

## Patterns of prescription and ADR monitoring of drugs in the management of post operative pain in RMMCH

Y. Suraj Varma<sup>1\*</sup>, M.V.R. Harsha Vardhan<sup>1</sup>, N. Junior Sundresh<sup>2</sup>

<sup>1</sup>Department of Pharmacy, Annamalai University, Chidambaram, Tamil Nadu, India.

<sup>2</sup>Department of Surgery, RMMCH, Annamalai University, Chidambaram, Tamil Nadu, India.

**Correspondence Address:** \*Y. Suraj Varma, Department of Pharmacy, Annamalai University, Chidambaram, Tamil Nadu, India.

### Abstract

**Background:** Inadequately controlled postoperative pain (POP) subjects individuals to complications which may be fatal or leading to prolonged hospital stay. Complications from inadequately controlled POP (postoperative pain) may alleviate the existing shortage of hospital human resource for health in health facilities in developing countries.

**Materials and methods:** This study was carried out to evaluate postoperative pain management and patient satisfaction. To evaluate the variety of analgesics prescribed after surgery along with the doses administered and routes of administration. A retrospective study was done in the inpatient surgery departments of Rajah muthiah medical college hospital

**Methodology:** All patients who had under gone surgery between (APR-JUNE 2016) were included in the study. Post-operative analgesics prescribed along with the route of administration and doses were noted .

**Results and discussion:** 57 patients were included in the study who were prescribed with analgesics. For 46 patients injectable analgesics were prescribed immediately after surgery and in 11 patients oral analgesics were prescribed immediately after surgery. Diclofenac was the most commonly prescribed among the injectable analgesics. Tramadol+ Acetaminophen was most commonly use oral analgesic . The use of analgesics depends upon the severity of pain. In case of mild pain, single analgesics are commonly used where as for moderate and severe pain two or more analgesics are used. The study summarizes that, cost of therapy can be reduced by changing of prescription drugs from brand name to Generic name, also this plays an important role in Rational use of Drug (Proper dispensing of drugs, Cost, safety and efficacy). By using pain intensity scales, pain assessment should be practiced so that right choice of analgesics can be prescribed according to the intensity of pain.

**Keywords:** Postoperative Pain (POP), Retrospective study, Drugs

### Introduction

Effective postoperative pain control is an essential component of the care of the patient who has undergone surgery.

Inadequate pain control may result in increased morbidity or mortality. Evidence suggests that surgery suppresses the immune system and that this suppression is

proportionate to the invasiveness of the surgery (3, 4). Good analgesia can reduce this deleterious effect. The advantages of effective postoperative pain management include patient comfort and therefore satisfaction, earlier mobilization, faster recovery with less likelihood of the development of neuropathic pain, a reduced risk of deep vein thrombosis, fewer pulmonary and cardiac complications, and reduced cost of care. The failure to provide good postoperative analgesia is multifactorial. Insufficient education, fear of complications associated with analgesic drugs, poor pain assessment, and inadequate staffing are among its causes. Analgesics are defined as the drugs that relieve pain without blocking nerve impulse conduction or markedly altering sensory function. (5) Based on the type of relieving action, they are classified into two. Opioids inhibit pain impulses by acting on brain receptors. They can be used for short or long-term relief of pain, mainly by prescription, but bears a risk of drug addiction. Non opioids, used for short term relief and modest pain, are accessible without prescription. They act by inhibiting synthesis of prostaglandins which are the molecules involved in the peripheral perception of pain. It is well known that patient response to different analgesics can be greatly uneven. A particular analgesic dose that produces successful pain relief in one patient may generate bearable adverse effects and insufficient pain control in another person. Irrational prescription of drugs is a common incidence in medical practice. The study of prescribing pattern is a significant constituent of medical audit which helps in monitoring, evaluating and building required modifications in the prescribing practices to attain a rational and cost effective medical care. Auditing of prescriptions forms is an important part of drug utilization studies. Drug utilization evaluation is a one-time study to evaluate

appropriateness of drug therapy. The intention is to recognize whether current patterns of prescribing, dispensing and use of drug therapy are reliable with criteria and standards. These criteria and standards demonstrate the drug therapy is effective, safe, appropriate, and cost effective and support optimal patient outcome.(7) The ultimate goal of this drug utilization research is to evaluate the prescribing pattern of analgesics in the postoperative pain management in a tertiary care hospital.

### **Materials and methods**

The study was a retrospective study and conducted at a Rajah Muthiah Medical College and Hospital, Chidambaram, TN, India. The cases were collected between the months of APR-JUNE 2016. The cases of the patients included those who were treated with analgesics for post-operative pain management. Analyzed the prescriptions and categorized it into varieties based on analgesics prescribed, route of administration and combinations prescribed.

### **Results and discussion**

On the basis of inclusion and exclusion criteria, 57 patients were selected from the surgical unit over a period of 6 months for the study. Among 57 patients 25 were female and 32 were male. Most of the patients were under the age group of 35-50 years. During the study it was observed that all patients undergoing surgery were prescribed with analgesics for post operative pain management. Out of 57 prescriptions 114 analgesics were prescribed. The duration of therapy with analgesics was ranging from one day to 18 days. For 80.73% (46) patients injectable analgesics were prescribed immediately after surgery and in 19.26% (12) patients oral analgesics were prescribed immediately after surgery. In 76.60% (44) of the patients injectable analgesics are followed by oral analgesics.

