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The Tertiary Care Center's Clinical Profile and Treatment of Chronic Pancreatitis

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ABSTRACT

Background
Constant inflammation and irreversible pancreatic tissue destruction are hallmarks of the disease of chronic pancreatitis (CP), which results in the decrease of both exocrine and endocrine function over time. It is a multifactorial disease, with a wide range of symptoms and geographic variation.

Aim
Aim of this study is to study clinical profile and management of CP with respect to demography, clinical findings, lab parameters, imaging investigations and management modalities.

Methods
A cross-sectional observational study was conducted which included the patients admitted to the tertiary care center presenting with the clinical diagnosis of CP. The study was conducted over a period of 2-years from November 2019 to October 2021. A total sample size of 71 patients was included.

Results
In the study, it was observed that the majority of patients were in the age group of 51-60-years (47.89%) followed by 41-50-years (21.12%) mean age ranges from 56.54±12.63-years. The majority of patients were male (76.06%) and females were 23.94%. The distribution of patients according to aetiology showed that the majority of patients had aetiology of alcoholism (43.66%) followed by idiopathic (29.57%) Gall/Biliary stones (21.12%) and post-operative (5.63%). Majority of patients presented with pain in the abdomen (85.92%). The distribution of patients according to ultrasound sonography test (USG) findings showed that majority of patients shows pancreatic calcification (54.93%) followed by pancreatic pseudocyst (32.39%) and gall stones (19.72%). The distribution of patients according to computed tomography (CT) findings showed that majority of patients shows pancreatic calcification (70.42%). In the present study, it was observed that majority of patients were managed conservatively (43.66%) followed by cystogastrostomy (18.31%) and cystojejunostomy (8.45%). Endoscopic retrograde cholangiopancreatography (ERCP) was done among 14 (19.72%) patients. Lateral pancreaticojejunostomy was done in 6 (8.45%) patients and pancreaticoduodenectomy (Classical Whipple's) was done in 4 patients (5.63%). The distribution of patients according to pain relief by various management showed that majority of getting relief from pain by surgery (69.23%) followed by ERCP (35.71%) and the least by conservative/analgesics (6.45%).

Conclusion
Chronic pancreatitis is progressive inflammatory disease. Alcoholic pancreatitis being most common etiology. Pain is most common presenting symptom. CT scan abdomen most useful in confirming diagnosis in our set up. Pseudocyst being common complication seen. Surgery gives relief of pain in most of the cases. The key to a better outcome is making the right decisions in terms of diagnosis, patient selection for surgery, and surgical type.

Keywords
Chronic pancreatitis; Inflammation; Etiology.

INTRODUCTION

Constant inflammation and irreversible pancreatic tissue destruction are hallmarks of the disease of chronic pancreatitis (CP), which results in the gradual loss of both exocrine and endocrine function.[1] It is a multifactorial disease, with a wide range of symptoms and geographic variation.

The incidence of CP in the western population ranges from 8 to 10 cases yearly per 100,000 population, and the overall prevalence is 27.4 per 100,000 per year.[2] According to a recent survey conducted in various countries in the Asia-Pacific region, CP is prevalent in Southern India, with 114-200 cases per 100,000 people.[3] In the Indian subcontinent, there has been no systematic nationwide study on the management of clinical profiles.[3]

Some of the possible causes of CP include alcohol abuse (malignancy or stones), ductal obstruction (cystic fibrosis or hereditary pancreatitis), chemotherapy, and autoimmune diseases such as SLE or pancreatitis. According to recent research, the disease may be caused by a lack of certain vitamins and antioxidants.[4,5] Drinking alcohol is the most common cause. Protein secretion from acinar cells increases, resulting in ductal obstruction, acinar fibrosis, and atrophy as a result of the alcohol.[4,5]

Chronic pancreatitis appears to be caused by a combination of genetic and environmental factors. Several genes have been linked to pancreatitis susceptibility mutations. CP is thought to be caused by one of two different pathogens. Impaired bicarbonate secretion, which is unable to respond to increased pancreatic protein secretion, is one possibility. Plugs are formed within the lobules and ducts as a result of this abundance of proteins. Calcification and stone formation are the results of this process. The other theory proposes that digestive enzymes in the pancreas are activated intraparenchymally (possibly due to genetics or external influences such as alcohol).[6]

Reduced pain and improved absorption are the main objectives of treatment. Inflammation, neuropathic mechanisms, and blocked ducts are all factors that contribute to the sensation of pain that we feel. The replacement of fat-soluble vitamins and pancreatic enzymes is generally recommended along with frequent, small, low-fat meals.[6]

There are only few reports on the Indian subcontinent as a whole. The vast majority of research is based on studies of people in western countries. Several studies have shown that CP has changed its clinical profile in certain regions of the country.[7]

Therefore, we conducted a detailed study of the clinical profile of CP to confirm whether these changes in clinical profile and management of CP are present in this part of the country also.

