

Analgesic Utilization Pattern in the Department of Surgery, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore, India

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ABSTRACT

Aim: To analyze the utilization pattern of analgesics in the department of surgery, Dr. B. R. Ambedkar Medical College and Hospital.

Methodology: This was a prospective observational study, carried out over a period of 6 months, Patients admitted under the department of surgery was enrolled using inclusion and exclusion criteria by taking / obtaining their consent. The well designed / structured data collection forms were prepared and used. The data required for the study was collected from patient case sheet & by interacting with the care givers into the data collection form.

Result: The study was conducted in the in-patient wards of the department of surgery at ESIC-PGIMS & model hospital, Rajaji Nagar, Bengaluru. Majority of the patients was male. The study showed that majority of patients belonged to the age group (33-45, 27.2%). Mean age of population was 45 years old. For the pain management of post-operative patients in the department of surgery four analgesics i.e. paracetamol, tramadol, diclofenac and Mefenamic acid were prescribed. The result of the study shows that paracetamol and tramadol (NON-NSAID) were the most commonly prescribed analgesics, it may be due to its lesser side effects and their effectiveness when compared to others. Majority of analgesics were prescribed, using brand name, the prescription of medications in brand name could be change to nonexclusive name, additionally this assumes a significant role in rational use of medication (proper dispensing of drugs, cost, safety and efficacy).

Conclusion: The utilization of analgesics basically relies on the severity of pain. In mild pain, single analgesics are ordinarily utilized while at least analgesics are utilized in moderate or severe pain. Paracetamol (8.9%) and diclofenac (6.1%) alone and combination of paracetamol with tramadol (44.2%) are the most common practice in various surgical wards of our hospital. In this study the most common procedures were general surgical procedures like appendectomy (17.7%) and majority of patients were given subarachnoid anesthesia (74.1%), paracetamol (67.34%) was the most common analgesic prescribed for patients who were given subarachnoid anesthesia.

Key words: Analgesics, utilization pattern, NSAID, Department of Surgery

INTRODUCTION

The world health organization (WHO) in 1977 has characterized drug usage as the showcasing, distribution, prescription and utilization of medications in a general public, with special accentuation on the resulting medical, social and economic results^{1,2}. Pain is an unpleasant sensation happening in differing degrees of severity as a result of injury, disease, or emotional disorder³. Poor pain control is dishonest, clinically unsound and monetarily inefficient⁴. The ongoing activity of including pain as fifth vital sign in health care has underlined pain assessment is similarly imperative to that of temperature, pulse, blood pressure, and respiratory rate recording. "Pain is always subjective^{5,6}.

Acute painful disorders are dealt with instantly; on the other hand, severe post-operative pain and severe visceral pain are under analyzed and under treated. Effective postoperative pain control was accomplished by proficient utilization of health resources and patient's satisfactions⁷. Analgesics are characterized as the medications that mitigate pain without blocking nerve impulse conduction or particularly modifying sensory function⁵. A specific analgesic dose that produces fruitful pain relief in one patient may create bearable adverse effects and inadequate pain control in someone else. Expansive assortments of analgesics are accessible in the market which may lead to the issue of irrational prescription⁸.

The effective relief of pain is of the most importance to whom treating patients undergoing surgery. Pain relief has important physiological benefits, observing of pain relief is progressively turning into significant postoperative quality measure. The aim for postoperative pain management is to diminish or take out pain and discomfort with at least of side effects. Traditionally the most commonly used postoperative analgesia is opioid based, and there are lots of supportive way to reduce opioid side effects (such as nausea and ileus) and relief the pain. The effectiveness of available drugs and drug's routes of administration is important in the postoperative regimen to the needs of the individual patient⁹.

The most widely recognized strategy for postoperative pain relief is the traditional utilization of intramuscular opioid injections. Effective pain relief can be acquired with newer systems, for example epidural opioids and patient controlled analgesia (PCA). A few procedures, for example, pre-emptive analgesia have not been completely assessed and others, such as infiltrating local anesthetic into wounds, may not decrease the patient's analgesic needs. Patients ought to be advised before surgery because a clarification of what to expect, may decrease their analgesic requirements¹⁰.

Analgesics including NSAIDs and paracetamols are commonly prescribed group of drugs in clinical practice for the management of pain and inflammation. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are commonly available

over the counter. The normal adverse drug effects with this group of medication are the gastrointestinal tract (GIT) toxicity. Along these lines, periodic assessment of medication utilization patterns should be done to empower appropriate changes in the prescription so as to increase therapeutic advantages and reduce the adverse effects¹¹.

