



INTRAVENOUS LIGNOCAINE INFUSION IN MANAGEMENT OF SEVERE NEUROPATHIC PAIN ASSOCIATED WITH METASTATIC CANCERS.

Palliative Medicine

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ABSTRACT

Background: Cancer related neuropathic pain remains a challenge to manage. Lignocaine is a local anesthetic which has been used in controlled dosages to manage neuropathic pain. **Aim:** To find out analgesic effect of lignocaine in cancer related neuropathic pain and to analyze side effects if any. **Study Design:** Prospective observational study carried out in 40 patients suffering from metastatic cancer and having severe neuropathic pain. SSPS software was used for statistical analysis. **Result:** There was reduction in intensity of pain on numerical rating scale (NRS) from 8.09 ± 0.85 to 2.93 ± 1.43 immediately after procedure. After 3 days the pain score on NRS was 2.01 ± 1.07 whereas at 7 days it was 3.42 ± 1.73 . The intensity of pain on NRS at 15th day was 6.31 ± 1.72 . **Conclusion:** Intravenous lignocaine was found to be effective in managing neuropathic pain but its effect was found to be of short duration and supplemental analgesia with opioids and neuropathic medication is needed.

KEYWORDS

lignocaine, neuropathic pain, metastatic cancer.

INTRODUCTION

Pain associated with cancers is known to be one of most severe kind of pain. For management of cancer pain we rely on world health organization (WHO) analgesic ladder. When pain becomes so severe that it can't be controlled by medications of step one and step two of WHO analgesic ladder, then we have to go step three which includes using strong opioids like morphine, fentanyl and intravenous lignocaine. Sometimes pain becomes refractory and despite giving neuropathic and narcotic medications, pain is still not relieved. Neuropathic pain is described as a pain which is burning, shooting, electric shock like in sensation.

Lignocaine an amide type of local anesthetic, which is also known to be a sodium channel blocker is commonly used for perioperative nerve blocks with an added advantage of being an intravenous analgesic.^{[1],[2]} It can be used as an alternative drug to opioids and will be beneficial in persons who are having opioid related side effects or are opioid tolerant or patients who have a history of drug abuse.^[2]

MATERIAL AND METHODS:

This study was conducted after taking due approval from institutional ethics committee and written informed consent from the patients. In this prospective observational study, we have included 40 patients who had undergone intravenous lidocaine infusion in our institute from 1st October 2021 to 1st October 2022. The patients were suffering from metastatic cancer and were having severe neuropathic pain. They were given intravenous infusion of lignocaine which was preservative free in a dose of 5 mg/kg given diluted in normal saline 100 ml over 1 hour. This infusion was done on three consecutive days. Pain scores were evaluated before infusion, immediately after infusion, after 3 days, after 7 days and finally 15 days after the procedure. Proper monitoring of heart rate, blood pressure and oxygen saturation was done during the procedure.

Inclusion Criteria

1. Patients with severe neuropathic cancer pain. Numerical rating scale NRS 7-10.
2. Patient aged 20 – 60 years.

Exclusions

1. Patients having allergy to local anesthetics.
2. Patient with any cardiac illness.
3. Patients with hepatic & renal dysfunction.

RESULTS

Table 1: Demographics

Age	20-60 years
Male: Female	22:18
Intensity of Pain on Numeric Rating Scale	7-10

Table 2: Diagnosis And Pain Intensity

S. No	Diagnosis	Age	Sex	Pain on Numeric Rating Score (NRS)
1	Ca Gall Bladder	42	M	8
2	Ca Breast	35	M	7
3	Ca Pancreas	52	F	8
4	Ca Buccal Mucosa	37	M	9
5	Ca Buccal Mucosa	33	M	8
6	Ca Gall Bladder	57	F	7
7	Ca Pancreas	58	F	7
8	Ca Gall Bladder	38	M	8
9	Ca Buccal Mucosa	49	F	9
10	Ca Buccal Mucosa	38	M	7
11	Ca Pancreas	62	M	8
12	Ca Breast	58	F	9
13	Ca Buccal Mucosa	62	M	7
14	Ca Gall Bladder	57	F	8
15	Ca Breast	53	F	9
16	Ca Buccal Mucosa	59	M	7
17	Ca Pancreas	38	M	8
18	Ca Pancreas	47	M	8
19	Ca Gall Bladder	58	F	7
20	Ca Buccal Mucosa	52	F	8
21	Ca Breast	42	F	8
22	Ca Buccal Mucosa	35	M	7
23	Ca Gall Bladder	53	F	8
24	Ca Buccal Mucosa	27	M	9
25	Ca Buccal Mucosa	33	M	8
26	Ca Gall Bladder	57	M	7
27	Ca Pancreas	58	M	7
28	Ca Breast	48	F	8
29	Ca Pancreas	45	M	9
30	Ca Gall Bladder	51	F	7
31	Ca Gall Bladder	56	M	8
32	Ca Buccal Mucosa	48	F	9
33	Ca Buccal Mucosa	39	M	7

