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## A comparison of efficacy of 50% alcohol and methylprednisolone for coeliac plexus block in patients with chronic abdominal pain for pain management

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### Abstract

**Background:** Malignancy related/ chronic abdominal and pelvic pain, most of the times is debilitating and affects survival and quality of life. Several modalities of chronic pain management for upper abdominal cancers have been proposed. Coeliac plexus block is widely used for the chronic pancreatic pain management. Most commonly used drug for coeliac plexus block is 100% alcohol. This study is comparison between two drugs used for coeliac plexus block.

**Objectives:** To compare the efficacy in view of duration and pain relief with Inj Methylprednisolone 80mg versus alcohol 50% in coeliac plexus block in chronic abdominal pain management.

**Materials and Methods:** A Retrospective study was conducted on 18 patients (group A-9 and group B-9) with chronic abdominal pain who underwent coeliac plexus block for chronic pain management, in Yenepoya Medical College and Hospital from January 2016 to December 2018.

**Group-A:** 50% alcohol as adjuvant with 1% lignocaine

**Group B:** 80mg Methylprednisolone, as adjuvant with 1% lignocaine

Comparison of pain scores (average) were done at the end of every month for 6 months using Numerical Rating score (NRS) as per the data collected.

**Results:** Group A had lesser NRS scores when compared to Group B. The statistical analysis was carried out using Mann Whitney U test. The U value is 5. The critical value of U at  $p < 0.05$  is 5 and hence the result is significant with P value of  $< 0.05$ .

**Conclusion:** Alcohol 50% gives better longer pain relief over methyl prednisolone 80mg in coeliac plexus block in chronic pain management.

**Keywords:** Coeliac plexus block, methylprednisolone, alcohol, NRS

### Introduction

Malignancy related/ chronic abdominal and pelvic pain, most of the times is debilitating and affects survival and quality of life<sup>[1]</sup>. The pain in abdomen can be attributed to stretching, distension, compression, invasion, of the visceral structures by the tumour mass or tissue, or could be secondary to radiation therapy, chemotherapy or surgery itself which can lead to tissue destruction/ damage. Patient usually presents with crampy/ colicky type of pain. The cancer pain prevalence is about 60% with gynecological malignancies, 59% with gastrointestinal malignancies, 52% with urogenital malignancies<sup>(2)</sup> and among all, Pancreatic tumours especially adenocarcinoma is an aggressive tumor, and patients with this tumor usually present at a later stage of disease when surgically resection is very difficult/not possible. This is one of the leading cause of morbidity and mortality. The purpose of this study was to determine the relative effectiveness of alcohol 50% versus methyl prednisolone used during coeliac plexus block for chronic pain management. Involvement of the coeliac plexus, typically by a pancreatic mass and or lymph nodes, remains another known etiology of epigastric pain. A strong association between cancer pain and distress is evident across the disease spectrum. Pain from cancer and its treatments can result in anxiety, depression, fear, anger, helplessness, and hopelessness, and those with both pain and depression have an amplification of disability and poor quality of life. This is one of the leading causes of morbidity and mortality. In these patients, the primary intention would be good analgesia and better quality of life. In peripheral settings and in the present era with increasing number of malignancy cases being detected and with timely interventions, a majority of people are benefited with early diagnosis and treatment.

But, there are also a small subset of patients who are not fortunate enough and are diagnosed very late and in whom a surgical or medical treatment might not bare fruits.

In these patients, the primary intension would be good analgesia and better quality of life, but due to unavailability of advanced medical care facilities and logistical issues and tertiary health centers in the periphery, many patients are forced to go through pain due to advancement of the malignancy and inadequate awareness.

The purpose of this study is to determine the relative effectiveness of alcohol 50% versus 80mg Methylprednisolone used during celiac plexus block for chronic pain management thus to aid in improving the quality of life of such patients with the usage of more potent drug with minimal side effects.

In our study, we hereby would like to compare the efficacy of alcohol 50% versus 80mg Methylprednisolone in celiac plexus blockade for chronic upper abdominal pain management.

