Journal of Gastrointestinal & Digestive System

Ji et al., J Gastrointest Dig Syst 2017, 7:6
DOI: 10.4172/2161-069X.1000541

Research Article Open Access

Combined Therapy with Intraperitoneal Lavage and Intraduodenal Infusion of Korean Rhubarb Extract and Oxil Mixture for Severe Acute Pancreatitis

Chung-Sa Ji*, Sung-Il Rim, Tae-Son Li, Jong-Sik Kim and Kyong-Il Yun

Abdominal Surgical Department, Pyongyang medical college Kim Il Sung University, DPR Korea

***Corresponding author:** Chung-Sa Ji, Abdominal Surgical Department, Pyongyang medical college Kim Il Sung University, DPR Korea, Tel: +8504338276; E-mail: ryongnam19@yahoo.com

Received date: October 20, 2016; **Accepted date:** December 08, 2017; **Published date:** December 15, 2017

Abstract

Objective: We have studied to verify indication of the combined therapy with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture for severe acute pancreatitis and reduce rate of operation for acute pancreatitis.

Methods: We have studied palliative treatment of severe pancreatitis with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture instead of operative therapy.

Results: According to efficacy of our combined therapy, 83 cases (92.2%) had treated perfectly, but 7 cases (7.8%) had operation therapies due to non-efficacy on our combined therapy. Average duration of hospitalization and recovery of working ability were 21.6 ± 13.6 and 34.6 ± 10.5 respectively in study group, which were shorter than 49.8 ± 19.0, 66.5 ± 17.9 in control group.

Conclusion: We applied intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture for severe acute pancreatitis that needed surgical therapy in the past. Thus, the incubus of therapy was induced so recovery after operation, hospital stay and recovery of working ability was reduced than those of surgical therapy for severe acute pancreatitis.

Keywords: Intraperitoneal lavage; Korean rhubarb extract; Oxil mixture; Severe acute pancreatitis; Double-drain; Intraduodenal infusion; Kocher's maneuver; Pancreatic capsulotomy; Pancreatic ojejunostomy; Pancreatic fistula

Introduction

We have studied palliative treatment of severe pancreatitis with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture instead of operative therapy.

Purpose of study is to verify indication of the combined therapy and reduce rate of operation.

Material and Method

Material

From January, 2008 to December, 2014, we treated 90 patients with combined therapy of intraperitoneal lavage and intraduodenal infusion of rhubarb extract and oxil mixture reviewed 50 patients who underwent operative therapy with open Kocher's maneuver or pancreatic capsulotomy, mobilization and drainage.

Technique

Intraperitoneal lavage

If there was bloody exudation by abdominocentesis, surgeon incubated the double-drain intraperitoneally [1]. The paracentesis area is choosed as left hypochondrium or the part that has the most obvious ultrasonographic low echoes. The paracentesis is applied by double-drain, if necessary; another drain may be inserted on the suprapubica. We use linger as Lavage fluid , injected 1000 ml of linger for about 15 minutes intraperitoneally, leaving for 30 minutes and draining for 15 minutes. We repeated these procedures as 1 cycle for 3 or 5 days in order to dilute the intraperitoneal bloody exudation.

Intraduodenal infusion

Nasogastric tube is inserted to papilla of vater and all duodenal juices are sucked out. Then 100 mL of oxil mixture and 50 to 100 mL of 20% rhubarb extract is infused into duodenum. These procedures are repeated every 6 to 8 hours until the symptoms are diminished. After evacuation and symptoms are diminished, nasogastric tube is distally moved approximately 20 cm and nasal feeding is administered.

Operation method in control group

We performed operation to patients with open Kocher's maneuver or pancreatic capsulotomy and mobilization and drainage [1].

Result

Result of intraperitoneal lavage

Average drain amounts by day after intraperitoneal lavage: Average drain amounts after intraperitoneal lavage was most at first day and decreased day by day, and in general was almost discontinued at third day (Table 1).

Day after Lavage	1	2	3	4
Study group (n=90)	796 ± 165.5	406.2* ± 72.8	61.3 ± 15.0	-

Table 1: Average drain amounts by day after intraperitoneal lavage/mL.

Color of fluid by day after intraperitoneal lavage: The color of drain juices was dark-red at first day and lightened day by day, and almost normalized as light yellow color at 4th day (Table 2).

Color	Day after lavage			
	1	2	3	4
Dark red color	71 (78.9)	-	-	-
Red color	19 (21.1)	62 (68.9)	-	-
Light red color	-	28 (31.1)	80 (88.9)	-
Light yellow	-	-	10 (11.1)	90 (100.0)

Table 2: Color of drainage juices by day after lavage; [%].

Drainage of pancreatic and duodenal juices

Average drain amounts of pancreatic and duodenal juices: The average drain amounts of pancreatic and duodenal juices were diminished considerably at third day (Tables 3 and 4).