MATERIALS AND METHODS

Study Design

The present hospital-based observational cross-sectional study was conducted to study the clinical profile and management of CP.

Study Period

The study was conducted over a period of 2-years from November 2019 to October 2021.

Study Place

Department of General Surgery, NKP Salve Medical College and Lata Mangeshkar Hospital, Nagpur, MH, India.

Study Population

The study population was patients admitted to tertiary care center presenting with a clinical diagnosis of CP.

Sample Size

By keeping the confidence limits at 95% and power of study at 80%, to detect a minimum of 10% difference in the proportion of effect, a total sample size of 71 patients was included.

Inclusion Criteria

Patients of age 18-years and above who are diagnosed as cases of CP on contrast-enhanced computed tomography (CECT) abdomen findings.

Exclusion Criteria

Patient not consenting to join the study or get investigated or treated.

Ethical Consideration

The study was approved by the Ethical Committee of the institute.

OBSERVATIONS AND RESULTS

Table 1 shows the distribution of patients according to age. It was observed that the majority of patients were in the age group 51-60 years (47.89%) followed by 41-50-years (21.12%) The mean age of the patients was 56.54±12.63-years.

Table 1. *Distribution According to Age*

Age group (Years)	No. of Patients	Percentage
<20	00	00.00
21-30	03	04.23
31-40	07	09.86
41-50	15	21.12
51-60	34	47.89
>60	12	16.90
Total	71	100

Table 2 shows the distribution of patients according

to sex. It was observed that the majority of patients were male (76.06%) and females were 23.94%.

Table 2. *Distribution of Patients According to Sex*

Sex	Frequency	Percentage
Male	54	76.06
Female	17	23.94
Total	71	100

Table 3 shows the distribution of patients according to etiology. It was observed that the majority of patients had etiology of alcoholism (43.67%) followed by idiopathic (29.57%), gall stones (21.12%), and post-operative (5.63%%).

Table 3. *Distribution of Patients According to Etiology*

Etiology	Frequency	Percentage
Alcoholism	31	43.67
Gall/Biliary stones	15	21.12
Post- operative	04	05.63
Idiopathic	21	29.57
Total	71	100

Table 4 shows the distribution of patients according to clinical presentation. It was observed that majority of patients presented with pain in the abdomen (85.92%) followed by nausea/vomiting (60.56%), Steatorrhea (46.67%), weight loss (32.39), constipation (29.58%), and diarrhea (15.49%).

Table 4. *Distribution of Patients According to Clinical Presentation*

Clinical Presentation	Frequency (n=71)	Percentage
Pain abdomen	61	85.92
Nausea/ Vomiting	43	60.56
Steatorrhea	33	46.47
Weight loss	23	32.39
Constipation	21	29.58
Diarrhea	11	15.49

Table 5 shows the distribution of patients according to ultrasound sonography test (USG) findings. It was observed that the majority of patients shows pancreatic calcification (54.93%) followed by pancreatic pseudocyst (32.39%) gall stones (19.72%) and pancreatic head mass (5.63%).

Table 5. *Distribution of Patients According to USG Findings*

USG Findings	Frequency (n=71)	Percentage
Pancreatic calcification	39	54.93
Pancreatic pseudocyst	23	32.39
Gall stones	14	19.72
Pancreatic head mass	04	5.63
(Multiple responses present)*		

Table 6 shows the distribution of patients according to computed tomography (CT) findings. It was observed that the majority of patients shows pancreatic calcification (70.42%) followed by enlarged pancreas (45.07%), pancreatic pseudocyst (32.39%), dilatation of main pancreatic duct (MPD) (23.94%), pancreatic calculi (12.67%), pancreatic duct stricture (7.04%) and pancreatic head mass (5.63%).

