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## RESEARCH ARTICLE

### PATTERN OF ANALGESIC UTILIZATION IN IMMEDIATE POST-OPERATIVE PERIOD AND AS A PART OF CONSERVATIVE MANAGEMENT WITH CONCOMITANT ANTIULCER AND ANTIEMETIC UTILIZATION IN PATIENTS ADMITTED IN SURGICAL WARDS OF A TERTIARY CARE HOSPITAL IN KASHMIR; A RETROSPECTIVE STUDY

<sup>1</sup>Samina Farhat, <sup>2,\*</sup>Shagufta Parveen, <sup>3</sup>Mariya Qureishi, <sup>4</sup>Yakzata Bashir, <sup>4</sup>Saba Latief, <sup>4</sup>Misbah Jabeen and <sup>4</sup>Manal Lateef

<sup>1</sup>Associate Professor and Head, Department of Pharmacology, Govt. Medical College Srinagar, India

<sup>2</sup>Lecturer, Department of Pharmacology, Govt Medical College Srinagar, India

<sup>3</sup>Lecturer, Department of PSM, Govt Medical College Srinagar, India

<sup>4</sup>Final year Student, Govt Medical College Srinagar, India

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#### ABSTRACT

**Objective:** The primary aim of this study was to find out the pattern of different analgesics used in patients admitted in various surgical departments in a tertiary care hospital who were either operated upon or managed conservatively. The concomitant utilization of antiulcer and antiemetic drugs and the relationship between the type of management and the type of anesthesia used with the need for antiemetic utilization were also looked into as secondary objectives.

**Material and Methods:** This retrospective study was conducted in the Sri Maharaja Hari Singh (SMHS) Hospital, a tertiary care hospital in Kashmir commencing from June 2015-Aug 2015 by screening the case sheets from the record section of the said hospital. The data was compiled, tabulated and analyzed for various variables.

**Conclusion:** From our analysis, it can be concluded that the non opioid analgesic, diclofenac (62.2%) is the most commonly prescribed analgesic in various surgical conditions in our set up whether the intervention is done or the patients are conservatively managed. This is followed in decreasing frequency by combination of various non opioid analgesics (15.8%), parenteral tramadol (9.0), combination of non opioid analgesics with tramadol (7.4%) and Paracetamol alone (5.8%) and to prevent the post operative nausea/vomiting (PONV) and stress induced gastritis or gastric erosions, ondansetron and proton pump inhibitors (PPIs) are preferred antiemetic and antiulcer drugs given to the extent of 39.5% and 91% respectively.

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#### INTRODUCTION

Pain has been defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage” by the Task Force on Taxonomy of the International Association for the Study of Pain (Crombie, 1997). Optimising pain management can improve the outcome of patient care after any surgical intervention as well as with the conservative management. Inadequate pain control can result in increased morbidity and length of hospital stay as well as lead to chronic pain. It can also lead to complications like deep vein thrombosis, respiratory problems and also delayed wound healing (Francis, 2013).

\*Corresponding author: Shagufta Parveen

Lecturer, Department of Pharmacology, Govt Medical College Srinagar, India

Undertreated severe pain may have physiological consequences in the form of increasing the stress response to surgery, seen as a cascade of endocrine-metabolic and inflammatory events that ultimately may contribute to organ dysfunction, morbidity, increased hospital stay and mortality (Sumana Sen, 2015). Managing postoperative pain efficiently is one of the important therapeutic challenges in the hospitals. Combination use of analgesics in postoperative wards is quite common, where in drugs from the opioid and non-opioid groups are given synergistically (Sumana Sen, 2015). Opium and its semisynthetic and synthetic derivatives have come up to be the most effective analgesics in immediate postoperative period (Hamilton, 2000). A combination modality of opioid and non opioid analgesics is being frequently practiced nowadays both in surgical interventions or otherwise after any contraindication has been ruled out. The World Federation of

Societies of Anesthesiologists (WFSA) has devised 'Analgesic Ladder' to treat acute pain (World Health Organization, 2005). According to this ladder, immediately after an operation, the pain is expected to be severe and may need controlling with strong parenteral opioids in combination with local anesthetic blocks and peripherally acting drugs. Normally, postoperative pain should decrease with time and the need for drugs to be given by injection should cease. There is then a step down to oral opioids and finally to non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen on its own<sup>6</sup>. Analgesics with a better safety profile and having less tolerance, dependence and abuse potential should be used whenever the need arises.

