	38	63%	25	41%
Neuropathic Pain	18	30%	20	33%

The various opioids, non-opioids used in non-sedated patients are listed below. A total of 40 cases were observed with opioid usage for treatment of pain. The commonly used opioid was found to be Tramadol (31 cases, 77%), Fentanyl (8 cases, 20%) and buprenorphine (1case, 3%). The different routes of administration used for treating pain were intravenous (IV), transdermal, oral. The non- opioids prescribed were in a total of 120 cases. Out of these (61

cases, 50%) paracetamol, (31cases, 25%) diclofenac, (14cases, 11%) pregabalin and remaining (14 cases, 11%) prescribed consisted of aceclofenac, naproxen, gabapentin, (hyoscine+ mefanemic acid). The different routes of administration used for treating pain were intravenous (IV), transdermal, infusion. In sedated patients a total of 85 cases consisted of opioid prescriptions such as Fentanyl is (60 cases, 70%); Tramadol (4 cases, 29%) and least with 1 case of pethidine. The different routes of administration used for treating pain were intravenous (IV), transdermal, oral. This study was in co-relation with a study which showed opioids to be better in alleviating or eliminating pain [11].The non-opioids prescribed were in 76 cases, out of which maximum cases of paracetamol (61 cases, 80%); diclofenac (8 cases, 10%); pregabalin (4cases, 6%); gabapentin (2 cases, 3%) and aceclofenac (1case, 1%). A pain severity score scale was taken into consideration while prescribing the medications for pain treatment with suitable doses. The scale was denoted as: Mild pain (1-3) score, moderate pain (4-6) and severe pain (7-10 or above). So, in non sedated patients the opioids and non-opioids prescribed as per severity score scale is shown in **table 2** and for sedated patients it can be seen in **table 3**.

Table 2: Opioid and non-opioid medications (Non-sedated cases) prescribed as per pain severity score scale.

Pain Severity Score Scale	Opioid medications	Non-opioid medications
Mild (1-3)	Fentanyl, 25 mcg, IV, bid Tramadol, 50 mg, IV, od	Diclofenac, 75mg, oral, bid Paracetamol, 650mg, oral, bid Pregabalin, 75mg, oral, od Acecofenac, 100mg, oral, bid
Moderate (4-6)	Tramadol, 100 mg, IV, bid Hyoscine, 20mg, IV, bid	----
Severe (7-10)	Gabapentin, 100mg, oral, od. Paracetamol, 1gm, IV, tid	-----

Table 3: Opioid and non-opioid medications (Non-sedated cases) prescribed as per pain severity score scale.

Pain Severity Score Scale	Opioid medications	Non-opioid medications
Mild (1-3)	Fentanyl, 25 mcg, transdermal patch, 3 days. Fentanyl, 100 mcg, IV, bid Tramadol, 50 mg, IV, od	Paracetamol, 650mg, oral, bid Pregabalin, 75mg, oral, bid Gabapentin, 300mg, oral, bid
Moderate (4-6)	Tramadol, 50 mg, IV, tid	Paracetamol, 1gm, IV, tid Diclofenac, 75mg, IV, bid Piracetam, 3gm, IV, tid.

Hence, it was observed that based on the pain severity the appropriate pain medications were prescribed as per dose-escalations when pain was severe.

To obtain better pain control a combination of pain medications along with physical therapies can be taken along with physical therapies can be taken into consideration such

as thermotherapy (heat), cryotherapy (ice), massages, medicinal extracts and other physiotherapies. These methods when used in appropriate manner, may improve life and mobility of some patients.

4. CONCLUSION

The experience of pain is a highly complex phenomenon with physical, behavioural, cognitive, emotional, spiritual, and interpersonal aspects. This multidimensional nature of pain must be acknowledged in the assessment and management of patients [12]. Pharmacotherapy should always be selected as per individual requirements because all patients don't show same outcome from pain medications. The choice of drug must be based on appropriate diagnosis.

5. REFERENCES

1. Imani F, Safari S. "Pain relief is an essential human right", we should be concerned about it. *Anesthesiology and pain medicine*. 2011;1(2):55..
2. Berry PH. National Pharmaceutical Council. *Pain: Current Understanding of Assessment, Management, and Treatments*. 2001.
3. Pain management guidelines September 2012 by Republic of Rwanda Ministry of health www.moh.gov.rw.
4. Wachholtz A, Gonzalez G, Boyer E, Naqvi ZN, Rosenbaum C, Ziedonis D. Intersection of chronic pain treatment and opioid analgesic misuse: causes, treatments, and policy strategies. *Substance abuse and rehabilitation*. 2011;18:145-62.
5. Heather F.Sateia, Thomas M. DeFer. *Handbook of the Washington Manual of Outpatient Internal Medicine*. 2nd edition.pg nos: 758,761-69.
6. Wells N, Pasero C, McCaffery M. Improving the quality of care through pain assessment and management. *Patient safety and quality: An evidence-based handbook for nurses*. 2008 Apr.
7. Dureja GP, Jain PN, Shetty N, Mandal SP, Prabhoo R, Joshi M, Goswami S, Natarajan KB, Iyer R, Tanna DD, Ghosh P. Prevalence of chronic pain, impact on daily life, and treatment practices in India. *Pain Practice*. 2014 ;14:E51-62.
8. Force AT. Practice guidelines for acute pain management in the perioperative setting. *Anesthesiology*. 2012;116:248-73.
9. Rosenblum A, Marsch LA, Joseph H, Portenoy RK. Opioids and the treatment of chronic pain: controversies, current status, and future directions. *Experimental and clinical psychopharmacology*. 2008 ;16:405.
10. Gelinas C, Arbour C, Michaud C, Robar L, Côté J. Patients and ICU nurses' perspectives of non-pharmacological interventions for pain management. *Nursing in critical care*. 2013;18:307-18.
11. Widerström-Noga EG, Turk DC. Types and effectiveness of treatments used by people with chronic pain associated with spinal cord injuries: influence of pain and psychosocial characteristics. *Spinal cord*. 2003;41:600-9.

12. wieboda P, Filip R, Prystupa A, Drozd M. Assessment of pain: types, mechanism and treatment. Pain. 2013;2(7).

ACKNOWLEDGEMENT: We sincerely thank Apollo hospital, jubilee hills, Hyderabad for their cooperation in permitting us for conduct of the study. We extend our sincere gratitude to Dr. Alekhya Arudra, Clinical Pharmacologist for her valuable guidance. We would also like to thank Dr. Aparna Yeramilli, HOD, Pharm.D and management of Sri Venkateshwara College of Pharmacy for their timely support, guidance and encouragement throughout the study.

CONFLICT OF INTEREST: The authors declare no conflict of interest, financial or otherwise.

SOURCE OF FUNDING: None.

AVAILABILITY OF DATA AND MATERIALS: Not applicable.

CONSENT FOR PUBLICATION: Not applicable.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE: The final full board approval was obtained from the institutional ethics committee for the project reference number SVCP/2017/46.