A PROSPECTIVE STUDY ON POSTOPERATIVE PAIN MANAGEMENT OF PATIENTS UNDERGOING ELECTIVE SURGERIES IN SOUTHERN ODISHA

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ABSTRACT

BACKGROUND

This is a prospective, descriptive study. The objectives of this study were- 1) to gain comprehensive Knowledge of patient pain experiences and 2) to formulate strategy for effective and optimal pain management.

MATERIALS AND METHODS

This is a prospective, descriptive study of post-operative pain management of patients undergoing major elective surgeries at the department of General Surgery, M.K.C.G. Medical College & Hospital, Berhampur, during period June 2016 - May 2018, using VAS and Ramsay's sedation score at 1, 3, 6, 12, 24, 48, 72 hours. In this study, four analgesic modalities (NSAID + Sedative, IV Opioid, Epidural Opioid, Multimodal) were used.

RESULTS

In the present study, multimodal analgesic regimen with different classes of analgesics offered the best possible analgesia with fewer complications.

CONCLUSION

In this study, it was found that a multimodal regimen consisting of wound infiltration with Bupivacaine + IV Tramadol + Diclofenac Sodium IM could give good sustained post-operative analgesia with fewer complications and with best patient satisfaction.

KEYWORDS

VAS, Analgesia, Sedation.

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BACKGROUND

Postoperative pain is one of the most common therapeutic problems in hospitals.[1] Thorax and abdominal surgeries constitute an important proportion of general surgical operation. Effective pain management following surgery is a basic humanitarian right.[2]

Pain significantly upsurges the morbidity after laparotomy due to a reduction in the effort to breathe and suppression of cough reflex and consequently delays ambulation and recovery of bowel function.[3] This culminates in prolongation of hospital stay and other complications. The role of a well-planned pain management strategy in the immediate postoperative period is thus crucial to decrease the morbidity after major surgery, aided by the availability of multitude of drugs, dosages and routes of administration today.

Management of acute postoperative pain remains problematic. Patients continue to describe poorly controlled pain and studies report pain as underestimated, under medicated, and under relieved.[4-5]

Aside from the suffering caused by insufficient pain relief, this is an issue with potential adverse physiological and psychological consequences. Patients that continue to experience unrelieved post-surgical pain are at greater risk from developing deep vein thrombosis, pulmonary embolus, coronary ischemia, myocardial infarction and pneumonia.[6]

For pain management to be effective, each hospital must designate who or which department will be responsible for all of the required activities.[7] An improvement in postoperative pain relief has been observed with the introduction of a multidisciplinary team into a general hospital using simple techniques and simple instructions.[8]

Determining the prevalence and severity of postoperative pain in the hospital setting is a contribution to the evaluation of health care and it constitutes a reference for the future evaluation of interventional measures to improve postoperative analgesia.

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MATERIALS AND METHODS

This is a prospective, descriptive study of post-operative pain management of patients undergoing major elective surgeries at the department of General Surgery, M.K.C.G. Medical College & Hospital, Berhampur during period from June 2016 to May 2018.

Inclusion Criteria

- Patients undergoing all major surgeries over abdomen and chest.
- Patients aging between 18 yrs. – 70 yrs.

Exclusion Criteria

- Patients unwilling to participate in the study,
- Inguinal and perineal surgeries,
- Laparoscopic surgeries,
- Patients with h/o allergy to analgesic medications to be used in the study,
- Patients experiencing intra operative, anaesthetic, complications.
- Pregnant Female.

A total of 200 patients were studied over the period from June 2016 to May 2018 (2 years). All the patients were explained and educated about the VAS and Ramsay sedation score and the usage of it pre-operatively. Informed consent was taken. Pain was evaluated on a 10-point VAS at 1 hr, 3 hrs, 6 hrs and 12 hrs, 24 hrs, 48 hrs and 72 hrs post-operatively. The level of sedation was objectively assessed using Ramsay's Sedation score.

In this study 4 analgesic modalities were used.

