Efficacy of celiac plexus block in chronic pancreatitis in pediatric age group

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ABSTRACT

Neurolysis of the celiac plexus has been found to be an effective way of palliating chronic pain due to non-pelvic intra-abdominal organ pathologies such as upper abdominal malignancies and chronic pancreatitis. We assessed the effectiveness of celiac plexus block (CPB) for pain due to chronic pancreatitis in pediatric age group. Eleven children between the age group of 3–10 years suffering from abdominal pain due to chronic pancreatitis underwent CPB through transaortic approach. Assessment of pain relief compared to pre-procedure status was done using Wong-Baker Faces Pain Rating Scale. Ten out of 11 children had symptomatic relief post-procedure and on 6 months follow-up. One child had relapse of pain after 3 months of CPB. We conclude that CPB is a promising solution for tackling intractable pain due to chronic pancreatitis in pediatric age group.

Key words: Celiac block, Chronic pancreatitis, Celiac plexus

CASE REPORT

A total of 11 (5 males and 6 females) children of the age group of 3–10 years, diagnosed with chronic pancreatitis, underwent CPB. Chronic pancreatitis was diagnosed in the presence of typical abdominal pain and characteristic imaging findings (contrast computed tomography scan) or; exocrine insufficiency with imaging findings or; and endocrine insufficiency and imaging findings Table 1. Seven out of 11 children were known cases of chronic pancreatitis, three had chronic abdominal pain with a history of pancreatitis, and one child was post-cystogastrostomy for pseudocyst of pancreas. Abdominal pain was the most common presenting symptom, and the other associated symptoms were vomiting and loss of appetite [Table 2].

All the children were administered some form of analgesics (most commonly nonsteroidal anti-inflammatory drugs or opioids) but pain relief was not satisfactory. Pain assessment was done using Wong-Bakers Scale Figure 1 and Table 3 [2]. Institutional Ethical Committee approval was taken. The parents/caretakers were counseled regarding the possibility of increase in pain initially, recurrence of pain, hypotension, diarrhea, failure and need for repeat procedure, and other complications associated with the technique. A written consent was taken from the parents.

All the patients were planned for fluoroscopy-guided CPB under general anesthesia after a thorough pre-procedure workup. The single needle trans-aortic approach was used in all patients for the block. The needle entry point over the skin (corresponding to the midpoint of the lateral border of L1 vertebra) was marked and infiltrated with 2% lidocaine. A 22G 15 cm block needle was inserted at the entry point in tunnel view. The needle was advanced further slowly until it reached the lateral border of the vertebra. The needle was slowly walked off the lateral border, and further advanced deeply beyond the vertebral border until a pop (puncture of posterior wall of aorta) was felt.

Aortic puncture was confirmed by the backflow of aortic blood at the needle hub. At this point, the c-arm was rotated laterally to obtain a lateral view of L1. The stylet was reinserted, and the needle was further advanced until another pop was felt.
(puncture of anterior wall of aorta). At this point, the stoppage of backflow of blood was observed. Next, the needle tip placement was confirmed by injecting 2 ml of water-soluble iohexol dye, and vertical spread of the dye was noted in c-arm image.

Next, 15 ml of absolute alcohol was injected slowly, fluoroscopy images were taken at regular intervals (after every 3 ml of alcohol injection), and further washout of dye was noted under fluoroscopy. The needle was withdrawn after injecting 1 ml of air to wash any traces of alcohol in the needle shaft concluding the procedure (Fig. 2).

The children were observed for improvement in symptoms and development of complications such as hypotension and...
diarrhea. Symptomatic relief in the form of improved general conditions, improved activity, increased appetite, and feeding was noted. Faces scale was used to assess improvement in pain severity and thereby effectiveness of the procedure. All 11 children had an uneventful intra- and post-procedure period with no complications related to hypotension, diarrhea, or other unprecedented technical adversities. All 11 children had pain relief without any other symptoms, at discharge, 1 month, and at 3 months follow-up. On follow-up, it was found that quality of life improved, with all of them returning back to school and increased daily activity as reported by the caretakers. However, one child had recurrence of pain at 6 months follow-up.

**DISCUSSION**

In our study, clinical features and corroborative imaging findings were used to diagnose chronic pancreatitis like in the previous studies [4]. We found that ductal anomalies were more common than the calcifications, as seen in adult with chronic pancreatitis [5]. Shah et al. analyzed 133 studies about interventional procedures and indications in pediatric patients; out of which, three studies showed effectiveness of CPB in refractory pain of pancreatitis [6]. The results were consistent with our study showing dramatic pain relief and decreased opioid requirements. As discussed by Schwarzenberg et al., poor quality of life and loss of school days added onto the major disease burden in chronic pancreatitis in addition to physical and psychological effects [7]. In our study, we found that CPB is an effective method of pain relief leading to improvement in day to day activities and return to school in these children.

Evidence of efficacy of CPB in adult chronic pancreatitis has been studied in various large scale centers with a large study population. Fusaroli and Caletti concluded that endoscopic ultrasound-guided CPB appears to be a safe, moderately effective, and repeatable treatment for pain caused by chronic pancreatitis in 221 adult patients [8]. In a study, Goldschneider et al. found that the 3D rotational angiography showed promise for understanding the spread of medication necessary to accomplish a successful block and help to explain failures in cases where anatomic distortion might interfere with proper injected flow [9].

**CONCLUSION**

Neurolytic CPB was found to be effective in relieving chronic abdominal pain due to pancreatitis in the pediatric age group with 90% of subjects being pain free for 6 months. It can be considered as an effective cure when other methods fail to achieve pain relief.

**REFERENCES**


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