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Original Research Article

Prescribing pattern of analgesics used for postoperative pain and its correlate with patient and doctor satisfaction

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ABSTRACT

Background: Post operative pain is difficult to assessment and its management has been neglected at times. Moreover, the drug treatment involves administration of drug on as and when basis which leads to inadequate control.

Methods: This observational, prospective study was conducted in 100 post-operative patients i.e., 50 each from surgery and orthopedics departments. Investigator enrolled post-operative patients within 24 hours of surgery and followed them for next 5 days or till hospital discharge, whichever was earlier. Analgesic prescribing pattern, self-assessment of pain, patient and doctor satisfaction using ASSIST questionnaire were recorded in Case Record Form and analysed.

Results: Out of 100 patients, average number of analgesics prescribed post-operatively was 1.49 ± 0.5 (baseline and all follow-up). 76.5% patients received NSAIDs which included diclofenac (44.29%) and paracetamol (30.87%). Opioids in the form of tramadol were prescribed in 23.49% patients. Mean least pain experienced by patients on day 1 was 2 ± 0.75 which decreased to 1.32 ± 0.63 on day 5. Mean worst pain decreased from 6.64 ± 1.43 on day 1 to 3.38 ± 1.17 on day 5. Average percentage of duration of severe pain was 35.2 ± 16.48 on day 1 which successively decreased to 16.32 ± 8.26 on day 5. Average pain relief observed in 62.3% patients on day one increased to 80.88% on day 5. Patient satisfaction increased as pain score decreased ($r = -0.73$) and a strong positive correlation was observed between doctor satisfaction and patient satisfaction ($r = 0.91$).

Conclusions: Inadequate control of post-operative pain affects effective patient management and recovery. Incorporation of effective pain assessment scores in pain management is desirable.

Keywords: Analgesics, Post-operative pain, ASSIST questionnaire, Patient satisfaction, Doctor satisfaction

INTRODUCTION

Pain is often described in terms of penetrating or tissue destructive process (e.g., stabbing, burning, twisting, tearing, squeezing) and/or of a bodily or emotional reaction (e.g., terrifying, nauseating, sickening).¹ Pain maybe classified as acute pain (for i.e., 3 to 6 months) or chronic pain (for i.e., 6 months). Post-operative pain (POP) is one of the most common postoperative complication. Post-operative pain is a form of acute pain following surgery. Post-operative pain management aims to minimize patient's discomfort, facilitate early mobilization and functional recovery and prevent acute pain evolving

into chronic pain.² Appropriate pain relief is also associated with good wound healing, early mobilization, fewer pulmonary and cardiac complication, reduces changes of deep vein thrombosis, faster recovery, shortened hospital days, reduced hospital costs and increased patient satisfaction. Different classes of analgesics like opioids, NSAIDs (Non-steroidal anti-inflammatory drug) and local anesthetics are useful in the management of post-operative pain.³ The assessment and management of pain in patients in hospital has been inadequate.⁴⁻⁶ As pain is a subjective feeling each patient may need different drugs and doses to manage pain. To ensure effective pain is management a system of

regular pain assessment used with an assumption that this will lead to improved pain management, as pain is a subjective feeling. Postoperative pain is poorly assessed and also not documented.⁷ Measurement of pain includes verbal and numeric self-rating scale, behavioural observational scales and physiological responses. Verbal rating scales, numerical rating scales and visual analogue scales which have been extensively used in the past with patient satisfaction scales being used rarely. Patient satisfaction scales (PSS) like PSS-Fin, Risser PSS have been used to assess pain satisfaction in patients. Information regarding magnitude of postoperative pain, its outcomes and patient satisfaction in relation to it has not been not studied in India.⁶ Hence, this study was conducted with the aim to study the prescribing pattern of analgesics used for postoperative pain in surgery and orthopedics department, to study self-assessment of pain by the patients and to correlate patient as well as doctor satisfaction with postoperative pain management.

METHODS

This prospective, observational, longitudinal continuous study was carried out in one unit each of surgery and orthopedics department of civil hospital, Ahmedabad and department of pharmacology, B. J. Medical College, Ahmedabad for a period of one year. Post-operative patients of surgery and orthopedics departments who were willing to give written informed consent, who could comprehend the ASSIST questionnaire and patients who were prescribed at least one analgesic drug were included in this study. After prior approval to conduct the study from institutional ethics committee and respective Head of

the departments, investigator enrolled post-operative patients as per selection criteria within 24 hours of surgery. Patients' therapeutic details, pain score, patient and doctor satisfaction scores were recorded daily in the ward in a predesigned validated case record form. All the patients were followed up till 5 days or till hospital discharge, whichever was earlier.

Study tool

ASSIST questionnaire was used to record pain scores, patients' as well as doctors' satisfaction.⁸

Statistical analysis

Data was entered in Microsoft Excel version 2010. Demographic details were described in mean \pm SD, descriptive statistics were used for other data and quantitative data was analysed using ANOVA test.