Modality 1. (NSAID + Sedative)

(Inj. Diclofenac 75 mg IM BD + Diazepam 5 mg rectal suppository at HS). Patients were given Inj. Diclofenac 75 mg IM soon after they perceived moderate degree of pain (VAS >25 mm) postoperatively and 5 mg of diazepam rectal suppository HS on the day of surgery. The same dose was given for the first 3 post-operative days. Between the doses all patients experiencing severe pain were given Inj. Fentanyl 50 microgram slow I.V. as rescue analgesic.

Modality 2. (IV Opioid) (Inj. Tramadol 50 mg slow IV BD)

All the patients in this group were given inj. Tramadol 50 mg slow iv soon after they experienced moderate pain (VAS>25 mm) postoperatively. The same dose was given for the first 3 post-operative days. Between the doses all of the patients experiencing severe pain were given Inj. Fentanyl 50 µg slow IV as rescue analgesic.

Modality 3. (Epidural Opioid) (Inj. Tramadol Epidural Bolus BD)

Patients receiving this modality received one dose of Inj. Tramadol 100 mg epidural bolus injection soon after they experienced moderate pain postoperatively. In the first 3 post-operative day Inj. Tramadol 50 mg was given by epidural route. Between the doses all those experiencing severe pain were given Inj Fentanyl 50 µgm slow IV as rescue analgesic.

Modality 4. Multimodal (LA Wound Infiltration + I.V. Opioid + NSAID)

All the patients receiving this group received operative wound infiltration with 0.5% Bupivacaine 15 ml immediately following closure of the incision, Inj. Tramadol 50 mg slow I.V. given soon after they perceived moderate pain (VAS >25 mm) post operatively. In the first 3 days all of them received Inj. Tramadol 50 mg slow IV BD and Inj. Diclofenac 75 mg IM OD at scheduled timings. Both the drugs are given at different timings. Those experiencing severe pain between the doses received lnj. Fentanyl 50 µgm slow I.V. as rescue analgesic.

RESULTS

In this study a total of 200 patients were included with 52% females and 48% males. Maximum patients were in the age group 50 to 60 years (34%). Maximum surgeries were done for hernioplasty (32%) followed by MRM (28%), cholecystectomy + CBD exploration (19.5%), gastrectomy (7.5%), hemicolectomy (4.5%), splenectomy (5%), APR (2%), cystogastrostomy (1%), LPJ (0.5%). Most common mode of anaesthesia was GA (47%). Most common type of incision was elliptical (28%) followed by midline abdominal (22.5%).

Group 1. The average score of pain intensity of 50 patients at the specified time interval-

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average VAS (mm)	46.4	16.3	20.9	58.4	21.5	17.8	15.5
Range (mm)	27-68	5-28	10-35	40-78	12-36	8-33	8-24

Table 1

Measured average level of sedation of 50 patients at specified timing was-

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average Sedation Score	2.5	1.8	1.3	0.7	1.5	1.4	1.2
Range	2-3	1-2	1-2	0-1	1-2	1-2	1-2

Table 2

Group 2: (IV Tramadol)
Pain Perceived & Patterns:

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
VAS (Avg.)	60.1	15.4	14.7	36.9	15.3	11.6	12.7
Range	42-78	6-28	6-24	24-48	6-28	8-20	10-20
Table 3							

Level of Sedation

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average Sedation Score	2.3	3.4	2.5	1.2	2.7	2.2	2.3
Range	2-3	3-4	2-3	1-2	2-3	2-3	2-3
Table 4							

Group 3. Modality III: (Epidural Tramadol)
Pattern and Distribution of Pain

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
VAS Average	16.5	43.9	18.6	30.1	18.2	15.6	14.5
Range	12-24	30-68	12-26	22-42	12-28	10-22	4-22
Table 5							

Level of Sedation

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average Sedation Score	1	0.6	1.2	1.1	0.8	0.8	0.7
Range	0-2	0-1	1-2	0-2	0-1	0-1	0-1
Table 6							

Group 4. Modality IV: (Multimodal Analgesic Group)
Pattern and Distribution of Pain

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average VAS	10.7	12.6	32.8	13.4	10.6	11	10
Range	6-16	8-20	20-46	6-26	6-16	6-18	6-16
Table 7							

