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Research Paper

Comparative study of Interventions pain management Vs conventional medications in head and neck cancer patient.

Dr Mrinal Dev Choudhury.
Fellow Pain And Palliative Medicine, State Cancer Institute, GMC, Guwahati

Dr Arun Deka.
Consultant and HOD, Pain and Palliative Medicine, State cancer Institute, GMC, Guwahati

Dr. Arnav Das
Fellow Onco anesthesia at SCI (Assistant Prof. at JMCH), State Cancer Institute,GMC, Guwahati.

Runa Chakravorty
Assistant Prof Royal Global University, Guwahati, Assam.

Abstract:-
*Introduction:-*Cancer *is a disease in which cells of the body grow out of control. Head and neck include cancerthat arises in the head or neck region (the nasal cavity,sinuses, lips, mouth, salivary glands, throat, or larynx), not including brain cancers or cancers of the eye.Radiation therapy, surgery, and chemotherapy are the three main treatments modalities.Pain confers substantial morbidity for head and neck cancer (HNC)patients undergoing radiotherapy alone (RT) or chemo-radiotherapy (CRT) as it hampers their treatment modalities and quality of life inhibiting speaking, eating, drinking or swallowing and sometimes reducing the treatment compliance. even with advance and different modalities of treatment procedures pain is one of the main complains of patient (80% of patient) that hampers their treatment or quality of life which is been managed by use of different group of analgesics (NSAIDS, opioids, adjuvant drugs,etc). opioid therapy remains the cornerstone of HNC pain management.neuropathic pain does not respond effectively to opioid therapy and often requires escalating doses, thereby exacerbating opioid side effects in the form of nausea, vomiting, constipation, sedation, respiratory depression, hallucinations, tolerance, and dependence. In this study we will assess different modalities of interventions that can be done in HNC patient and its impact on opioid requirements, clinical outcomes, and quality of life, as a potential new standard treatment for pain management in HNC patients.*
Objective:-*To compare both groups of patient (control & experimental) according to VAS (visual analogue scale) and both before and after the intervention and those taking conventional medications to relief symptom and improve quality of life and to follow the methods which is found to be more efficacious in our clinical practice.*
Keywords:- *head and neck blocks, opioids in head and neck cancer, conventional medications,*

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I. Introduction:-

Head and neck cancer (HNC) is defined as "cancer that arises in the head or neck region (the nasal cavity, sinuses, lips, mouth, salivary glands, throat, or larynx)"[1].Head and neck cancer patient from the time of diagnosis till any curative treatment present with main distressing symptom "pain"it is mostly due to the erosive and aggressive nature of thedisease process as well as the extensive and richnerve supply of the craniofacial region[2].pain represents a significant financial, physical,psychological, burden forpatients. Almost more than half of the patient will have pain at time of diagnosis, some will develope at the time of curative treatment like radiotherapy, chemotherapy or post surgery. Post Chemotherapy or post radiotherapy patient will have many other distressing symptoms also like mucositis, dermatitis, olfactory and gustatory loss, airway compromise,

disfigurement's etc, they all also contribute to the distress patient is having along with pain and together they decrease patient compliance to treatment which may lead to even interruption of further treatments.

II. Aim and Objective of Study:-

Aim:-To compare efficacy of intervention pain management and conventional medications for HNC patients presenting in Pain and Palliative Department.

Objective:-To compare both groups of patient (control & experimental) according to VAS (visual analogue scale)both before and after the intervention and those taking conventional medications to relief symptom and improve quality of life and to follow the methods which is found to be more efficacious in our clinical practice.

Study Design:-comparative study of Interventions pain management Vs conventional medications in head and neck cancer patient.

Sample Size:- 50

Inclusion Criteria:-All patients visiting Pain and Palliative department OPD except for the ones mentioned in exclusion criteria.