**Table 1: Comparison of different injectable analgesics prescribed.**

Name of the drug	No of prescription with injectable analgesics (92)	Percentage (%)
Diclofenac	32	35.74
Tramadol	30	33.81
Ketorolac	23	25.12
Paracetamol	7	5.31

**Table 2: comparison of oral analgesics given.**

Name of the drug	No of prescriptions with oral analgesic (22)	Percentage
Tramadol+acetaminophen	8	38.37
Aceclofenac+paracetamol	7	33.94
Paracetamol	4	14.34
Ibuprofen + paracetamol	2	8.52
Diclofenac	1	5.81

**Table 3: Types of Anti-ulcer drugs prescribed with analgesics.**

Class of anti ulcer prescribed	Number of prescriptions (98)	Percentage
Proton pump inhibitors	71	72.27
H2 receptor blockers	27	27.72

In 23.39% (14) patient's more than one analgesic were given on the same day. Diclofenac was the most commonly prescribed among the injectable analgesics (35.74%) which was in contrast with the study conducted by Joseph F et al. which reported that morphine sulphate is the commonly used analgesic in the post-operative pain management (9).

Total 46 patients were prescribed with 92 different injectable analgesics. Most commonly prescribed drug was diclofenac (35.74%) and tramadol (33.81%) followed by ketorolac (25.12%). All injectable analgesics were prescribed immediately after surgery.

Total of 12 patients were prescribed with 22 different oral analgesics. Combination of tramadol+ acetaminophen (38.37%) is the commonly prescribed oral analgesic

followed by aceclofenac + paracetamol (33.94%) and least prescribed drug was diclofenac (5.81%).

In 85.77% of prescriptions additional drugs were prescribed to prevent the adverse effects of analgesics. Of them, 27.27% of prescriptions had H2 blockers and 72.72% of prescriptions had proton pump inhibitors as additional drugs to prevent adverse effects of analgesics. Proton pump inhibitors were the drugs used maximally to prevent adverse effects in the hospital. Moreover, Rahman (11) et al founded that the proton pump inhibitors were the drugs used maximally to prevent adverse effects in hospital at Dhaka reflects according our study. Lapne KL et al (12) taught that the use of NSAIDs is associated with a substantial increase in the risk of Gastro intestinal bleeding.

## Conclusion

Pain is the most commonly experienced symptom among post-operative patients, it may vary from one study to another study and depends up on the activities of the selected patients. The study shows that, anti-ulcer drugs were prescribed along with analgesics to reduce the important adverse effect of NSAID'S that is gastric complications. The analgesic use were minimal and one analgesic were used in maximum number of cases. Physicians gave more priority for non-opioid drugs because of their less adverse effects. The results shows that diclofenac were the most commonly prescribed analgesic, it may be due to its lesser side effects and their effectiveness when compared to others. In order to reduce the cost of therapy, the prescription of drugs in brand name could be changed to Generic name, also this plays an important role in rational use of Drug (Proper dispensing of drugs, Cost, safety and efficacy). The use of analgesics mainly depends upon the severity of pain. In mild pain, single analgesics are commonly used where as two or more analgesics are used in moderate and severe pain. By using pain intensity scales, pain assessment should be practiced so that right choice of analgesics can be prescribed according to the intensity of pain. The pain scale is also not perfectly complete and correct one, because the data was collected only by the reply to the questions asked to the patients, the answer may be correct or not. It depends upon the patients interest, time, physical and psychological conditions.

## References

1. Sharrock NE, Cazan MG, Hargett MJ, Williams-Russo P, Wilson PD., Jr Changes in mortality after total hip and knee arthroplasty over a ten-year period. *Anesth Analg.* 1995;80:242–248. [PubMed]
2. Katz J, Jackson M, Kavanagh BP, Sandler AN. Acute pain after thoracic surgery predicts long-term post-thoracotomy pain. *Clin J Pain.* 1996;12:50–55. [PubMed]
3. Pollock RE, Lotzova E, Stanford SD. Mechanism of surgical stress impairment of human perioperative natural killer cell cytotoxicity. *Arch Surg.* 1991;126:338–342. [PubMed]
4. Lennard TW, Shenton BK, Borzotta A, Donnelly PK, White M, Gerrie LM, Proud G, Taylor RM. The influence of surgical operations on components of the human immune system. *Br J Surg.* 1985;72:771–776. [PubMed]
5. Britannica Concise Encyclopedia. About analgesics: <http://www.answers.com/topic/analgesic>.
6. Christine K. O'Neil. Pain management, Neurologic disorders. section 5 :487-500.
7. Swamy RM, Venkatesh G, Nagaraj HK. A prospective drug utilization evaluation of analgesics and pain assessment in postoperative urological patients in a Tertiary care hospital. *Biomedical Research* 2010; 21 suppl4 :401-405. 10. S.A. Bawazir. Prescribing pattern at community pharmacies in Saudi Ara
8. World Health Organization. WHO's pain ladder. <http://www.who.int/cancer/palliative/painladder/en/>.
9. Dasta, joseph F. Patterns of prescribing and administering drugs for agitation and pain in patients in a surgical intensive care unit. *Critical care medicine journal* june 1994, volume 22, issue 6.
10. Ali L, Chowdhury SAR. Study of drug utilization pattern at a teaching hospital. *Bangladesh J PhysiolPharmacol* 1993;9 :27-28.
11. Md. ShamsurRahman, ZinnatAra Begum, Md. KhoshrozSamad. Prescribing pattern of nonsteroidal anti-inflammatory drugs at outpatient departments of teaching hospital. *Bangladesh J Pharmacol* 2007;2 :1-6.
12. Lapane KL, Spooner JJ, Mucha L, Straus WL. Effect of nonsteroidal anti-inflammatory drug use on the rate of gastrointestinal hospitalizations among people living in long term care. *J Am GeriatrSoc* 2001;49 :577-584.