### Materials and Methods

After obtaining ethical clearance A Retrospective study was conducted on patients with chronic abdominal pain which included patients of ASA physical status III and IV of both the sexes, aged between 35-75yrs suffering from chronic pancreatitis and carcinomas involving one of the following: gall bladder carcinoma, pancreatic carcinoma, hepatic carcinoma presenting with chronic upper abdominal pain who were unresponsive to NSAIDS, opioids and were hence managed with coeliac plexus block for pain management.

The list of the patients fulfilling the above criteria's who underwent coeliac plexus block in Yenepoya Medical College and Hospital from January 2016 to December 2018 was obtained by department of Anaesthesia, pain and palliative care medicine. The Patients were divided into two groups:

**Group A:** Received 50% alcohol as adjuvant with 1% lignocaine

**Group B:** Received 80mg Methylprednisolone, as adjuvant with 1% lignocaine

Then 9 patients in each group (total of 18 patients) were selected randomly by closed sealed envelope method. The demographic data including age, sex, medical and past history including the severity and duration of pain, time of the diagnosis of carcinoma, treatment history for the same, investigations (both blood and radiological) were collected. The patients on analgesics including strong opioids and whose pain scores were more than or equal to 7 out of 10 as per numerical rating scale score were managed by coeliac plexus block as per the institutional guidelines. General physical examination, airway assessment was done. High risk consent was taken for all the patients. Patients were kept NPO 6hrs for solids and 4hrs for liquids.

Technique of celiac plexus block was noted- fluoroscopic Trans aortic approach. The informed consent/ A blanket consent for the data usage had been taken at the time of conducting procedure along with informed consent for the procedure after explaining the patients and assuring them that their anonymity and privacy will be maintained and only the relevant data will be utilized for the study without revealing their personal identity. Patients were asked to take follow ups every week for 1<sup>st</sup> 4 weeks and monthly thereafter till 6months post procedure. Assessment of pain

scores using numerical Rating Scale (NRS) was with the help of hospital records, case sheets and follow up notes. Rescue analgesia was given as per institution protocol.

### Results

**Table 1:** Average Pain Intensity as per Numerical Rating Scale (NRS) at different intervals were noted

Group	30 <sup>th</sup> day	60 <sup>th</sup> day	90 <sup>th</sup> day	120 <sup>th</sup> day	150 <sup>th</sup> day	180 <sup>th</sup> day
A	3/10	2/10	2/10	3/10	4/10	6/10
B	3/10	4/10	6/10	7/10	7/10	8/10

Initial pain scores at the end of 1<sup>st</sup> month was same in both the groups. But the pain scores in the next subsequent months at the end of 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> moths were less in group A when compared to Group B.

The statistical analysis was carried out using Mann Whitney U test. The U value is 5. The critical value of U at  $p < 0.05$  is 5 and hence the result is significant with P value of  $< 0.05$ .

### Discussion

#### Celiac plexus anatomy

The sympathetic innervation of the abdominal viscera originates in the anterolateral horn of the spinal cord. The celiac plexus comprises a dense network of interconnecting nerve fibers from the celiac, superior mesenteric, and aorticorenal ganglia. Preganglionic fibers from T5-T12 travel with the ventral roots to join the white communicating rami, pass through the sympathetic chain, and synapse on the celiac ganglia. The greater splanchnic nerve (arises from T5-T10 nerve roots), lesser splanchnic nerve (arising from the T10/T11 nerve roots) and least splanchnic nerves (arising from T10-T12), they traverse along the vertebral body, through the diaphragm crus, enters into the ipsilateral celiac ganglion. These are the major preganglionic fibers of the celiac plexus. These nerves are in a narrow compartment made up of the vertebral body and pleura laterally, the posterior mediastinum ventrally, and the pleural attachment to the vertebral body dorsally and the crura of the diaphragm caudally. The volume of this compartment is approximately 10 cc on each side.

#### Coeliac plexus block technique

C-arm guided transaortic approach there are multiple techniques for coeliac plexus blockade like Trans crural approach, retrocrural approach, Trans aortic technique. These can be performed by with ultrasound guidance, endoscopic guidance, CT guidance, fluoroscopy guidance. Here, in our institution we follow fluoroscopy with C-arm guided transaortic approach. Methylprednisolone is a steroid which decreases the inflammation by damoening inflammatory cytokine cascade, inhibiting the activation of T cells, decreasing the extravasation of immune cells into central nervous system, facilitating the apoptosis of activated immune cells and indirectly decreasing the cytotoxic effects of nitric oxide and tumor necrosis factor alpha.