Exclusion Criteria:- Non-Ambulatory patients, Patients having history of allergic reaction to any component used in the intervention procedure, infection in the site of injection**.**

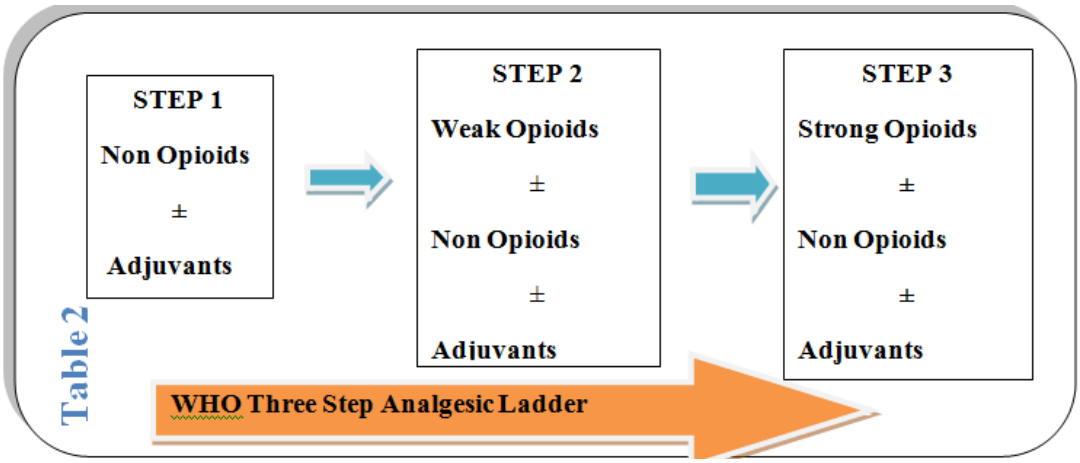
III. Materials And Methods:-

The study conducted in State Cancer Institute, GMCH, Guwahati, India after getting approval from the institutional Research Committee And Ethics Committee of State Cancer Institute, GMCH. Informed and written consent was taken from all the patient and detailed history about their allergy, co-morbidities (which may interfere with the medications or procedures that were to be done), infection in the site of injections were noted. 50 Head and neck cancer patient presenting in Pain and Palliative Department, State cancer Institute, GMCH OPD were selected. out of this 50 patients 25 patient (experimental) were selected for different Intervention pain managements and 25 patients (control) were getting conventional medications.

Experimental Group got Intervention pain managements like different Head and neck nerve blocks {e.g; Facial Nerve Block:- Trigeminal(Face), Opthalmic(eyelids, scalp), Supraorbital(forehead), maxillary(upper jaw), sphenopalatine(nose and palate), occipital nerve, superior laryngeal nerve, glossopharyngeal nerve[3][4]}, RFA etc.Control group received conventional medications (Table 1) according to WHO ladder (Table 2)[5] and relating to their VAS score.

Table 1. Medication for Cancer Pain Management.

Group	**Medicine Class**	**Medicine**
Non-opioids	NSAIDS	Ketorolac Celecoxib Naproxen
	Acetaminophen	Acetaminophen
Opioids	Weak Opioids	Codeine Hydrocodone
	Strong opioids	Morphine Oxycodone Fentanyl Patch
Adjuvants	Steroids	Dexamethasone Prednisolone Methylprednisolone
	Antidepressent	Amitryptalline Nortriptyline Venlafaxine
	Anticonvulsant	Gabapentin pregabalin



Materials Used In nerve Blocks:- Nerve Block a procedure where we try to block the sensory nerves by use of different medications (given below) and cold Radio frequency Ablation Method. Local Anaesthetics works by inhibiting the voltage gated Sodium channels, which impairs conduction through sensory fibres.[6]

Drugs[8]**:-**

a) lidocaine 2% with epinephrine (1:100,000).
b) bupivacaine 0.5%/ ropivacaine 0.25% without epinephrine.
c) 30 - 300µg of clonidine used as a perineural adjunct with LA.
d) 1, 2, 4, and 8 mg Dexamethasone with or without LA
e) Ethanol BP 100% v/v

Method:- 50 patient having Head and Neck Cancer patient were selected who presented in Pain and Palliative department OPD. Out of this 50 patient, 25 patient (control) were evaluated on the basis of VAS sore and Medication advised A/Q WHO analgesic step ladder. VAS score was noted for this patients along with their PR(pulse rate), SBP(systolic blood pressure), DBP(Diastolic blood pressure), Sp02(saturated partial pressure of oxygen), VAS score without medications, VAS score post conventional medications, Rescue analgesic that was needed during conventional medications in interval of 0hrs – 4hrs – 8hrs – 12hrs – 24hrs – 30hrs – 36hrs – 48hrs.(Table 3)