34	Ca Gall Bladder	41	M	8
35	Ca Breast	57	F	9
36	Ca Buccal Mucosa	52	M	7
37	Ca Gall Bladder	56	F	8
38	Ca Pancreas	55	M	8
39	Ca Gall Bladder	49	F	7
40	Ca Breast	52	F	8

Table 3: Pain Score Numeric Rating Scale (NRS)

Before Infusion	Immediately After Infusion	After 3 Days	After 7 Day	After 15 Days
8.09±0.85	2.93±1.43	2.01±1.07	3.42±1.73	6.31 ± 1.72

Table 4: Adverse Effects

	Number of Patients
Arrhythmia	None
Hypotension	None
Nausea & vomiting	2
CNS effects	None

DISCUSSION

Cancer pain associated with metastasis is one of the most severe pain known to mankind. Neuropathic pain affects nerves and is responsible for numbness, burning and electric current like sensation in the affected part. To relieve pain of neuropathic origin, Lidocaine which is an amide type of local anesthetic and is known to be blocking sodium channels and ectopic neural discharges^[3] is used. The study conducted by Moulin D E et al found that there are no long term benefits of intravenous lignocaine infusion in diabetic neuropathic pain.^[4] It is seen for long term relief; the cause of neuropathy should also be reversed. Similar to his findings Kim Y et al in their study shown that although effect of intravenous lignocaine infusion was short lasting but its repeated infusions has reduced the intensity of chronic neuropathic pain.^[5]

When severe pain occurs compliance to treatment also decreases, van den Heuvel S et al in their study found that patients who received intravenous lignocaine and were relieved of their pain, their compliance to ongoing oncologic treatment also became better, which improved overall prognosis.^[6]

Diabetic neuropathy is particularly troublesome, Aslam A et al in their study shown that intravenous lignocaine is safe and effective in treating painful diabetic neuropathy as compared to other modalities.^[7] Continuing infusion along with ongoing treatment and creating a multimodal approach to control pain is an effective approach Tan X in his study on neuropathic pain showed that infusion resulted in better clinical outcome.^[8]

Fibromyalgia is particularly distressing illness where sometimes pharmacotherapy does not produce sufficient results, de Carvalho JF studied fibromyalgia and tried to found role of intravenous lignocaine in fibromyalgia, he describes short term pain relief in patients who received lignocaine in patients suffering from fibromyalgia.^[9] Another utility of this infusion is post-surgical where Lu, Y et al found that lignocaine reduces requirement of patient controlled analgesia and incidence of post-operative pain after surgery.^[10]

Challapalli V in their study concluded that intravenous lignocaine if effective but more study is needed in different disease states.^[11]

Tremont-Lukats, I. W in their study on neuropathic pain used lignocaine and mexiletine and than compared them with existing analgesics found that relief of pain was equivalent with them.^[12]

Joad A in their study found significant reduction in intensity of neuropathic pain up to 14 days.^[13] Castiblanco-Delgado DS found that in neuropathic pain flare lignocaine infusion reduces intensity of pain.^[14] Hutson P in his study found no incidence of serious adverse effects associated with infusion and recommended use of trial doses for pain relief.^[15]

CONCLUSION:

In our study we found out that, intravenous lignocaine infusion is useful in management of cancer associated neuropathic pain but its effect is short lived and needs to be supplemented with strong opioids like morphine and neuropathic medication. There was no incidence of

significant adverse effects associated with infusion.

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