RESULTS

A total of 100 patients were enrolled in the study: 50 each from Surgery and Orthopedics department. Number of patients decreased successively from 100 on day 1 to 68 on day 5 as patients were discharged. Mean age of the enrolled patients was 43.33 \pm 16.6 (mean \pm SD) years (surgery: 46.72 \pm 15.74, orthopedics: 39.94 \pm 16.89). Mean weight of the patients was 55.70 \pm 13.73 kg. As far as education is concerned, 12 patients were uneducated; 13 had primary education; 43 had secondary education, while 32 were graduates. Out of 100 patients, 67 patients were employed.

Table 1: Analgesics prescribed postoperatively (n=100).

Analgesic drug group	Drugs	No. of patients
Opioids	Tramadol	28
Opioids + NSAIDS	Tramadol + Diclofenac	4
	Tramadol + Paracetamol	3
NSAIDS	Diclofenac	20
	Paracetamol	1
NSAIDS combination	Diclofenac + Paracetamol	42
	Diclofenac + Paracetamol +	2
	Serratiopeptidase	

The average number of intra-operative drugs used were 2.72 \pm 0.66. Most common intraoperative drug group was antimicrobials (147) which included Cefo-sulbactam in 56 patients, metronidazole 33, augmentin 18 followed by linezolidin 10 patients, other antimicrobials prescribe were amikacin, cefotaxime, piperacillin and tazobactam ceftriaxone 4, Levofloxacin, Ciprofloxacin in 4 each of the 3 drugs and Meropenem in 2 patients. Second most common prescribed drug group was gastrointestinal drugs (121 patients), of which pantoprazole was prescribed in 100 patients. And Ondansetron to 21 patients. Diclofenac was prescribed intraoperatively in 4 patients. Mean number of 7.28 \pm 1.75 of post-operative drugs were prescribed per patient. Antimicrobials (204) were the most common

drugs prescribed post-operatively followed by gastrointestinal drugs (179), vitamins and minerals (159), analgesics (149) and other drugs (37). An average of 1.49 analgesics per patient were prescribed post-operatively. Fifty-one patients were prescribed 1 analgesic, 47 patients were prescribed 2 and 2 patients were prescribed a combination of analgesics. Out of total 149 analgesics prescribed in 100 patients 35 were opioids analgesics while 114 drugs were NSAIDs. Amongst the analgesics prescribed, 28 patients were prescribed opioid (tramadol), 7 were prescribed opioids+NSAIDs, and 21 patients were prescribed a single NSAID while 44 patients were prescribed 2 NSAIDs.

Table 2: Scores of ASSIST questionnaire (pain scores, patient satisfaction and doctor satisfaction).

Parameters	Day 1 (n=100)	Day 2 (n=100)	Day 3 (n=98)	Day 4 (n=84)	Day 5 (n=68)
Number of patients experiencing pain (%)	100	100	99	100	100
Average least pain (Score 1-10) (Mean±SD)	2±0.75	1.94±0.81	1.72±0.65*	1.52±0.68*#	1.32±0.63*#
Average worst pain (Score 1-10) (Mean±SD)	6.64±1.43	6.06±1.59*	4.71±1.36*#	4.22±1.31*#	3.38±1.17*#@
Average percent severe pain duration (Mean±SD)	35.2±16.48	33.3±16.08	24.79±12.78*#	22.02±13.24*#	16.32±8.26*#
Average percent pain relief (Mean±SD)	62.3±10.71	66.5±10.48	72.55±9*#	75.59±9.35*#	80.88±8.05*#
Patient Satisfaction (Score 1-10) (Mean±SD)	6.3±1.02	6.74±0.97*	7.38±0.94*#	7.66±0.94*#	8.16±0.76*#
Doctor Satisfaction (Score 1-10) (Mean±SD)	7.41±1.3	7.74±1.25	8.37±1.06*#	8.7±0.96*#	9.1±0.73*#

*Significant as compared to day 1 (p<0.05), # significant as compared to day 2 (p<0.05), \$-Significant as compared to day 3 (p<0.05), @ significant as compared to day 4 (p<0.05), Using repeat measures ANOVA with Tukey's Post Hoc Test.

Out of 149 analgesics, 87.92% were injectable; 96.64% were prescribed by generic name and 98.65% were prescribed from NLEM. Two patients required additional paracetamol only for 1 day in addition to diclofenac. ASSIST questionnaire was used to assess pain scores, patient satisfaction as well as doctor's satisfaction for pain relief. All 100 patients experienced postoperative pain in the previous 24 hours on day 1, day 2, day 4 and day 5. ASSIST questionnaire had a scale of 1 to 10 where 1 was least score and 10 the highest. As seen in table 2 the mean least pain experienced by patients on day 1 was 2±0.75 which decreased to 1.32±0.63 on day 5. This decrease in score on day 2, 3, 4, and 5 was statistically significant (p<0.05, ANOVA). On the other hand, the mean worst pain experienced by patients on day 1 was 6.64±1.43 which decreased daily 3.38±1.17 on day 5. This decrease in mean worst pain was statistically significant on day 5. The average percentage of duration of severe pain in all the patients was 35.2%±16.48 on day 1 which successively decreased to 16.32±8.26 on day 5 which was statistically significant between day 1 and day 3, 4, 5. When the average pain relief was measured it was observed that in 62.3% patients achieved pain relief on day one while 80.88% patients achieved pain relief on day 5; which was statistically significant. Patient satisfaction was assessed in relation to doing activities in bed, activities out of bed, falling asleep, staying asleep, feeling about pain, side effects related to pain. On a scale of 1 to 10 it was found that the average satisfaction was 6.4±1.02 on day 1 which increased to 8.16±0.76 on day 5 (p<0.05, statistically significant). Post-operative pain caused 31% patients to feel anxious, 6% patients to feel depressed, 8% patients to feel frightened and 16% patients to feel helpless on day 4. Adverse effects experienced after surgery were: 82% patients had itching; 26% patients had nausea; 8% patients had constipation and 2% patients had drowsiness on day 1. Average doctor's satisfaction was 7.14±1.3 on day 1 which increased to 9.1±0.73 on day 5 (p<0.05, statistically