Table 3:-

Time	VISUAL ANALOGUE SCORE WITHOUT INTERVENTION		VISUAL ANALOGUE SCORE POST CONVENTIONAL MEDICATION		p-value
	Mean	SD	Mean	SD	
0 HRS	5.88	0.78	6.76	0.78	0.0002
4 HRS	6.76	0.78	3.80	0.76	0.0000
8 HRS	7.16	0.62	2.88	0.73	0.0000
12 HRS	7.12	0.44	2.72	0.68	0.0000
24 HRS	7.68	0.56	3.00	0.00	0.0000
30 HRS	7.24	0.44	3.48	0.51	0.0000
36 HRS	7.32	0.75	6.76	0.78	0.0126
48 HRS	7.24	0.66	6.76	0.78	0.0232

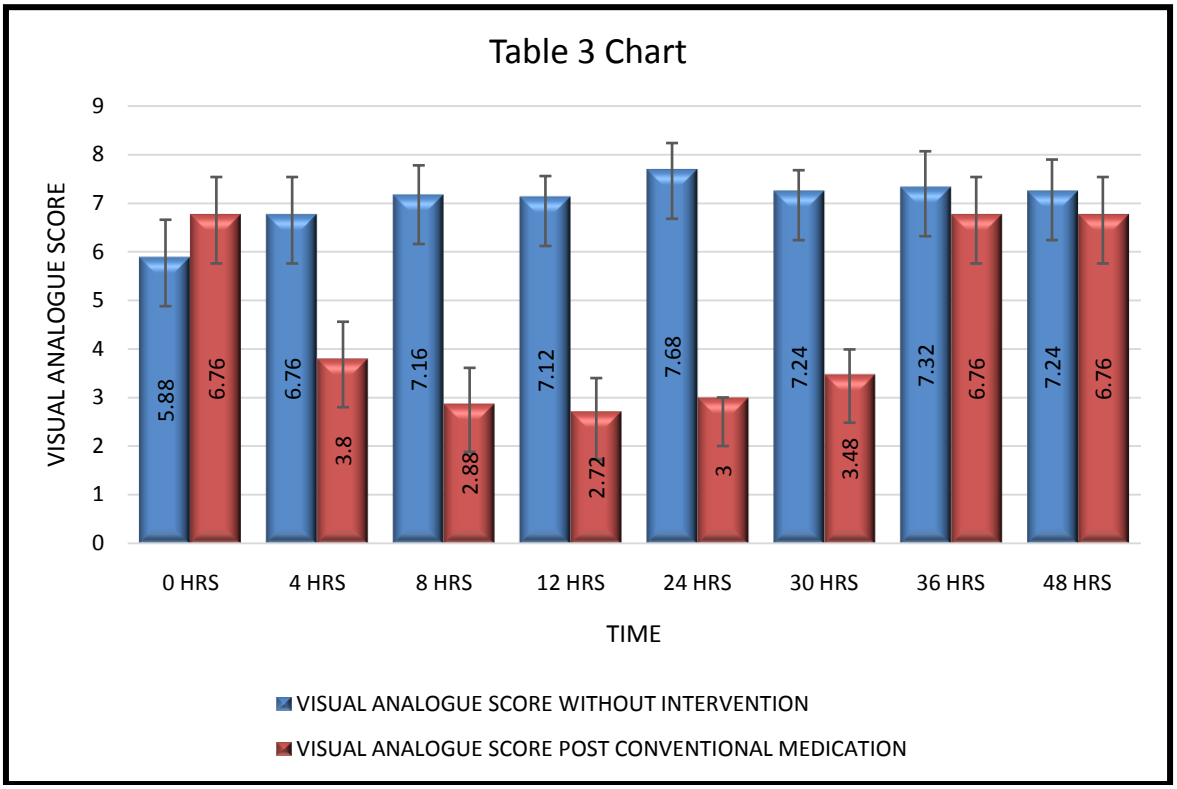
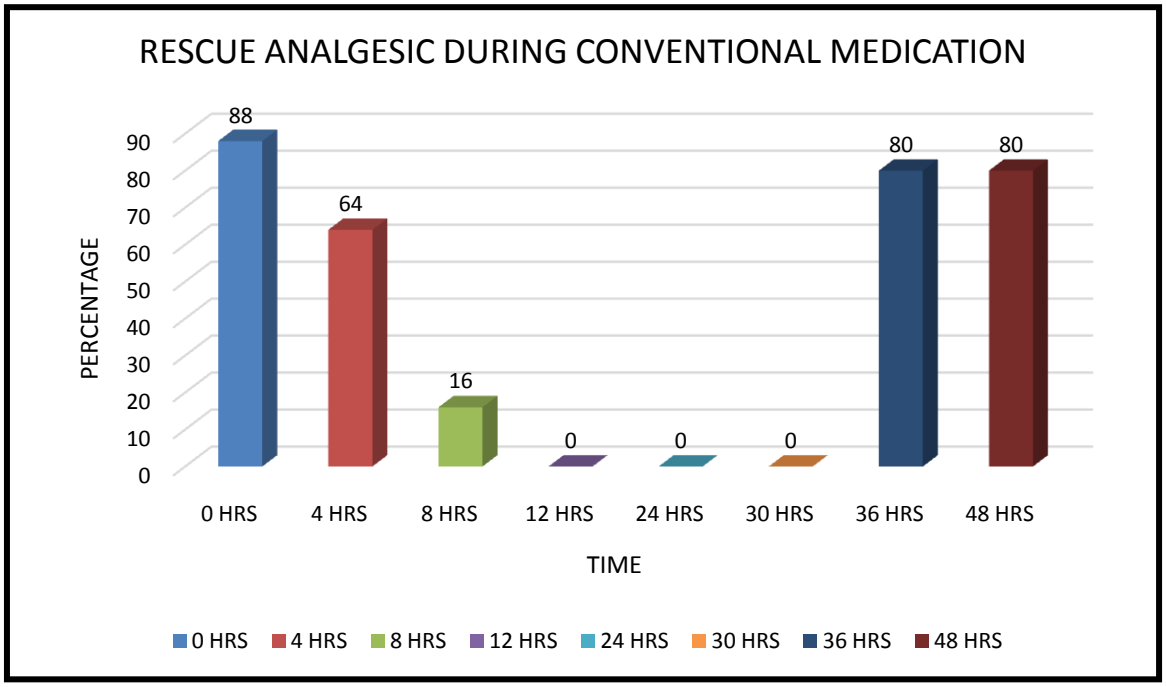