Level of Sedation

Time	1 hr.	3 hrs.	6 hrs.	12 hrs.	24 hrs.	48 hrs.	72 hrs.
Average Sedation Score	0.8	1	0.5	1	0.1	0.5	0
Range	0-2	1	0-1	1	0-1	0-1	0-1
Table 8							

Comparison of 4 Groups in Relation to Overall Patient Satisfaction

Satisfaction	Group 1 (No. of Patients)	Group 2	Group 3	Group 4
Good	08	24	24	42
Satisfactory	40	26	26	08
Poor	02	00	00	00
Table 9				

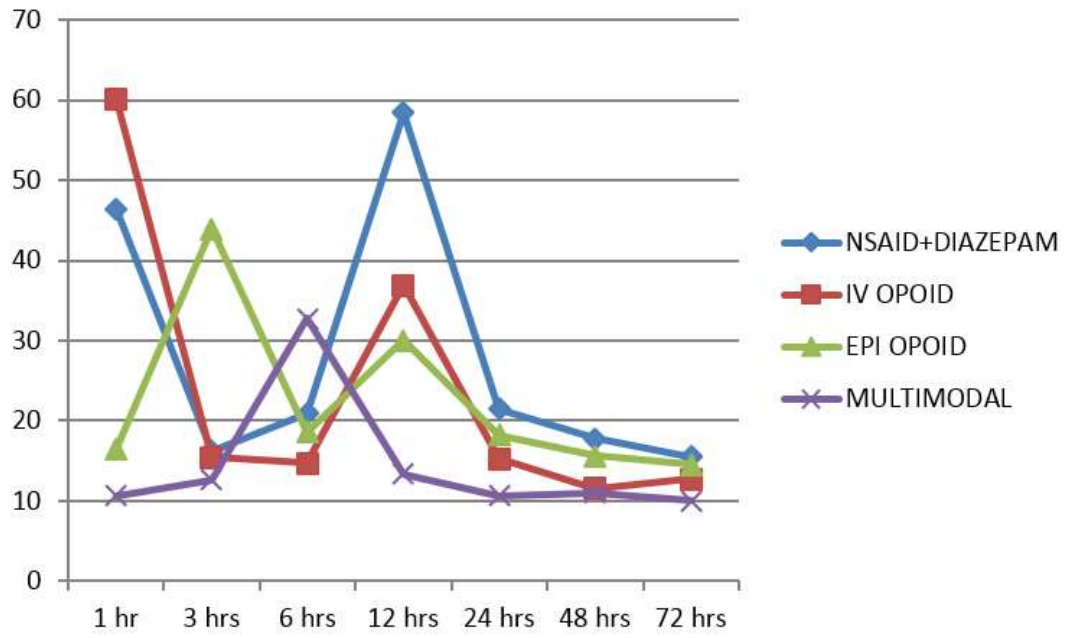

Figure 1. Comparison of 4 Groups in Relation to Pain Distribution

It is evident from the above statics that in this study the Multimodal analgesia group (Group lV) achieved effective and sustained post-operative analgesia than the other groups with fewer spikes of pain scores and with least consumption of opioids.