The goal of effective pain management is to provide relief/satisfaction to patients, expedite recovery and functional ability, reduce morbidity and minimize hospital stay. The concept of 'multimodal analgesia' advocates the use of several different classes of analgesics and different routes of administration which can produce a synergistic action. This also helps to reduce the effective doses of the individual drugs and their adverse effects. Need for antiemetics after any surgical intervention is to prevent PONV which is now a well studied fact and the incidence of same varies between 20% and 30% depending on surgical and patient factors and can complicate the lives of both patients and health care providers<sup>7</sup>. Antiemetics may also be needed in patients on conservative management in many surgical ailments. PPIs are also given prophylactically along with NSAID's or to suppress the stress induced acid secretion in patients admitted for various reasons which is otherwise known to cause gastric injury (Hawkins 2000). Proton pump inhibitors have been demonstrated to be safe and well tolerated drugs but short term adverse effects like headache, dizziness, diarrhoea, fatigue, rashes and abdominal pain have been reported in 5% of the patients taking proton pump inhibitors (Katelaris *et al.*, 1999 and Reilly, 1999). Not many Indian studies have focused solely on utilization pattern of above mentioned drugs nor has highlighted the different aspects of multimodal analgesia (Sumana Sen *et al.*, 2015). So with this thing in mind, the present analysis was carried out.

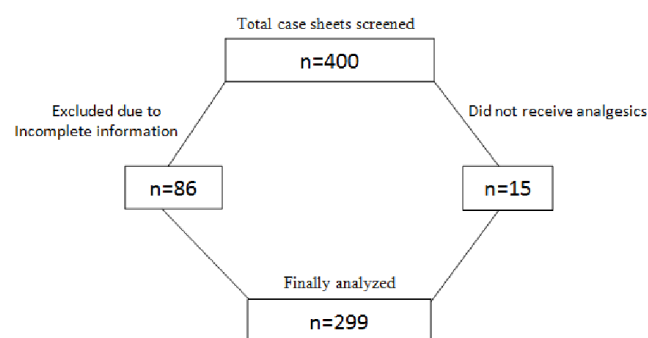
### Objectives

- The primary objective of this study was to find out the pattern of different analgesics used in patients admitted in various surgical departments in a tertiary care hospital who were either operated upon or managed conservatively.
- To find out the utilization of concomitant antiulcer and antiemetic drug.
- To find out the relationship between the type of management and the type of anesthesia used with the need for antiemetic drug utilization

### MATERIAL AND METHODS

This retrospective study was conducted in the SMHS Hospital, an associated hospital of Govt. Medical College Srinagar in Kashmir over a period of three months commencing from June 2015-Aug 2015 by screening the case sheets from the record section of the said hospital after seeking permission from ethical committee of the same college. The data was tabulated as per the demographic profile, different surgical ailments,

type of management the patients were subjected to, the analgesics that were used in their immediate post operative period or as a part of their conservative management and also the antiulcer and antiemetic drugs that were concomitantly used. In case of surgical intervention, analgesic utilization in immediate post operative period and two days following was noted down and also if any supplementary analgesia (any additional analgesic used besides the one that patient had already received, but was not completely pain free) if needed was also noted. The percentage of drugs prescribed by generic name was also noted down. The generic name of the drugs and the generic contents of formulation were obtained from the Indian Drug Review. The results were calculated in percentage and mean±SD where ever applicable. Chi square test was used to find out the relationship between the type of management and the type of anaesthesia used and the need for antiemetic administration.



### RESULTS AND DISCUSSION

Among the studied group, number of male patients was 136(45.5%) and that of females was 163(54.5%). Most of the patients were in the age group of 11-50 years comprising about 63.8%, though the age ranged from < 1 year to 80 years. The mean age of the studied group was 35.3±19.1 years (Table 1). Most of the patients were admitted for the causes related to GI system (54.8%) amongst which cholelithiasis was the most common diagnosis. This was followed by the diseases related to urogenital system which accounted for 16.1% of total cases. Rest of the cases belonged to various other systems (Fig 1).