Table 3:- VAS score compare in patient without Intervention and post conventional medications.

In this table and chart 25 (control) patient data is given who had conventional medications and regular VAS score was evaluated, which showed that the patient tend to get relief of pain symptoms only 4hr to 30hrs after administration of conventional medications.

Table 4:-

Time	RESCUE ANALGESIC DURING CONVENTIONAL MEDICATION	
	N	%
0 HRS	22	88.00
4 HRS	16	64.00
8 HRS	4	16.00
12 HRS	0	0.00
24 HRS	0	0.00
30 HRS	0	0.00
36 HRS	20	80.00
48 HRS	20	80.00



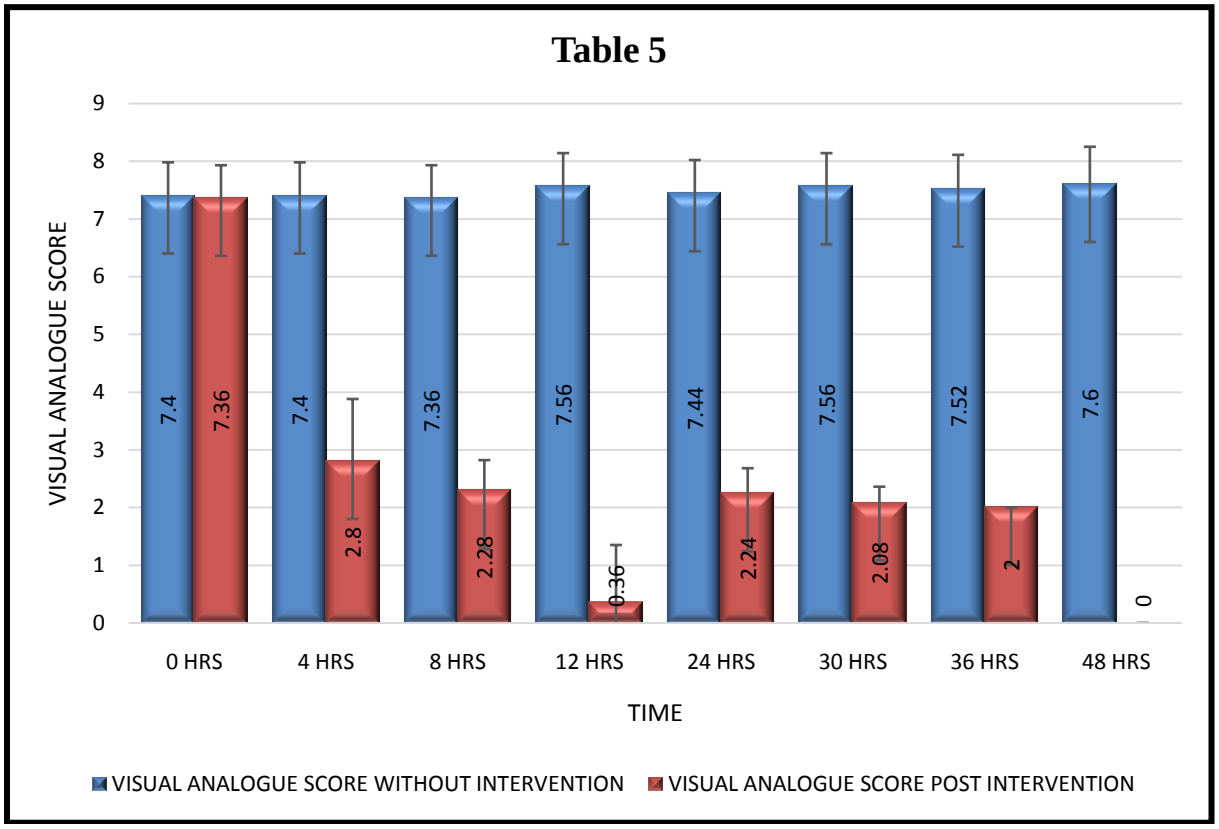
but regular use of rescue analgesic was needed as shown (Table 4). It shows that even after use of conventional medications regular rescue analgesics were required in regular intervals (0hrs to 4hrs) and (36hrs to 48hrs) to maintain patient symptom free.

The rest 25 (experimental) patient were also selected from the 50 patient group who visited in Pain and Palliative OPD and had the main complain of pain which was restricting their Quality of life. After a informed consent and detailed history evaluation they were planned for different Head and Neck Pain management interventions A/Q the site of pain and Tumour/disease site. Interventions were done under USG (ultrasonography) guided or A/Q to their anatomical Landmarks. In this procedure the Nerve/Ganglion to be blocked its route and area where injection has to be given is appreciated according to anatomical landmarks or under USG guidance. Injection site is cleaned and first subcutaneous injection (localize the skin with 0.5 mL of 2% lidocaine), then a continuous injection with intermittent aspiration is done of the medications mentioned above[8].

Table 5:-

Time	VISUAL ANALOGUE SCORE WITHOUT INTERVENTION		VISUAL ANALOGUE SCORE POST INTERVENTION		p-value
	Mean	SD	Mean	SD	
0 HRS	7.40	0.58	7.36	0.57	0.8061
4 HRS	7.40	0.58	2.80	1.08	<0.0001
8 HRS	7.36	0.57	2.28	0.54	<0.0001
12 HRS	7.56	0.58	0.36	0.99	<0.0001
24 HRS	7.44	0.58	2.24	0.44	<0.0001
30 HRS	7.56	0.58	2.08	0.28	<0.0001
36 HRS	7.52	0.59	2.00	0.00	<0.0001
48 HRS	7.60	0.65	0.00	0.00	<0.0001

VAS after intervention is statistically significant ($P< 0.05$) in comparision to VAS before intervention 4th hr onwards.



