

Original Research Article

A comparative study of efficacy and durability of celiac plexus neurolysis vs oral pregabalin therapy as pain management in chronic pancreatitis

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Abstract

Background: Chronic pancreatitis (CP) is a multifactorial disease characterized by long-standing inflammatory infiltration and destruction of pancreatic parenchyma, leading to glandular fibrosis, progressive endocrine, and exocrine failure. We define and characterize CP has also changed over the years, terms that were previously used, such as chronic calcific pancreatitis, chronic obstructive pancreatitis, and relapsing alcoholic pancreatitis, have generally been replaced with “chronic pancreatitis” and “recurrent acute” or “acute recurrent pancreatitis.”

Aim of the study: To find an efficient and effective therapy for pain management in patients with Chronic Pancreatitis.

Materials and methods: This bi-directional observational study was conducted on 26 patients for a 3-month period for each patient with symptomatic Chronic pancreatitis admitted between March 2018 to August 2019 (18 Months) in Dept. of General Surgery at Government Royapettah Hospital. Each patient of the sample was assessed on the severity of pain and thoroughly examined to rule out other causes of abdomen pain. Patients asked to participate in a questionnaire to assess the intensity of pain which became/becomes intolerable for which they sought/seek medical help. The time from which either of the testing treatments (Group A & B) started to the patient was noted from medical records.

Results: Group A and Group B randomly with a lot system. All of them were males with the mean rank of age was 13.69 (Group A) and 13.31 (Group B). Each patient was allotted randomly to group A

or B without any discrimination regarding age. The average number of pain-free days among patients of group A was 67.77 and 120.62 for group B with a standard deviation of 19.825 and 25.634 respectively.

Conclusion: The above statement means a patient who underwent Celiac plexus neurolysis spent more days comfortably and had no need to return to the hospital for pain management. This also meant less readmission of these Chronic pancreatitis patients for pain management. The patient who underwent celiac plexus neurolysis had a better quality of life compared to patients who were given pregabalin therapy.

Key words

Neurological Pain, Pregabalin, Chronic Pancreatitis.

Introduction

Chronic pancreatitis is a debilitating condition with pain as the most common symptom which greatly reduces the quality of life of the patient and leads to repeated and frequent hospital visits and excess intake of analgesics which may lead to serious adverse effects [1]. And the pain also causes the patient to get admitted to the hospital frequently and greatly affects the patient's return-to-work. This also increases the cost of treatment and care for the hospital. This study is an attempt to compare two known modalities of pain management in chronic pancreatitis and their efficacy and durability in control of pain [2]. The modalities are Image-guided Celiac Plexus Neurolysis and Oral Pregabalin therapy. The obstruction of the pancreatic duct can lead to changes in CP in the upstream segment [3]. On pathology, CP changes are often described in surgical specimens from patients with pancreatic ductal adenocarcinoma, even when CP was not the predisposing factor [4]. Changes of CP, including calcifications, can also be seen in patients with long-standing pancreatic duct strictures or from intermittent duct obstruction from mucin production in patients with intraductal papillary mucinous neoplasms [5]. Other uncommon causes would include anomalous pancreaticobiliary junction or annular pancreas. The pancreas divisum and sphincter of Oddi dysfunction and their association in the causation of CP remains uncertain [6]. In a recent small study, the prevalence of *CFTR* mutations was noted to be significantly higher among patients with CP who also had pancreas divisum

compared with controls and other forms of CP, suggesting that pancreas divisum may increase the risk of CP only with additional factors [7].

Materials and methods

This bi-directional observational study was conducted on 26 patients for a 3-month period for each patient with symptomatic Chronic pancreatitis admitted between March 2018 to August 2019 (18 Months) in Dept. of General Surgery at Government Royapettah Hospital. Each patient of the sample was assessed on the severity of pain and thoroughly examined to rule out other causes of abdomen pain. Patients asked to participate in a questionnaire to assess the intensity of pain which became/ becomes intolerable for which they sought/seek medical help. The time from which either of the testing treatments (Group A & B) started to the patient was noted from medical records. Patients in Group A as in our study were assessed and be informed about their condition. They were taken up for image-guided Celiac Plexus Neurolysis with Absolute alcohol by our interventional radiologist after obtaining proper consent from the patient. As this is a bidirectional study previously treated with image-guided Celiac Plexus Block during the above-mentioned time period of the study registered in the department were also included. Patients in Group B were given oral Pregabalin 150 mg/day 12th hourly for the first 10 days and changed to S.O.S till the end of 3 months or till the development of intolerable pain seeking medical help. 13 + 13 patients of both groups were observed for 3 months or

questioned about the development of pain within 3 months from treatment commencement.

Inclusion criteria

- Patients aged more than 18 of both genders
- Patients admitted with pancreatitis and diagnosed to be chronic pancreatitis by imaging modalities.
- Patients with chronic pancreatitis who do not respond to NSAIDS for their pain management.

Exclusion criteria

- Patients with co-morbid conditions like immune-compromised patients, bleeding diathesis, psychiatric illness, patients on cancer chemotherapy, immunotherapy

and on long term steroids. Patient not giving consent for the study. Patient with pancreatic calcification without symptoms.

Results

Graph - 1 shows 26 patients with chronic calcific pancreatitis who were grouped into Group A and Group B randomly with a lot of systems. All of them were males with a mean rank of age was 13.69 (Group A) and 13.31 (Group B). Each patient was allotted randomly to group A or B without any discrimination regarding age. Among the 26 patients, 1 in each group (7.7%) had hypertension, none had diabetes mellitus or any other medical co-morbidities.

Graph – 1: Age distribution.