Alcohol act by denaturation of proteins in the exposed nerve endings, thus damaging these nerves by precipitation and dehydration of the protoplasm which in turn blocks or interferes in the conduction through these nerves and impairs. Hence, by knowing which among these two is more efficient would help in choosing one over the other drug by weighing their pros and cons.

Overall many study shows that coeliac plexus block is effective in treating upper abdominal cancer pains. In a randomized study conducted by Wong *et al.* [2], on 100 patients with pancreatic cancer, they found that pain scores documented over a duration of 6-week post procedure were to be lesser in the Coeliac plexus neurolysis group than with the group that received a sham block plus systemic therapy, and there were no significant differences noted regarding opioid consumption or its side effects nor the quality of life of the patient. But, in a same type of randomized study conducted by Polati *et al.* [6] the results showed no superiority of coeliac plexus neurolysis in pain relief but showed a decrease in the need of opioids and thus showing lesser side effects related to opioids. But, there are very less studies to compare alcohol and methylprednisolone. And as pain management and its duration plays an important role in improving the quality of life of the patients this study was conducted to know the supremacy of drug among these two. In a study conducted by Dhanalakshmi Koyalgutta *et al.* [1] to compare the effectiveness of alcohol versus phenol based splanchnic nerve neurolysis for treatment of intraabdominal cancer pain, the pain intensity post procedure was assessed statistically using a Wilcoxon rank sum tests which one month post-procedure pain scores were not different between those treated with alcohol ( $4.23 \pm 2.69$ , 4 [1, 9]) versus phenol ( $3.87 \pm 2.53$ , 4 [0, 10];  $P = 0.66$ ) and in addition, ESASs and MEDD weren't significantly different either. There was a small difference in the volume of neurolytic agent used between the 2 agents with  $24.73 \pm 8.89$  mL (20 [10, 50]) used for alcohol and  $20.24 \pm 5.05$  mL (20 [10, 30]) used for phenol ( $P = 0.0044$ ).

Similarly in our study compared alcohol 50% and 80mg methylprednisolone along with 1% lignocaine as adjuvant in two groups of 9 patients each. We could compare that pain scores in group A were less than pain scores in group B with a significant p value.

### Conclusion

In the retrospective study done by us on 18 patients who were diagnosed with chronic abdominal pain due to various reasons, who underwent celiac plexus block. We concluded that:

Coeliac plexus block performed using Alcohol 50% had less pain scores and is more efficacious than coeliac plexus block performed using 80mg Methylprednisolone in chronic pain management.

### References

1. Dhanalakshmi Koyalagunta MD, Mitchell Engle P MD, Ph.D. Jun Yu, Lei Feng, Diane M. Novy Ph.D. The Effectiveness of Alcohol Versus Phenol Based Splanchnic Nerve Neurolysis for the Treatment of Intra-Abdominal Cancer Pain. *Pain Physician*. 2016;19:281-292. ISSN 1533-3159.
2. Wong GY, Schroeder DR, Carns PE, Wilson JL, Martin DP, Kinney MO, Mantilla CB, Warner DO. Effect of neurolytic coeliac plexus block on pain relief, quality of life, and survival in patients with unresectable pancreatic cancer: A randomized controlled trial. *JAMA*. 2004;291:1092-1099.
3. Nagels W, Pease N, Bekkering G, Cools F, Dobbels P. Coeliac plexus neurolysis for abdominal cancer pain: A systematic review. *Pain Med*. 2013;14:1140-1163.
4. Keefe FJ, Abernethy AP, LCC. Psychological

approaches to understanding and treating disease-related pain. *Annual Review of Psychology*. 2005;56:601-630.

5. Zaza C, Baine N. Cancer pain and psychosocial factors: A critical review of the literature. *J Pain Symptom Manage*. 2002;24:526-542.
6. Polati E, Finco G, Gottin L, Bassi C, Pederzoli P, Ischia I. Prospective randomized double-blind trial of neurolytic coeliac plexus block. 1998.