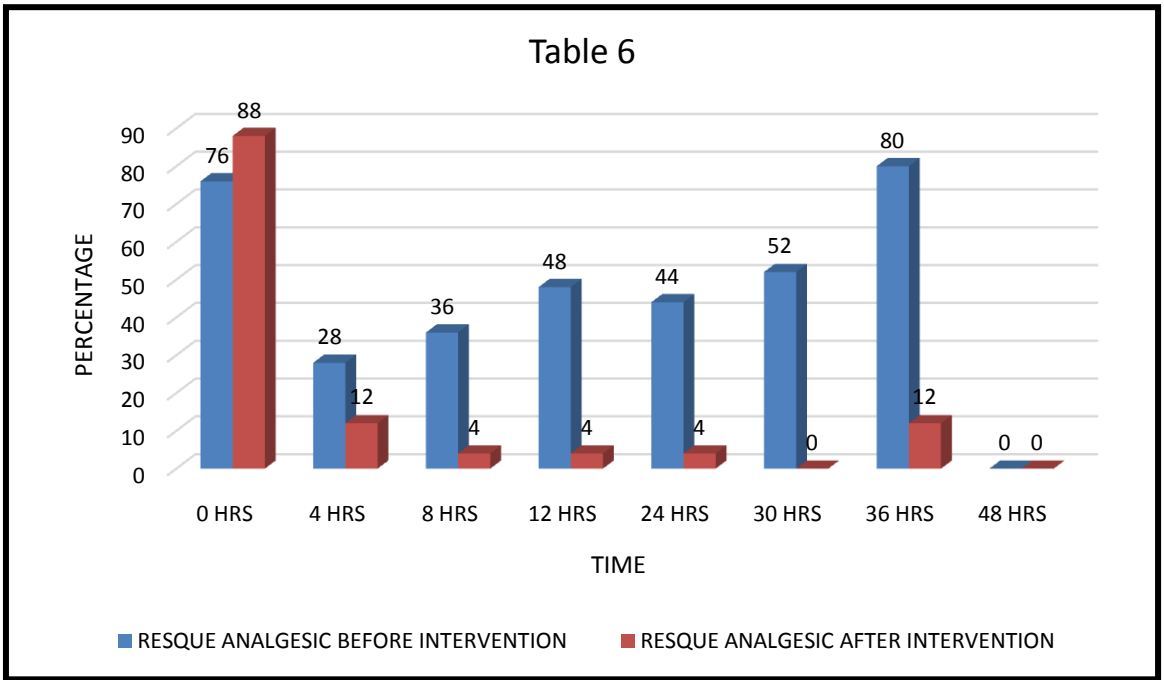
After the interventions regular monitoring of Patient (PR, SBP, DBP, SpO2, VAS without interventions and VAS after interventions, rescue analgesics need) was done at interval of (0hrs – 4hrs – 8hrs – 12hrs – 24hrs – 30hrs – 36hrs – 48hrs) as shown in (Table 5)

This shows that after successful interventions patient were having decreased pain symptoms for a longer duration of time and effect can be seen immediate after the intervention.

Rescue analgesic need was also evaluated as shown in (Table 6)

Table 6:-

Time	RESCUE ANALGESIC BEFORE INTERVENTION		RESCUE ANALGESIC AFTER INTERVENTION		p-value
	N	%	N	%	
0 HRS	19	76.00	22	88.00	0.4624
4 HRS	7	28.00	3	12.00	0.2878
8 HRS	9	36.00	1	4.00	0.0133
12 HRS	12	48.00	1	4.00	0.0013
24 HRS	11	44.00	1	4.00	0.0029
30 HRS	13	52.00	0	0.00	<0.0001
36 HRS	20	80.00	3	12.00	<0.0001
48 HRS	0	0.00	0	0.00	