Table 6. *Distribution of Patients According to CT Findings*

CT Findings	Frequency (n=71)	Percentage
Pancreatic calcification	50	70.42
Enlargement of pancreas	32	45.07
Pancreatic pseudocyst	23	32.39
Dilatation of MPD	17	23.94
Pancreatic Calculi	09	12.67
Pancreatic duct stricture	05	07.04
Pancreatic head mass	04	5.63
(Multiple responses present)*		

Table 7 shows the distribution of patients according to complications. It was observed that the majority of patients shows pseudocyst (32.39%) followed by splenic vein thrombosis (2.82%) and pancreatic neoplasm (1.41%). No complications were seen in 43 (60.56%) patients.

Table 7. *Distribution of Patients According to Complications*

Complications	Frequency (n=71)	Percentage
Pseudocyst	23	32.39
Splenic vein thrombosis	02	02.82
Pancreatic neoplasm	01	01.41
(Multiple responses present)*		

Table 8 shows the distribution of patients according to management. It was observed that the majority of patients managed conservatively (38.02%) followed by cystogastrostomy (18.31%) and cystojejunostomy (8.45%). Endoscopic retrograde cholangiopancreatography (ERCP) was done among 14 (19.72%) patients and pancreaticoduodenectomy (Classical Whipples) in 4 (5.63%) patients.

Table 8. *Distribution of Patients According to Management*

Management	Frequency	Percentage
Conservative	27	38.02
Cystogastrostomy	13	18.31
Cystojejunostomy	07	9.86
LPJ	06	8.45
ERCP stenting	14	19.72
Pancreaticoduodenectomy (Classical Whipples)	04	5.63
Total	71	100

Table 9 shows the distribution of patients according to pain relief by various management. It was observed that the ma-

jority of getting relief of from pain by surgery (60%) followed by ERCP (35.71%) and the least by conservative/ analgesics (7.41%).

Table 9. *Distribution of Patients According to Pain Relief: (Follow-up after 2-years)*

Management	Frequency	Percentage
Surgery (n=30)	18	60.00
ERCP stenting (n=14)	05	35.71
Conservative/Analgesics (n=27)	02	7.41

DISCUSSION

Constant inflammation and irreversible pancreatic tissue destruction are hallmarks of the disease of CP, which results in the gradual decrease of both endocrine and exocrine function.

The present observational cross-sectional study was carried out at tertiary institute to find out the clinical profile and management of CP.

All patients with CP who attended or getting admitted to the tertiary care center were enrolled in the study during the study period from November 2019 to October 2021.

A sample size of 71 patients with CP above the age of 18-years was included in the study. Patients not giving consent to participate in the study were excluded from the study.

A written and well-informed consent was obtained from the participant patient or his/her relatives. The study was started after approval from the ethical committee of the institute. All the patient's demographic history with clinical examination were done and were investigated for basic investigations like complete blood count (CBC), ultrasound scan, CT-abdomen, and magnetic resonance imaging (MRI) were performed.

In the present study, it was observed that the majority of patients were in the age group of 51-60-years (47.89%) followed by 41-50-years (21.12%). Mean the mean age ranges from 56.54±12.63-years.

Machicado et al[8] did a study with an aim of assessing the natural course of CP in a population-based cohort and observed the median age of CP was 56-years.

Lariño-Noia et al[9] in a study on morphological and functional changes of CP observed mean age of subjects was 46.4±13.8-years.

Sri Hari et al[10] in a study on CP and its management observed mean age was 38.45-years.

Panda et al[11] conducted comparative study for clinical profile of CP during last 1-year (Group A) and cases during previous 5-years (Group B) observed that in Group A mean age was 35.70±13.08-years and in Group B was 39.16±13.12-years.

In the present study, it was observed that majority of patients were male (76.06%) and females were 23.94%.

Machicado et al[8] conducted a study with aim of assessing the natural course of CP in a cohort study observed 56% patients were male.

Sri Hari et al[10] in a study on CP and its management observed out of 24 patients, nineteen males and five females were found, having a sex ratio of 1:4.

Panda et al[11] did a comparative study for clinical profile of recently admitted cases of CP during last 1-year (Group A) and cases during previous 5-years (Group B) observed male patients predominate in both the groups.

Lariño-Noia et al[9] in a study on morphological and functional changes of CP observed among 218 patients with CP, 140 (64.22%) were females. This was in contrast to present study.

The distribution of patients according to etiology showed that majority of patients had etiology of alcoholism (43.66%) followed by idiopathic (29.57%), gall/biliary stones (21.12%) and post-operative (5.63%). In our study idiopathic was 2nd major cause for CP as no investigation showed the cause for CP so was labelled as idiopathic. Upto 30% of CP patients were idiopathic.