Table 1. Age and Sex Wise Distribution

Age Group(years)	Frequency		Total	Percentage (%)
	Male	Female		
≤10	28	12	40	13.4%
11-30	38	58	96	32.0%
31-50	35	60	95	31.8%
>51	35	33	68	22.8%
Total	136	163	299	100%

Mean±SD=35.3±19.1years

Out of total 299 cases, 250 (83.6%) were subjected to surgeries while 49 (16.4%) were managed conservatively ( Fig 2). Amongst the patients where intervention was needed, 71.6% of cases were subjected to elective procedures while as emergency intervention was required in only 28.4% of cases. As far as the most commonly used analgesic is concerned, parenteral Diclofenac alone was the most frequently used analgesic both in immediate post operative period as well as in patients managed conservatively and was prescribed to the extent of 62.2% with the intravenous Diclofenac alone accounting for about 55.9%.

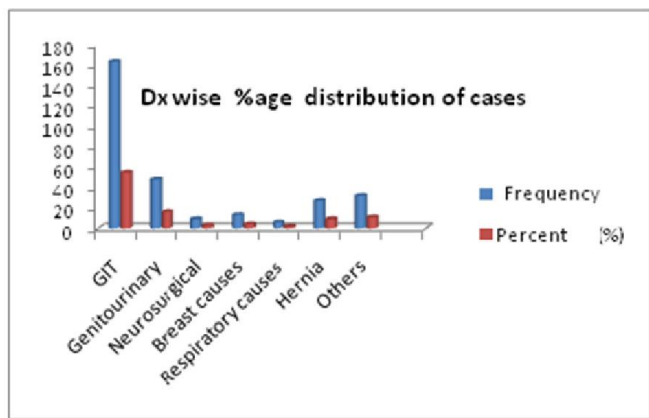


Fig. 1.

This was followed by combination of two non opioid analgesics in 15.8% of cases which would include Ibuprofen and paracetamol combination (5.7%), iv Diclofenac and others (3.34%) and other combinations excluding Diclofenac in 6.7% of cases. Tramadol alone was used in 9.03% and combination of Tramadol and non opioids was used in 7.4% followed by Paracetamol only in 5.8% cases (Table 2).

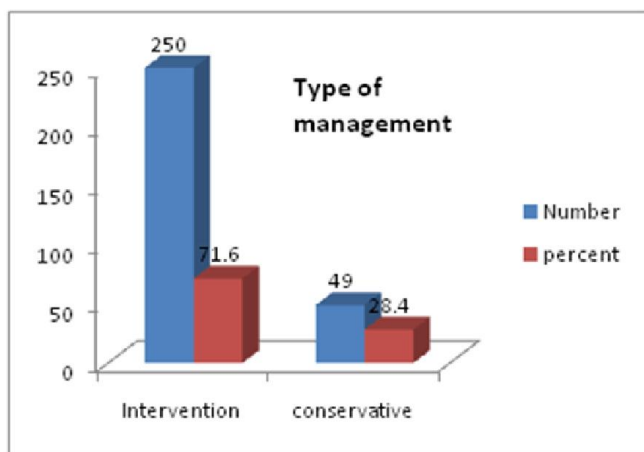


Fig. 2.

protocol that has to be followed especially in the patients of abdominal surgeries with gut handling.

Table 2. Different analgesics used in the management

Analgesic used	Frequency	Percent
IV Diclofenac ( Justin/ Rucanaq)	167	55.80
I/V Diclofenac (Justin)+others	10	3.34
Tramadol alone	27	9.03
Tramadol+Justin	12	4.01
Tramadol+PCM	03	1.03
Tramadol+Others	07	2.34
Imol	17	5.70
Voveran(I/M Diclofenac)	19	6.35
PCM ( parenteral+ R/S*)	17	5.70
Others	20	6.70
Total	299	100

\*R/S- Rectal Suppository.