The investigation of successful use of analgesic in postoperative period is a huge constituent of medical audit which helps in observing, assessing and building required modifications in the recommending practices to accomplish a rational and cost effective medical care. The upsides of effective use of analgesic in postoperative period incorporate patient solace and in this way fulfillment, earlier mobilization, quicker recovery with less probability of the development of neuropathic pain, a diminished risk of deep vein thrombosis, fewer pulmonary and cardiac complications, and decreased expense of care¹². Hence this study was intended to investigate the utilization pattern of analgesics in the department of surgery.

MATERIALS AND METHODS

The study was conducted in ESIC-PGIMSR & Model Hospital, Rajaji Nagar. A study of 6 months was designed in which planning was done from November-December 2017 followed by data collection January-March 2018 & interpretation and thesis writing was done on April 2018. Data was collected by using a self-designed data collection form for surgery, which consists of details like age, sex, lab data, disease condition, history of the illness, comorbidities, drug therapy and other relevant information. Patients admitted under the department of surgery were enrolled using inclusion and exclusion criteria by taking / obtaining their consent. The well designed / structured data collection joins were prepared and used. The data required for the study was collected from patient case sheet & by interacting with the care givers into the data collection form. All the hospitalized cases were sorted out excluding OPD cases and 147 cases were randomly selected for the study.

RESULT AND DISCUSION

In This study we prospectively observed the utilization pattern of analgesics in the surgery department. A total of 147 patients were enrolled in the study, based on the inclusion and exclusion criteria. The study was conducted for a period of 6 months in the department of surgery in ESI hospital Rajaji Negar, Bangalore.

Majority of the sample population were belonged to the age group of 18-30. We were able to observe that male patients (104, 71%) were predominant than female patients (43, 29%). This was in similarly to a studies conducted by Roshini A et al., (2015)¹³ conducted a study at suraram, Telangana, India as result total of 218 patients 103(47%) were female and (115, 53%) were male.

In our study the mean age of the sample population was found to be 48 years. This was in similarly to a study conducted by Sen, S et al¹⁴ the mean age of the patients were 49 years.

Table 1: Average Number of Analgesics Per Prescription (n=147)

Analgesics	n	Average
NSAIDs	52	0.3
Non NSAIDs	225	1.5
Total	277	1.88

During this study it was observed that all patients were prescribed with analgesics (NSAIDs/Non-NSAIDs) for post-operative pain management. Commonly used NSAIDs were Mefenamic Acid and Diclofenac and Non-NSAIDs were Paracetamol and Tramadol. Out of this 4 analgesics paracetamol was the most commonly prescribed analgesic 128(46.2%) followed by tramadol 97(35%), diclofenac 51(18.4%), the least used analgesics was Mefenamic acid 1(0.4%). In this study A total of 277 analgesics were prescribed to the 147 patients The average number of analgesic per prescription was 1.88 (Table 1).

During this study the Most Common Route of Administration of analgesics (paracetamol, tramadol, diclofenac) was found to Intravenous (IV) i.e., 233(83%) and 47(17%) patients were managed with oral therapy (Paracetamol, Tramadol and Diclofenac). This is similarly to the study written by Roshini A et al., 2015¹³ showed that in 167(76.6%) of the patients, analgesics was prescribed intravenously.

In this study analgesics was prescribed 277 times, 241 times (87%) was prescribed with trade names and 36(13%) was prescribed with generic names. in this study 120(81.6%) of patients were on combination analgesic therapy. combination of tramadol+ paracetamol was predominantly used 65(44.2%) followed by, Diclofenac+ paracetamol 37(25.2%). the findings were consisted with a study conducted by Sen, S et al; 2015¹⁴ in which they observed tramadol +paracetamol as the most frequent analgesic combination followed by diclofenac +paracetamol.

Table 2: Utilization Pattern of combination therapy

Combination of analgesics	Frequency (number)	Frequency %age
Tramadol + PCM	65	44.2
Diclofenac + PCM	37	25.2
Tramadol + PCM+ Diclofenac (Triple Drug Combination)	18	12.2
Total	120	81.63

During this study Triple drug combination was only given tramadol+ paracetamol+ diclofenac 18(12.2%). In this study we found out that most patients were admitted for undergoing appendectomy 26(17.7%) followed by incision and drainage 14(9.5%), mesh repair 10(6. 8%).one finding was similar to the study done by Sen, S et al; 2013¹⁶ showed that the most common procedure done was general like appendectomy 14(32%).