Sri Hari et al[10] in a study on CP and its management observed alcoholic CP was seen in 16 patients. Tropical pancreatitis was seen in 4 patients of the cases.

The most common cause of clinical admission is pain. It is the hallmark symptom of CP, usually epigastric radiation to the back or to the left upper abdomen. It is the most vexing clinical problem and the most common indication for surgical intervention. In our study, pain was treated with non-steroidal anti-inflammatory drugs (NSAIDS), antispasmodics, pancreatic enzyme suppressants and pain modifying agents (Pergablin). The complications of CP like an acute attack of pancreatitis, from a pancreatic pseudocyst, portal or splenic vein thrombosis can cause pain.

In the present study, it was observed that majority of patients presented with pain in abdomen (85.92%) followed by nausea/vomiting (60.56%), Steatorrhea (46.47%), weight loss (32.39%), constipation (29.58%) and diarrhea (15.49%).

Steatorrhea and weight loss are important features of CP. Steatorrhea does not occur until pancreatic lipase secretion is reduced to less than 10% of normal. Maldigestion of lipids occurs earlier, since lipase secretion decreases more rapidly than amylase secretion. Exocrine insufficiency occurs in 80-90% of patients with long standing CP. In our study Weight loss seen in 23 (32.39%) patients, were due to steatorrhea.

Machicado et al[8] in a study observed that pain in abdomen was present in 68 (76%) patients and diabetes was noted in 36 (40%) patients. This finding was similar to present study.

Sri Hari et al[10] in a study on CP and its management observed pain was seen in 22 patients (91.6%), 6 patients had diabetes mellitus, 2 patients had steatorrhea (8.3%).

Panda et al[11] did a comparative study for clinical profile of recently admitted cases of CP during last 1-year (Group A) and cases during previous 5-years (Group B) observed pain was the most common presentation in both groups.

Ammann et al[12] in their respective studies observed most patients with CP have abdominal pain. Pain in CP is multifactorial, with inflammatory and neuropathic components. The pain is believed to be primarily due to obstruction of the pancreatic duct by either stricture or stone, resulting in high pressure and ischemia above the obstruction.

The distribution of patients according to USG findings showed that majority of patients shows pancreatic calcification (54.93%) followed by pancreatic pseudocyst (32.39%) and gall stones (19.72%).

Transabdominal ultrasonography is an inexpensive technique usually performed in patients with suspected CP. Calcification, and cysts and are detected with by this modality. Other complications of pancreatitis such as duodenal or gastric distention and bile duct dilatation can be visualized. In patients with excessive abdominal gas or acute pancreatitis associated with ileus, the view is often limited, making the procedure highly related to the investigator's skills. Nevertheless, sonography is a simple technique and, in the hands of experienced investigators, remains a useful method for rapid and reliable diagnosis. In our study, it was useful to note pseudocyst in 23 patients (32.39%) of cases, gall stones and pancreatic calcification.

Machicado et al[8] in a study observed that of 69% patients had pancreatic calcifications and 29% had pseudocyst or fluid collections.

Sri Hari et al[10] in a study on CP and its management observed ultrasonogram that showed 9 patients (37.5%) had dilated MPD.

Panda et al[11] conducted study on the clinical profile of cases of CP and noted USG findings of pancreatic calcification in 78.45% patients of CP. This finding was similar to present study.

The distribution of patients according to CT findings showed that majority of patients shows pancreatic calcification (70.42%) followed by enlarged pancreas (45.07%), pancreatic pseudocyst (32.39%), dilatation of MPD (23.94%), pancreatic calculi (12.67%) and pancreatic duct stricture (7.04%).

Machicado et al[8] in a study observed pancreatic duct dilation was noted in 57% patients and common bile duct dilation in 26% patients.

Sri Hari et al[10] in a study on CP and its management observed CECT Abdomen scan showed 9 patients (37.5%) had dilated MPD.

Sharma et al[13] observed ductal dilatation (n=55, 100%) and calculi (n=43, 83.6%) were the most common findings on imaging using CT scan of abdomen.

The distribution of patients according to complications showed that majority of patients shows pseudocyst (32.39%) followed by splenic vein thrombosis (2.82%), and pancreatic neoplasm (1.41%). No complications were seen in 43 (60.56%) patients.