Days after therapy	1	2	3
Average drain amounts	939.6 ± 215.2	285.2** ± 62.8	73.2** ± 28.9

Table 3: Average drain amount of pancreatic and duodenal juices/mL; ** p<0.01, (n=90).

Relation between vital signs and pancreatic and duodenal juices

Day after therapy	1	2	3
average drainage amount/day	939.6 ± 215.2	285.2** ± 62.8	73.2** ± 28.9
Average blood pressure (systole)	110.0 ± 10.2	123.0 ± 11.3	126.0 ± 11.9
Average respiratory rates	26.0 ± 3.1	23.0 ± 2.8	18.0 ± 2.7
Average temperature	38.50 ± 0.63	37.70 ± 0.66	36.90 ± 0.62

Table 4: Relation between vital signs and pancreatic and duodenal juices; ** p<0.01, (n=90).

Results after treatment

First evacuation day after intraperitoneal lavage: 91 patients (90%) were evacuated in second day after intraperitoneal lavage.

Average evacuation day after treatment: The average evacuation day after therapy was 2.3 ± 0.6 days, but 3.0 ± 0.9 in control group.

First and average oral feeding day after treatment

First oral feeding day after treatment: Some patients initiated early oral feeding from first day after therapy and most of patients from second day, but third day in control group.

Average oral feeding day after treatment: Generally, the average oral feeding after therapy day was faster than control group (2.5 ± 0.6 days in study group and 3.4 ± 0.9 in control group).

Relief day of subjective and objective signs after treatment: The subjective signs of patients were palliated in 4 to 5 days after therapy in study group (faster than control group). The objective sign in 3 days (no difference between study and control group) (Tables 5 and 6).

Group	Subjective sign	
	Epigastric pain	Tympanites
Study (n=90)	4.1** ± 1.3	5.9* ± 0.9
Control (n=50)	6.2* ± 1.7	7.1* ± 1.3

Table 5: Duration to be improved subjective sign/d.

Group	Objective sign	
	Muscle guarding	Rebound tenderness
Study (n=90)	3.1 ± 1.1	3.3 ± 0.5
Control (n=50)	3.6 ± 0.6	3.4 ± 0.6

Table 6: Duration to be improved objective sign/d.

Relief day of SIRS after treatment

SIRS was palliated in 4 to 5 days after therapy and no difference between study and control group.

Change of laboratory and ultrasonographic examination after treatment: White blood cell counts were normalized in 4 to 6 days after therapy (Tables 7 and 8).

Group	Day after therapy			Total
	3	4-6	7	
Study	6 (6.7)	59 (65.5)	25 (27.8)	90 (10.0)
Control	-	19 (38.0)	31 (62.0)	50 (10.0)

Table 7: Duration to be normalized white blood cell counts after therapy.

Group	Day after therapy			Total
	9	10-19	20	
Study	8 (15.7)	34 (66.6)	9 (17.6)	51 (100.0)
Control	1 (3.8)	16 (1.6)	9 (3.6)	2 (100.0)

Table 8: Duration to be normalized pancreas ultrasonographically.

Complication and mortality after treatment

Group	Complication after therapy					Mortality
	Retention of exudation in peritoneal cavity	Abscess in peritoneal cavity	Pancreatic pseudocyst	Pancreatic fistula	Ileus	
Control (n=50)	-	2 (4.0)	3 (6.0)	28 (56.0)	2 (4.0)	6
Study (n=90)	3 (3.3)	3 (3.3)	3 (3.3)	-	-	-

Table 9: Complication and mortality.

We studied complications and mortality after therapy intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture for severe acute pancreatitis (Table 9). As shown to table 9, complications included retention of exsudation in peritoneal cavity, peritoneal abscess and pancreatic pseudocyst in study group, pancreatic fistula more than 50% in study group. The mortality was 0 cases (0%), 4 cases (8.0%) in study and control group, respectively. The cause of death was mostly MOF in 3 cases (6.0%) of control group and intraperitoneal mass haemorrhage by pancreatic fistula in one patient, but no in study group. Peritoneal abscesses were treated by peritoneal lavage, pancreatic pseudocyst spontaneously in 3 cases (3.3%). In 3 patients pancreaticojejunostomy is performed.

Average day of hospitalization and recovery day of working ability after treatment: The average day of hospitalization in study group was shorter than in control group. Working ability of patients in study group was recovered more rapidly than control group (Tables 10 and 11).

Group	Case	Average duration/d
Study	90	21.6 ± 13.6
Control	50	49.8 ± 19.0

Table 10: Average duration of hospitalization.

Group	Case	Working ability
Study	90	34.6 ± 10.5
Control	50	66.5 ± 17.9

Table 11: Duration to be recovered working ability after therapy.