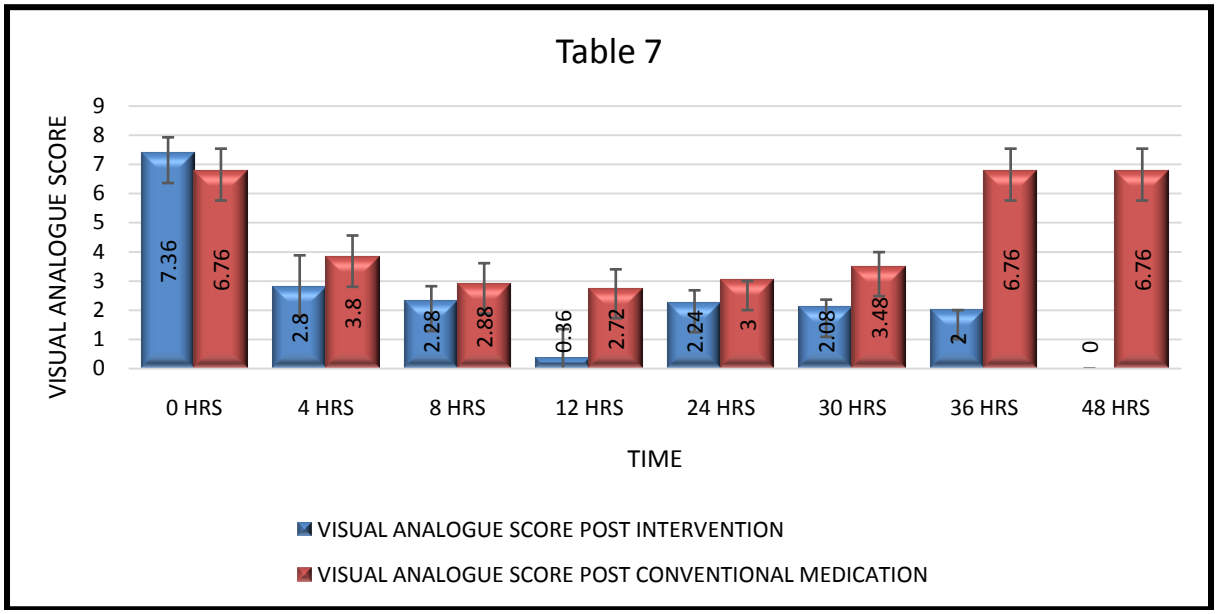
Rescue analgesic after intervention is less than before intervention which is statistically significant (P< 0.05) from 8th hr onwards.

This data between the evaluation of Rescue analgesic needed by the patient before intervention is much high and after interventions pain management is quite low. which can be taken as that the interventions procedures were successful and it has decreased patient need of taking continous conventional medications and also improved quality of life of patient by decreasing their pain symptom.

If we compare the patient data (Table 7)

Time	VISUAL ANALOGUE SCORE POST INTERVENTION		VISUAL ANALOGUE SCORE POST CONVENTIONAL MEDICATION		p-value
	Mean	SD	Mean	SD	
0 HRS	7.36	0.57	6.76	0.78	0.0031
4 HRS	2.80	1.08	3.80	0.76	0.0004
8 HRS	2.28	0.54	2.88	0.73	0.0017
12 HRS	0.36	0.99	2.72	0.68	<0.0001
24 HRS	2.24	0.44	3.00	0.00	<0.0001
30 HRS	2.08	0.28	3.48	0.51	<0.0001
36 HRS	2.00	0.00	6.76	0.78	<0.0001
48 HRS	0.00	0.00	6.76	0.78	<0.0001