Pancreatic pseudocyst is the most common complication of CP, occurring in the course of the disease in as many as 20-38% of patients. Most pseudocysts resolve spontaneously with supportive care. In our study, all patients with pseudocyst presented to us as pain in abdomen 23 patients (32.39%), in 3 patients resolved spontaneously hence managed conservatively. Patients with pseudocyst, with cyst wall 6 mm, with surgically feasible pathology, depending on position of cyst patients underwent cystogastrostomy and cystojejunostomy. No percutaneous drainage not done.

Panda et al[11] did study on clinical profile of cases of CP and observed the complications like pseudocyst (8.81%) followed by pleural effusion (3.81%).

Bhasin et al[14] observed pseudocyst was the most common local complication in a study on clinical profile of idiopathic CP in North India.

Sharma et al[13] observed 9 patients (16.4%) had evidence of pseudocyst. None of the patients had biliary obstruction, pancreatic neoplasm, ascites.

Surgery is indicated when the pain is severe, not managed by analgesics, requiring repeated hospital admission, and is interfering with day-to-day activities and pathology was corrected by surgical procedure.

The aim of the surgery should be to:

1. Preservation of maximum functional pancreatic tissue.
2. Removal of the inflammatory pathology.
3. Ductal system drainage.
4. Not obstructing the side ducts.

In the present study, it was observed that majority of patients were managed conservatively (43.66%) followed by cystogastrostomy (18.31%) and cystojejunostomy (8.45%). ERCP was done among 14 (19.72%) patients. Lateral pancreaticojejunostomy was done in 6 (8.45%) patients and pancreaticoduodenectomy (Classical Whipple's) was done in 4 patients (5.63%).

Machicado et al[8] did a comparative study observed endoscopic or surgical interventions for CP were performed in 27 (30%) patients during the disease course. A total of 20 (23%) patients underwent at least one endoscopic intervention, 10 (11%) at least one surgical intervention, and 3 (3%) both types of interventions.

Sri Hari et al[10] conducted study on CP and its management observed only 9 out of 24 (37.5%) patients were managed conservatively.

In our study,[4] patients with pancreatic head mass were operated for pancreaticoduodenectomy (Classical Whipple's) and had no post-operative complication, histopathology report turned out to be benign.

The distribution of patients according to pain relief by various management showed that majority of get relief of pain by surgery (69.23%) followed by ERCP (35.71%) and least by conservative/analgesics (6.45%)

Sharma et al[13] observed that more than half of the study patients did not improve with the standard pain management by analgesics and had persistent symptom.

In cochrane review by Ali et al[15] comparative study done with objective of two assessing and comparing the effects and complications of surgical and endoscopic interventions in the management of pain for chronic obstructive pancreatitis in 111 patient's and concluded that the surgical group had a higher number of patients with pain relief, both at long-term follow-up. Surgical intervention resulted in improved quality of life and preservation of exocrine pancreatic function at middle/long-term follow-up (2-5-years), but not at long-term follow-up.

Another study conducted in year 2020 by Issa et al[16] with objective of to see whether early surgery is more effective than the endoscopy-first approach and concluded that patients with CP, early surgery compared with an endoscopy resulted in lower pain scores.

Another study conducted in year 1997 by Traverso et al[17] with objective to analyze the clinical indications and long-term results for the classical whipple procedure (pancreaticoduodenectomy) used for severe complications of CP and concluded that, whipple procedure for severe complications of CP in the pancreatic head is a safe and effective operation.

Cahen et al[18] conducted a randomized trial in year 2011 that compared endoscopic and surgical drainage of the pancreatic duct in patients with CP reported a significant benefit of surgery after a 2-year follow-up period and evaluated the long-term outcome of these patients after 5-years and concluded that in the long-term, symptomatic patients with CP who underwent surgery as the initial treatment for pancreatic duct obstruction had more relief from pain, than patients who were treated endoscopically.

In our study, minimal wound infection was seen in 3 of operated patients and was easily controlled. There was no mortality. In our study only 27 out of 71 (38.02%) patients were treated conservatively by pancreatic enzyme supplementation and analgesics.

Primarily, CP is not a surgical disease. Surgery is indicated only when medical treatment fails and/or complication arises. There is no single ideal operation for CP. Selection of an appropriate method of management for a particular patient is more important.

CONCLUSION

Primarily, CP is not a surgical disease, surgery is indicated only when medical treatment fails and/or complication arises. There is no single ideal operation for CP. Selection of an appropriate method of management for a particular patient is more important.

CONSENT

The authors have received written informed consent from the patient.