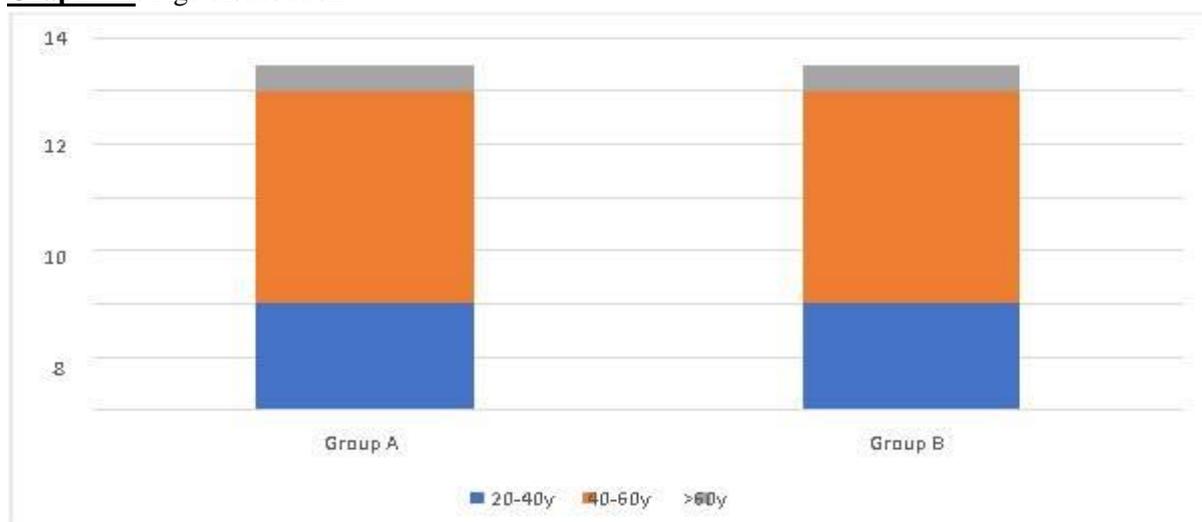


Table – 1: Quality of pain in both the groups.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Number of pain-free days	A	13	67.77	19.825	5.498
	B	13	120.62	25.634	7.110
Number of days with mild pain (manageable)	A	13	18.77	11.620	3.223
	B	13	16.00	5.477	1.519
Day from the commencement of the therapy when patient developed severe pain seeking medical consultation	A	13	86.54	30.179	8.370
	B	13	136.62	24.734	6.860

The average number of pain-free days among patients of group A was 67.77 and group B with a standard deviation of 19.825 and

25.634 respectively. Their mean standard error was 5.498 and 7.110 respectively. Here, it showed that Group B patients had number of

pain-free days than that of Group A. Number of days with manageable pain for which the patient did not require any medical help was also calculated to give us a mean value and they were 18.77 (SD 19.825) for Group A and 16 (SD 5.477) for Group B. Their mean standard errors were 3.223 and 1.519 respectively (**Table – 1**).

Discussion

Chronic pancreatitis is a heterogeneous and complex disease. While we traditionally define acute pancreatitis as an event from which the pancreas recovers completely and chronic pancreatitis as a condition characterized by permanent and irreversible damage, this distinction is not accurate and the two conditions seem to be part of a single spectrum [8]. Chronic pancreatitis often (perhaps always) evolves from episodes (clinical or subclinical) of acute pancreatic injury and the transition from acute to chronic pancreatitis may be subtle or even unrecognizable [9]. Pain may initially be episodic early in this process and the evolution and character of pain are highly variable. Pain may be intermittent, constant or continuous with superimposed acute flares. In some patients with chronic pancreatitis, pain can occur in discrete episodes with or without identifiable pancreatic inflammation (elevations in amylase and/or lipase with evidence of pancreatic or peripancreatic inflammation on abdominal computed tomography), with complete interval resolution [10]. The complex pain etiology and wide variability in group treatment outcome make it important to identify biomarkers linked to outcomes of pain treatment in individual patients [11]. Quantitative sensory testing (QST) has in some studies been able to predict the treatment outcomes of analgesic therapy in chronic pain disorder. It provides information on sensory function at the peripheral and central levels of the nervous system by recording the subjects' responses to different external stimuli of controlled intensity. System by recording the subjects' responses to different external stimuli of controlled intensity [12]. In painful CP, changes in pain processing affect second-order

neurons in the central nervous system (CNS) receiving convergent visceral and somatic afferent information [13]. Hence, sensory information from static QST of skin dermatomes in the upper abdominal area can indirectly be used to obtain information about CNS neuroplasticity following increased barrage from pancreatic sensory afferents. In addition, QST can be used to gain information on the dynamic function of the sensory system, including descending inhibitory and facilitatory influences from the brain stem and higher cortical levels, e.g. by using conditioned pain modulation (CPM) paradigms [14]. Pregabalin has effectively been used to treat various chronic pain disorders, including diabetic neuropathy, postherpetic neuralgia and neuropathic pain of central origin. It binds selectively to voltage-dependent calcium channels and blocks the influx of calcium into presynaptic nerve terminals. This reduces the release of excitatory neurotransmitters on spinal neurons, and in turn, reduces neuronal excitability and upstream transmission in the central nervous system [15].

Conclusion

Chronic pancreatitis can be a debilitatingly painful condition that severely affects the quality of life of the patient and leads to repeated visits to hospitals and admissions. NSAIDs provide meager pain relief in most of the patients and have their own adverse effects on chronic usage. Hence, the pain has to be managed more effectively with modalities that can keep patients pain free with minimal adverse effects unlike major cardiovascular events in patients chronically taking NSAIDs.

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