

Diagnosis and treatment of chronic pancreatitis

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OBJECTIVE: To summarize our experience in treatment of chronic pancreatitis (CP).

METHODS: Clinical data on 245 patients with CP treated at our hospital from May 1983 to October 2001 were reviewed.

RESULTS: Of the 245 patients, 122 suffered from CP for a year (49.8%) and 191 for 5 years (78.0%). The rate of positive diagnosis of B-ultrasound, CT, ERCP, B₂-Ty-Para-aminobenzoic acid (PABA) for CP was 74.2%, 80.7%, 76.5% and 72.8%, respectively. 169 patients (69.0%) received surgical treatment. After the operation, 98.8% of the 169 patients experienced decreased pain with a complication rate of 1.2%.

CONCLUSION: Early diagnosis and appropriate operative time and management are of vital importance in improving patients' quality of life and controlling the natural history of the disease.

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Key words: chronic pancreatitis; diagnosis; treatment

Introduction

Chronic pancreatitis (CP) is a destructive inflammatory disease of the pancreas. The recurrence of CP ultimately leads to total or partial decline of endocrine or exocrine function of the pancreas. Its clinical features include abdominal pain, digestive functional disturbance, steatorrhea, and diabetes mellitus (DM). Hence the objectives of therapy focus on pain relief, removal of pancreatic and/or biliary duct obstruction, and supplementary support to pancreas function. Surgical or nonsurgical treatment^[1,2] such as pancreatic enzyme replacement is advisable. In this study, 245 CP patients treated at our hospital from May 1983 to October 2001 were reviewed, attempting to improve the diagnosis and treatment of CP.

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Methods

Patients

245 CP patients treated at our hospital from May 1983 to October 2001 were reviewed. Among these patients, 169 were male and 76 female, with a sex ratio of 2.2:1. Their ages ranged from 9 to 79 years, with an average of 46 years. The age for frequent CP occurrence was within 40–60 years.

Etiological analysis

In this group, 113 patients (46.1%) had biliary pancreatitis, 72 (29.4%) chronic pancreatitis due to long-term alcohol consumption, 5 (2.0%) traumatic pancreatitis, and 55 (22.4%) idiopathic pancreatitis.

Clinical manifestations

In this group, 221 patients (90.2%) had definite abdominal pain and/or backache, 26 (10.6%) steatorrhea, 31 (12.7%) malnutrition, 69 (28.2%) jaundice, 14 (5.7%) DM, 12 (4.9%) ascites, and 3 (1.2%) portal hypertension. Other disorders complicated by CP included pancreatic pseudocyst

(43 patients, 17.6%), liver cirrhosis (2, 0.8%), pancreatic cancer (5, 2.0%), and upper digestive tract bleeding (6, 2.4%).

Diagnostic methods

Of the 245 patients, 122 (49.8%) were diagnosed as having CP within one year after onset of the disease, whereas 191 (78.0%) were diagnosed within 5 years. Those who were diagnosed beyond 5 years often experienced mild symptoms which caused little attention and late medical treatment. One patient complained of upper abdominal pain and recurrent diarrhea for over 30 years without diagnosis of pancreatitis until he sought medical treatment for jaundice. The patient was surgically diagnosed with CP complicated by pancreatic cancer.

233 patients received B-ultrasound (US) examination with a positive diagnostic rate of 74.2% (173/233). The positive diagnostic rates of CT scan, serum amylase, urine B₂-Ty-Para-aminobenzoic acid (PABA) and ERCP were 80.7% (121/150), 58.4% (111/190), 72.8% (56/77) and 76.5% (75/98), respectively.