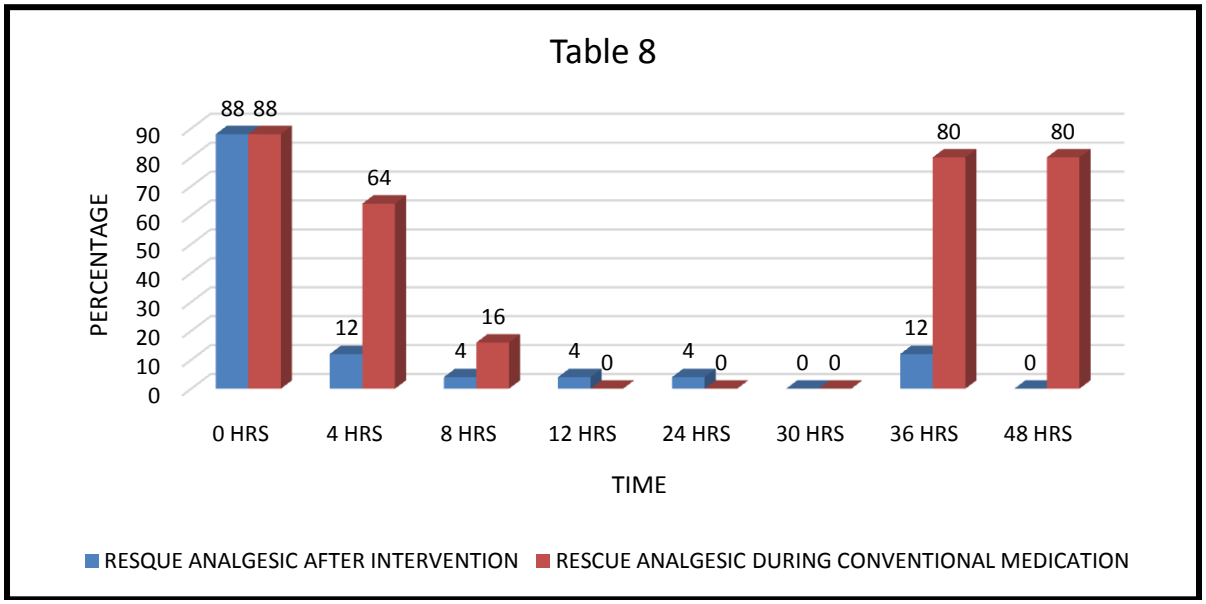
p-value less than 0.05 is very significant and (Table 7) shows that VAS Post Pain management intervention is much better than the VAS post conventional medication.



That shows that VAS in patients Post intervention was much less than the patients having conventional medications. this helps the patient in having better compliance to their treatment as they will need less medication and better control of symptoms leading to better quality of life. Even if we compare the data as in (Table 8)

Table 8:-

Time	RESQUE ANALGESIC AFTER INTERVENTION		RESCUE ANALGESIC DURING CONVENTIONAL MEDICATION		P-VALUE
	N	%	N	%	
0 HRS	22	88.00	22	88.00	1.000
4 HRS	3	12.00	16	64.00	0.0005
8 HRS	1	4.00	4	16.00	0.3455
12 HRS	1	4.00	0	0.00	0.3125
24 HRS	1	4.00	0	0.00	0.3125
30 HRS	0	0.00	0	0.00	1.000
36 HRS	3	12.00	20	80.00	<0.0001
48 HRS	0	0.00	20	80.00	<0.0001



This chart also shows the significance of pain managements interventions vs the conventional medications as after interventions patient had less need for rescue analgesics as their pain was better since 4hrs to 48hrs, but on the otherhand patients taking conventional medications were needed to have rescue analgesic at 0hr – 4hrs – 8hrs and 36hrs – 48hrs.

IV. Discussion:-

In this study after approval from the ethical committee 50 patient of Head and neck cancer were selected who presented in Pain and palliative department of State Cancer Institute, GMC, Guwahati, India. Head and neck cancer patient main complain is pain, it affects their quality of life, compliance towards treatment and pain also aggravates other symptoms from which patient is suffering (like dysphagia, vomiting, inadequate mouth opening). This 50 patients were divided into two groups one group (control) will be having conventional medications A/Q their VAS score and A/Q to the WHO Analgesic step ladder. The rest half patients (experimental) different pain management interventions were done after taking consent and making them aware of the procedures. Proper history was taken and of any allergy or infection in injection site and under USG guided injection of LA was administered for different Nerve Block, RFA etc A/Q to patient disease and the part affected. All the patient Vitals were monitored including PR, SBP, DBP, SpO2, VAS in regular intervals. The results shows that patient having pain management interventions had less VAS from the time of injection and had very less incidence for need of rescue analgesics. This decrease pain improves patients quality of life and need of less oral medications.

V. Conclusion:-

Pain management interventions improves patient pain and the need to take oral medication frequently improving their quality of life. So in our regular practice Pain Management Interventions can be a definite alternative (if feasible).

Declaration:-

a) Funding: None
b) Conflict of interest: None
c) Ethical approval: taken from Institutional Ethics Committee of State Cancer Institute, GMC, Guwahati

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