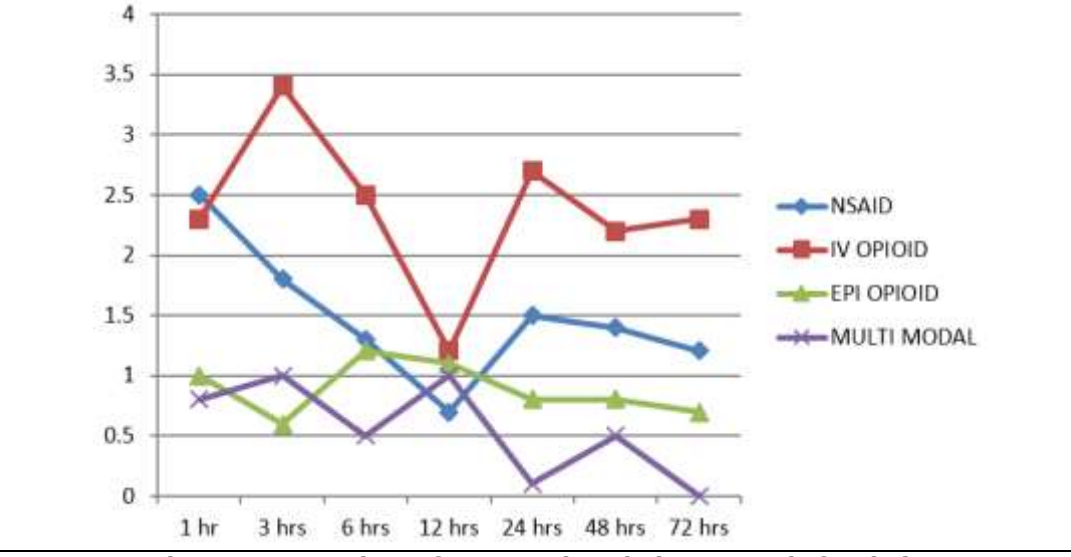

Figure 2. Comparison of 4 Groups in Relation to Level of Sedation

It is evident from the chart that in this study the average sedation levels were not uniform throughout the post-operative period but were undulating. Group IV (multimodal analgesia group) patients experienced the lowest baseline level of sedation in this study.

DISCUSSION

Pain is not an unavoidable consequence of surgery. Postoperative pain after abdominal surgery is excruciating, due to the damage to muscles and peripheral nerves. Pain control is an essential component of postoperative care and is often regarded the fifth vital sign. It is well documented that inadequate pain relief is deleterious and can lead to a number of complications in the postoperative period. The importance of pain relief is well-recognized, but it is most often seen that pain control is inadequate.

- Present study is a prospective, descriptive study of post-operative analgesia and pain management of 200 patients who underwent elective major surgeries at MKCG Medical College &Hospital, Berhampur during the period between June 2016- May 2018.
- Four types of analgesic modalities were used in the post-operative period for the patients and the levels of pain, sedation, amount of medication consumed, level of patient satisfaction and total duration of hospital stay were measured and compared between the groups.

- VAS was used to measure the pain and Ramsay's sedation score was used to quantify sedation at 1, 3, 6, 12, 24, 48, 72 hours.
- Diclofenac and Diazepam in conjunction achieved acceptable levels of post-operative analgesia comparable to that of IV Tramadol. But the sedation was higher than expected.
- Tramadol achieved similar analgesic levels with both IV and EPIDURAL routes but the intervals of severe pain, the requirement of rescue analgesics and sedation levels were more with IV route.
- Multi modal analgesia with wound infiltration with LA+ IV Tramadol + IM Diclofenac achieved the best level of analgesia in this study with least consumption of opioids, lowest level of sedation and with best patient satisfaction.
- In the present study most of the patients were effectively treated of post-operative pain. The average pain scores were below 30 mm after 12 hrs in all groups.
- In this study majority of them experienced mild to moderate post-operative nausea and vomiting. Only few of them in Group II experienced severe PONV. No patient in the study developed DVT, MI post operatively.
- All the patients were mobilised early and their ambulation pain scores were in the acceptable range. The duration of hospital stay following surgery was similar in all the groups of patients, no patient stayed for prolonged period in the hospital. In this study the overall patient satisfaction is good.
- Epidural analgesia with opioids did gave comparable analgesic results as with multimodal regimens but it needed an additional procedure of catheterization of epidural space, exposing the patients to procedure related complications and adherence to the anaesthetic team; and is expensive.
- In a low resource setting where round the clock anaesthetic team are not available a multimodal regimen consisting of Wound infiltration with Bupivacaine + IV Tramadol + Diclofenac sodium IM could give good sustained post-operative analgesia with fewer complications in the economical range.

CONCLUSION

In this study, it was found that a multimodal regimen consisting of wound infiltration with Bupivacaine + IV Tramadol + Diclofenac Sodium IM could give good sustained post-operative analgesia with fewer complications and with best patient satisfaction.

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