Treatment

In this series, 76 patients received nonoperative treatment, including etiological therapy such as cessation of smoking or drinking, and pancreatic enzyme replacement, and 169 (69.0%) were subjected to surgical intervention including Whipple's procedure in 20 patients (11.8%), of which 1 underwent pancreatoduodenectomy with reservation of the pylorus, distal pancreatectomy in 16 patients (9.5%) of which 5 underwent biliary surgery simultaneously, internal drainage of pancreatic pseudocyst in 30 patients (17.8%) of which 16 underwent biliary surgery simultaneously, pancreaticojejunostomy in 27 patients (16.0%) of which 2 underwent internal drainage of pancreatic pseudocyst, 5 biliary surgery, and 1 pancreatic neurectomy at the same time, operation merely to relieve biliary obstruction in 69 patients (40.8%), laprotomy for pancreas biopsy in 7 patients (4.1%).

Results

After surgery, pain was relieved obviously in 167 patients (98.8%). Pancreatic fistulas occurred in two patients (1.2%) who had received pancreatoduodenectomy, of whom one died on the 7th day after operation because of fistula, abdominal infection and sepsis.

Discussion

Etiological association and clinical progress

The etiologic association of CP is complicated and remains unclear. It may be related to a variety of factors that cover different aspects.^[2] Through endoscopic retrograde cholangiopancreatography (ERCP), operation and pancreas biopsy, Gu et al^[3] found that about 40%–50% of CP patients in China were caused by cholelithiasis or other bile duct diseases. Biliary disease may cause frequent onset of pancreatitis, which results in diffuse fibrosis of the pancreas, and stenosis, calcification or calculus of the pancreatic duct, finally leading to CP. Recurrent inflammatory reaction is the major factor causing pain. In our series, 113 patients with biliary pancreatitis accounted for 46.1% of all patients. In western countries, alcohol consumption is a main causative factor. Research has shown that about 74.6% of CP patients have alcohol exposure for over 5 years with average daily alcohol consumption of more than 80 g. The possible etiologic factor of CP may be the toxic effects of alcohol itself or its metabolic products and hypoproteinemia caused by alcohol, resulting in progressive damage and fibrosis of the pancreas parenchyma.^[2,4] Secondary to biliary disease, 72 (29.4%) patients in this series were due to long-term alcohol consumption. Hence abstinence is very important in control of CP progress and relief of clinical symptoms. Besides, traumatic CP (5 patients) and idiopathic CP (55) in our series accounted for 2.0% and 22.4%, respectively.

The nature of CP of different types is relapse inflammation of pancreatic tissue, which causes progressive fibrosis and extensive destruction of the pancreas. Recurrent inflammation is the principal cause of abdominal pain.^[2] In our series, 90.2% of patients complained of such pain. Moreover,

destruction of the pancreas tissue causes declines of both endocrine and exocrine function of the pancreas, characterized by dyspepsia, steatorrhea, and DM. In our group, the occurrence rates of steatorrhea and DM were 10.6% and 5.7%, respectively.

Reasonable application of examination methods

Since clinical symptoms of CP are not characteristically significant and there are no specific laboratory tests or image examinations, early diagnosis of CP is very difficult. In our series, 49.8% (122/245) of the patients were definitely diagnosed as having CP within one year after onset of the disease, while 78.0% (191/245) were diagnosed within 5 years. These findings were consistent with those reported elsewhere.^[4]

Diagnostic methods of CP include image examination and laboratory test. B-ultrasound is of great significance in diagnosis of swollen pancreas, irregular pancreatic duct, pancreatic duct stone or pancreatic pseudocyst. The positive diagnostic rate of B-ultrasound in our series was 74.2%. For patients with pancreatic atrophy, localized dilation in the pancreatic head or small calcification within the pancreatic parenchyma, CT scans are necessary. The diagnostic positive rate of CT scan in our series was 80.7%. Laboratory tests are performed to examine the exocrine and endocrine function of the pancreas. Endocrine function tests include blood glucose test and glucose tolerance test. In our series, 14 patients (5.7%) were complicated by DM, while 57 (23.3%) by impaired glucose tolerance. Exocrine function tests in our series included tests of serum amylase and PABA, with a positive rate of 58.4% and 72.8%, respectively.