INSTITUTIONAL REVIEW BOARD PERMISSION

Yes.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. Ramesh H. Tropical Pancreatitis. *Ind J Gastroenterol.* 1997: 16: 20-25.

2. Sawant P, Mishra P. Chronic pancreatitis-Indian Scenario. *Medicine Update.* 2005: 418-424.

3. Garg PK, Tondon RK. Survey on chronic pancreatitis in the Asia-Pacific region. *J Gastroenterol Hepatol.* 2004; 19: 998-1004. doi: 10.1111/j.1440-1746.2004.03426.x

4. Singhvi A, Yadav D. Myths and realities about alcohol and smoking in chronic pancreatitis. *Curr Opin Gastroenterol.* 2018; 34(5): 355-361. doi: 10.1097/MOG.0000000000000466

5. Pham A, Forsmark C. Chronic pancreatitis: review and update of etiology, risk factors, and management. *F1000Res.* 2018; 7. doi: 10.12688/f1000research.12852.1

6. Beyer G, D'Haese JG, Ormanns S, Mayerle J. Chronic pancreatitis and pancreatic cancer - tumor risk and screening. *Dtsch Med Wochenschr.* 2018; 143(12): 895-906. doi: 10.1055/s-0043-125407

7. Anand BS. Clinical profile of chronic pancreatitis in Delhi. In: Balakrishnan V, ed. *Chronic Pancreatitis in India.* India: Indian Society of Pancreatology; 1987: 15-22.

8. Machicado JD, Chari ST, Timmons L, Tang G, Yadav D. A population-based evaluation of the natural history of chronic pancreatitis. *Pancreatology.* 2018; 18(1): 39-45. doi: 10.1016/j.pan.2017.11.012

9. Lariño-Noia J, de la Iglesia D, Iglesias-García J, et al. Morphological and functional changes of chronic pancreatitis in patients

with dyspepsia: A prospective, observational, cross-sectional study. *Pancreatology*. 2018; 18: 280-285. doi: 10.1016/j.pan.2018.02.003

10. Sri hari S, Syed Raj R. Chronic pancreatitis and its management in Thanjavur medical college hospital. *International Journal of Conntemporary Medical research*. 2017; 4(10): 2118-2122.

11. Panda CR, Misra B, Behera SK, Das HS, Singh SP. A Study on changing clinical profile of chronic pancreatitis from a tertiary care centre. *International Journal of Scientific Study*. 2017; 5(4): 170-173. doi: 10.17354/ijss/2017/358

12. Ammann RW, Largiadèr F, Akovbiantz A. Pain relief by surgery in chronic pancreatitis? Relationship between pain relief, pancreatic dysfunction, and alcohol withdrawal. *Scand J Gastroenterol*. 1979; 14(2): 209-215. doi: 10.3109/00365527909179872

13. Sharma R, Pradhan B, Karki P, Subedi M. Clinical and epidemiologic profile of chronic pancreatitis, a retrospective study in Eastern Nepal. *Journal of Advances in Internal Medicine*. 2018; 7(2): 30-33. doi: 10.3126/jaim.v7i2.23487

14. Bhasin DK, Singh G, Rana SS, et al. Clinical profile of idiopathic chronic pancreatitis in North India. *Clin Gastroenterol Hepatol*. 2009; 7(5): 594-599. doi: 10.1016/j.cgh.2009.01.009

15. Ali UA, Pahlplatz JM, Nealon WH, van Goor H, Gooszen HG, Boermeester MA. Endoscopic or surgical intervention for painful obstructive chronic pancreatitis. *Cochrane Database Syst Rev*. 2012; 1: CD007884. doi: 10.1002/14651858.CD007884.pub2

16. Issa Y, Kempeneers MA, Bruno MJ, et al. Effect of early surgery *vs* endoscopy-first approach on pain in patients with chronic pancreatitis: The ESCAPE randomized clinical trial. *JAMA*. 2020; 323(3): 237-247. doi: 10.1001/jama.2019.20967

17. Traverso LW, Longmire Jr WP. Preservation of the pylorus in pancreaticoduodenectomy a follow-up evaluation. *Ann Surg*. 1997; 192(3): 306-310. doi: 10.1097/00000658-198009000-00005

18. Cahen DL, Gouma DJ, Laramée P, et al. Long-term outcomes of endoscopic *vs* surgical drainage of the pancreatic duct in patients with chronic pancreatitis. *Gastroenterology*. 2011; 141(5): 1690-1695. doi: 10.1053/j.gastro.2011.07.049