significant). However, it was observed that the number of analgesics prescribed didn't change according to average worst pain. Average worst pain (r=-0.99) and severe pain duration (r=-0.98) showed a negative correlation with patient satisfaction score; while pain relief percentage (r=1.00) and doctor satisfaction (r=0.99) showed a positive correlation with patient satisfaction (Pearsons correlation coefficient).

DISCUSSION

This prospective, observational, longitudinal continuous study was carried out in surgery and orthopedics department with the aim of comparing patient satisfaction and doctor satisfaction with self-assessment of pain in post-operative patients. The average number of analgesic drugs prescribed was 1.49. Out of these, 75% of the drugs were NSAIDs and 25% were opioids. Similar prescribing pattern was seen in a study done by Sharma SK et al, in which majority of drugs prescribed were (59%) NSAIDs.⁶ Opioids are more liberally used in the western countries may be because of easy accessibility and better training of Health care professionals.¹⁰ Opioids are more effective in the management of acute pain but their use in countries like India is restricted due to rigid regulations and fear of addiction. Another reason for the same maybe due to various barriers that prevent access to opioids for patients and healthcare practitioners. Concerns such as lack of awareness, prescribing practices and attitudes of physicians/patients still need to be addressed.¹¹ Fifty-nine patient required two or more than two analgesics as the analgesics were prescribed as per patient's needs. In the present study, all the patients experienced post-operative pain which was similar to a study conducted by Sharma SK et al., where 100% patients experienced post-operative pain during first 24 hours of the surgery. This is expected due to injury to tissues during surgical procedures. In the present study mean least pain on day 1 was 2±0.75

(mean±SD) which decreased to 1.32±0.63 on day 5. These findings were similar to the study conducted by Subramaniam B et al, showing a consistent improvement in patients' condition but an incomplete resolution. Worst pain experienced by patients on day 1 was 6.64±1.43 which also decreased to 3.38±1.17 on day 5. In the present study, average 62.3% pain relief was achieved with all treatment on day 1 while 80.88% pain relief was achieved on day 5. This means that about 20% of patients still experienced an inadequate relief from pain. Regular assessment of patients for pain relief can help in achieving a better pain relief. Additionally patient education for adequate reporting the postoperative pain and active patient participation in pain management are required. Inadequate pain relief might be due to lower prescription of opioids observed in the present study. Opioids offer better control of acute and moderate as has been historically observed. The present study used ASSIST questionnaire which uses incorporates worst and least pain; doctor and patient satisfaction. Assessment of only satisfaction has certain drawbacks. Satisfaction is a subjective feeling dependent upon patients' past experiences and future expectations.¹⁵

It is easy to assume that effective pain relief would correlate with patients' satisfaction in pain management. However, earlier research has shown that patients are highly satisfied with their pain management even when they have considerable levels of pain.¹⁶ It makes it further more difficult in interpreting the results of only patient satisfaction surveys on pain management.¹⁷ In the present study, doctor satisfaction was slightly higher compared to the patient satisfaction, as one experiencing the pain and one treating may have a difference. This further emphasizes that satisfaction assessment is subjective. Patients satisfaction increased on each subsequent postoperative day as average worst pain and severe pain duration decreased while pain relief and doctor satisfaction increased. ASSIST questionnaire used in the present study, incorporates the subjective aspects and attitudes of patients as well as doctors in pain management. The present study emphasizes that patients' involvement in pain management can help in better pain control and higher level of satisfaction. Additionally, constant monitoring of patients can act as a preventive strategy to minimize post-operative complication related to pain. Limitation of the present study is that tertiary hospital included in this study may not be representative of the general hospitals within the Indian subcontinent; consequently, there may be differences in hospital practices. The incidence of postoperative pain is high and pain assessment is inadequate. It is recommended that tertiary care centres should have acute pain services for the management of acute postoperative pain. Incorporation of patient and doctor satisfaction scores can help in appropriate adjustments in prescribing pattern of post-operative analgesics.

CONCLUSION

Inadequate control of post-operative pain affects effective patient management and recovery. Incorporation of

effective pain assessment scores in pain management is desirable.

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