In our study Most commonly prescribed adjuvant drugs along with analgesics were PPI's like pantoprazole 139(21.5%) followed by antibiotics. This was in similarly to a study conducted by Choudhury, D et al 2017¹⁵ showed that Pantoprazole was the most commonly prescribed

medication (21.55%) among the gastro protective drugs. In this study Among antibiotics ceftriaxone was the most commonly prescribed 122(18.8%) followed by metronidazole 70(0.8%).

Table 3: Distribution of Types of Anesthesia (n=147)

Type of analgesics	Frequency (number)	Frequency %age
Subarachnoid	109	74.1
General	27	18.4
Local	5	3.4
Laryngeal mask airway (LMA)	4	2.7
Ankle block	1	0.7
Sedation	1	0.7

In our study, 109(74.1%) patients were given Subarachnoid anesthesia, 27(18.4%) patients were given General anesthesia, 5(3.4%) patients were given Local anesthesia, 4(2.7%) patients were given Laryngeal mask airway anesthesia and only 1 patient was (0.7%) given Ankle Block and 1 patient was given Sedation (0.7%) anesthesia (Table 3)

Table 4: Frequency of antibiotics

Distribution of drugs	Distribution of drugs	
	Frequency (number)	Frequency %age
Ceftriaxone	122	82.9
metronidazole	70	47.61
Cefixime	36	24.48
clindamycin	18	12.24
ciprofloxacin	12	8.16
amikacin	8	5.44
Amoxicillin + clavulanate	4	2.7
meropenem	3	2.04
cotrimoxazole	2	1.36

Antibiotics and GI drugs were the drugs given adjuvant along with analgesics post operatively. The most common antibiotic prescribed was Ceftriaxone 122(82.9%) of patients followed by Metronidazole 70(47.61%) patients. Among GI drugs i.e., Pantoprazole (139, 94.5%) patients coming under PPIs was the mostly prescribed followed by Ranitidine under H2 blockers was prescribed 8(5.44%) patients for gastric irritation. Ondansetron was only the anti-emetic prescribed 105(71.4%) patients (Table 4,5).

Table 5: Frequency of GI drugs

Drugs	Category	Distribution of drugs	
		Frequency (number)	Frequency %age
Pantoprazole	Proton Pump Inhibitor	139	94.5
Ondansetron	Antiemetic	105	71.4
Ranitidine	H2 blocker	8	5.44

In this study we found out that Paracetamol was the most common analgesic which was prescribed for patients who were given General anesthesia 21(14.28%), Local anesthesia 4(2.7%) and Sub arachnoid anesthesia 99(67.34%). Paracetamol and Tramadol were prescribed in equal ratio 1(0.7%) in Sedation and 1(0.7%) Ankle Block anesthesia. Tramadol was the most prescribed in Laryngeal Mask Airway anesthesia 3(2.04%).

CONCLUSION

For the pain management of post-operative patients in the department of surgery ward The result of the study shows that Paracetamol and Tramadol were the most commonly prescribed analgesics, it may be due to its lesser side effects and their effectiveness when compared to others. Standard treatment guideline will also help rational use of analgesics which improves a cost effective treatment plan with the introduction of safe and effective analgesics for post-operative pain relief.

Majority of analgesics were prescribed, using brand name, the prescription of medication in brand name must be change to generic name, likewise this plays a significant role in rational utilization of medication (proper dispensing of drugs, cost, safety and viability).

The utilization of analgesics predominantly relies on the severity of pain. In mild pain, single analgesics are normally utilized while at least two analgesics are utilized in moderate or severe pain. Paracetamol and Diclofenac alone and combination of Paracetamol+ Tramadol are the most common practice in various surgical wards of our hospital.

Use of anti-emetics, PPIs or H2 blockers and antibiotics in our surgical practices to avoid any post-operative nausea and vomiting (PONV), the post-operative stress bleeds and prevented infections is seen to the great extent. The investigation demonstrates that anti-ulcer drugs were recommended along with analgesics to reduce the significant adverse effects of NSAIDs that is gastric complications. The investigation is valuable in diminishing the irrational prescription, which help to reduce the morbidity and health care burden in the general public.

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