ERCP is of great significance for the diagnosis and treatment of CP as well as the differential diagnosis of CP and pancreatic cancer. ERCP may indicate the stricture, beading change or dilation of the pancreatic duct. Additionally, the evacuation speed of the contrast medium can be observed via ERCP.^[5] In terms of differential diagnosis of CP and pancreatic cancer, ERCP is used to obtain brushed cells for cytological examination, and to

aspirate pancreatic secretions or retrieve pancreatic tissue sample by needle aspiration for detection of the mutated K-ras gene. Its diagnostic positive rate in our series was 76.5%.

Timing and choice of surgical procedures

Surgical indications for CP include intractable pain, pancreatic duct obstruction, pancreatic pseudocyst, biliary tract obstruction or mass suspicious of pancreatic cancer. Ihse et al^[6] suggested that early surgical treatment is feasible for patients with obstructive CP or those with CP caused by biliary disease. This operation should be performed before occurrence of nutritional or metabolic disorders caused by obstruction of the GI tract or bile duct, especially before occurrence of narcotics addiction because of intractable pain. In our group, 169 patients underwent early surgical treatment because of abdominal pain and/or backache.

Surgical procedures include pancreatic resection consisting of total pancreatectomy, pancreaticoduodenectomy and distal pancreatectomy; pancreatic duct drainage including sphincterectomy and pancreaticojejunostomy; internal drainage of pancreatic pseudocyst; and relief of biliary obstruction.^[1,3]

Pancreaticoduodenectomy is a routine procedure in surgical treatment of periampullary tumors. Because of progress in understanding pain mechanism of CP and increased success rate of operation, it has been used to treat benign disease of the pancreas. The performance rate of this procedure is 18.5%^[4] higher than 11.8% in our series.

Elevation of pancreatic ductal pressure is a major cause for pain in CP patients. Pancreaticojejunostomy, however, can decrease the pressure and preserve exocrine and endocrine functions of the pancreas at large. To ensure a successful pancreaticojejunostomy, complications such as pancreatic pseudocyst and biliary or duodenal obstruction should be treated simultaneously.^[7] In our group, 27 patients (16.0%) received pancreaticojejunostomy, 2 internal drainage of pancreatic pseudocyst, 5 biliary surgery, and 1 pancreatic neurectomy. Pain relief was remarkable in these patients.

In China, CP is mainly due to biliary disease. Relief of biliary obstruction is essential to slow down the progression of CP and hence should be performed as early as possible.^[3] In our group, 69 patients (40.8%) were operated on to relieve biliary obstruction, and 26 patients were operated on with another surgical procedure simultaneously.

Conservative treatment of CP

Except obstructive CP or CP caused by biliary disease, the development of other types of CP depends upon inflammation progression and the function of the immune system. Surgical treatment merely to relieve symptoms is performed not as early as possible. Instead conservative therapy is very important at early stage.^[4,8]

For pain, dyspepsia, DM and other clinical symptoms caused by CP, nonoperative therapy like reasonable acesodyne, pancreatic enzyme replacement and DM control is also effective after ruling out their causes. In our series, 76 patients received nonoperative treatment successfully.

Interventional therapy of CP

Interventional therapy is a developing method to treat CP by endoscopic techniques. At present, it involves pancreatic duct sphincterectomy, stent drainage, calculus removal and pseudocyst drainage.^[9] Contrast to traditional surgical treatment, interventional therapy is more easily performed without excision of pancreatic tissue for consideration of better preservation of pancreatic function. It is feasible to replace some traditional operations in the treatment of CP.

With social development and improvement of life quality of patients, it is necessary to improve the diagnosis and treatment of CP. Positive early diagnosis is dependent on better understanding of the etiology of CP and combination of various tests.

Hence combined use of various treatments including selection of operative time and procedures is essential to the control of development of CP and improvement of life quality of patients.

Competing interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

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