The mean duration for which the analgesics were required in the studied group was 2.53±0.72 days .Preference of Diclofenac as mono therapy or as combination in majority of cases could be its availability of parenteral preparations in immediate post operative period or any surgical abdomen which can subsequently be converted to enteral therapy and also for lacking the potential to addiction. More ever being a nonselective COX inhibitor, it will be effective in relieving inflammation induced moderate and severe pain (Dashputra, 2013). Usage of Non-opioids can decrease the requirement of opioid analgesic in the early post-operative period also (Dashputra, 2013 and Elvir-Lazo *et al.*, 2010). Our results are comparable to the pattern observed by T. Kumarasingam *et al* (Kumarasingam, 2014), Dashputra AV *et al*, Chaudhari JS *et al* (2013) and Vallano A *et al* (Kumarasingam, 1999) suggesting that non-opioid analgesics are the preferred drugs for the treatment of postoperative pain relief. Tramadol (opioid analgesic)was the next analgesic used in 9.01% of patients, but its use was mostly confined to the patients subjected to the surgical intervention and that too in the immediate post operative period while its use in subsequent days was less, probably to prevent addiction or as post-operative pain is mostly due to inflammation with less involvement of affective component compared to the day of surgery when anxiety also

Table 3. Relationship between type of management and anesthesia used with the antiemetic utilization

		Use of antiemetic N (%)	Chi square test
ype of management	Intervention	109 (43.6)	p=0.001
	Conservative	09 (18.4)	
Type of anesthesia	General	84(53.2)	p=0.000
	Others *	33(23.4)	

\*Local, sedation, no anaesthesia given

Table 4. Utilization of anti ulcer drugs

Drug	Number	Percent
PPI	220	73.6
H <sub>2</sub> blocker	51	17.0
Not received any	28	9.4
Total	299	100

Analgesics were mostly given by infusion on the day of surgery and the day following and on second and third post operative days, intermittent parenteral or oral preparations were used. Need for infusion on immediate post operative day or 1<sup>st</sup> day is to relieve the patient of the severe pain which he/she perceives during these two days and also the nil per oral

might be more, enhancing pain sensation (Kumarasingam, 2014). Supplementary analgesic was required in 28 (9.36%) cases only and was given in the form of either Tramadol or one of the preparations of Diclofenac and rarely some antispasmodic was given. Coming to the antiemetic utilization, it was found that about 39.5% of the study group had received

anti emetic mostly in the form of Ondensteron but comparing the same between patients who had undergone various interventions with ones who were managed conservatively, the percentage of antiemetic utilization was 43.6% and 18.4% respectively making it statistically significant with the p value of 0.001 (Table 3). Besides this we tried to find out a relationship between the type of anesthesia with antiemetic utilization and a found that in case of patients subjected to GA, 53.2% of them needed antiemetics compared to 23.4% of those where GA was not used making the difference statistically significant with the p value of 0.000 (Table 3). Almost 91% of patients had received either a PPI or an H<sub>2</sub> blocker amongst which 73.6% had received PPIs while 17.0% had received H<sub>2</sub> blockers (Table 4). Need for antiemetic could have been the post operative nausea and vomiting (PONV) which is now a well studied fact and the incidence of same varies between 20% and 30% depending on surgical and patient factors and can complicate the lives of both patients and health care providers (Watcha, 1992). It can be especially troublesome in day surgery and at least, the patient experiences discomfort but persistent symptoms causing a delay in returning to normal activities for greater than one day has been reported (Carroll, 1995).

This may delay discharge from the recovery room, tying up human and material resources and if it is severe enough, may require the close monitoring (Hirsch, 1994). PPIs or H<sub>2</sub> blockers are also now the routine prescriptions in patients admitted for different reasons as well as in the post operative period to avoid any occurrence of stress bleed or simply the stress induced gastritis. In all these patients, only eight analgesics either alone or in combination were used or among them 87.50% were prescribed by brand names and only 12.50% were prescribed by generic names. Anti emetics and PPIs/H<sub>2</sub> blockers whenever used were prescribed by Brand names.

## Conclusion

From our analysis, it can be concluded that the mono-therapy with non opiod analgesic, Diclofenac alone (62.2%) is the most common practice in various surgical wards of our hospital followed in decreasing frequency by combination of two different non opiod analgesics in 15.8% patients, mono-therapy with Parenteral Tramadol (9.03%), combination of tramadol with non opioids (7.4%) and Parenteral Paracetmol (5.8%). Concomitant use of anti emetics and PPIs or H<sub>2</sub> blockers in our surgical practices to avoid any PONV and the post operative stress bleeds is seen to a great extent. Overall antiemetic utilization was observed in 39.5% of the cases, but on comparing the utilization in patients undergoing intervention with those managed conservatively, the same was found to be 43.6% and 18.4% respectively. Antiulcer drug utilization was found in almost 91% of patients with PPI and H<sub>2</sub> blockers being utilized in the percentage of 73.6% and 17% respectively.

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