Discussion

The past, treatment of acute pancreatitis was mostly operation, but the recent become palliative therapy [2]. Besides was applied palliative therapy for severe acute pancreatitis that was absolute operative indication.

Contents of palliative therapy for acute serious pancreatitis are fitness analgesic medicine, early intestinal nutrition by sonde [3], prescription of antibiotic medicine (Ciprofloxacin, Ofloxacin, Imipenem) to prevent local infection of pancreas [4-7], continued absorption of gastric duodenal juice by sonde, continued instillation of proteinase inhibitor(Gabexate mesilate) [8] in Intensive Care Unit [9]. So in many countries Guidelines for severe acute pancreatitis are pubished [3,10].

We suppose that some herbal medicines can be indicated of those effects.

Oxil mixture contains Stigmata, *Curcuma longa L*, *Matricaria chamomilla L* and alike. In Stigmata Cryptoxanthin, Vitamin C, Pantothenic acid, Volatile oil and contains alcohol extract of Stigmata which may have bacteriostasis effect [11,12]. In *Curcuma longa L* is also contained Curcumin, Demethoxycurcumin, Bisdemethoxycurcummin and the like. They have antioxydative effects. There are chamazulene, volatile α-bisabolol and apigenin, lureolin as flavone, the others polysaccharides in *Matricaria chamomilla L*.

Fundamental element of Korean rhubarb is sennoside as anthraquinone compound. It makes strengthen peristalsis of colon transversum and descendens. And it makes transfer fluid from tissue to digestive tract. For that reason Korean rhubarb inhibit generate Cytokine, PGs, PAF, Korean rhubarb has an anti-inflammatory effect to control acceleration of vascular permeability. And Korean rhubarb markedly inhibits almost enzymes of pancreas as trypsin, elastase, lipase, kallikrein. On the other side there is effect to increase secretion of bile and pancreatic juice, to improve minute- circulation of pancreas. Principal, Korean rhubarb maintain low pressure of pancreatic ducts by relaxing Oddi's sphincter [13,14].

Therefore combined therapy with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture become method of therapy for severe acute pancreatitis. If this method is utilized, it may not be necessary to use many antibiotics and proteinase inhibitors. We may use some herbal medicine in treatment of severe acute pancreatitis. We applied combined therapy with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture for severe acute pancreatitis and obtained satisfactory results.

According to efficacy of our combined therapy, 83 cases (92.2%) had treated perfectly, but 7 cases (7.8%) had operation therapies due to non-efficacy on our combined therapy. Average drain amounts of pancreatic and bile juice on the first day after paracetesis was 939.6 ± 215.2 mL, it became decrease rapidly. However, in other cases in which average drain amounts of pancreatic and bile juice didn't change day after day, we transferred as operation. Average drain amounts on the first day after paracentesis was 796 ± 165.5 mL/d, decreasing rapidly, average drain amounts on the third day was 61.3 ± 15.0 mL/d. In addition, the color of paracentesis fluid was dark-red, but became red and light-red gradually, on the 4th day after paracentesis, paracentesis fluid became Light yellow. At this point we stopped intraperitoneal lavage.

The occurrence rate of complications associated with this procedure is lower remarkably than ones of operative therapy. Therefore, this combined therapy is safe, pancreatic fistula that is a severe

complication for acute pancreatitis occurred in 11 cases (12.2%), 28 cases (56.0%) of combined therapy and operation respectively. However, we think that tardy pancreatic necrosectomy is necessary because the occurrence rate of complications is still high.

The cause of death was mostly MOF in control group and mass haemorrhage by pancreatic fistula in one patient, but no in study group. Duration of hospitalization and recovery of working ability were 21.6 ± 13.6 and 34.6 ± 10.5 respectively in study group, which were shorter than control group.

Thus, we think that our combined therapy is so safe and economic method because various protease-inhibitors and antibiotics including imipenem are not necessary. On the other hand, this combined therapy instead of operation is very effective due to shortness of average duration of hospitalization and duration to be recovered working ability after therapy.

Conclusion

Firstly, we verified indication of combined therapy with intraperitoneal lavage and intraduodenal infusion of Korean rhubarb extract and oxil mixture for severe acute pancreatitis. When nasal intubation is successed, operation is not required, but wrong intubation is required operation.

Secondly, administration of our therapy decreased remarkably operations. Juices of peritoneal lavage and duodenal juices from nasal tube were normalized in 3 to 4 days after therapy and vital signs, subjective and objective signs were reduced. Complication of pancreatic fistula is lower in study group than in control group, and duration of hospitalization and recovery of working ability were shorter than control group.

References

1. Zong-dae K (2014) Acute pancreatitis: Manual of surgical diagnosis and treatment. Med Sci Publish House 1: 270-273.
2. Koichi H, Mayumi T, Masahiro (2009) Treatment strategy in acute pancreatitis. Surg Ther 100: 359-367.
3. Banks PA, Freeman ML (2006) Practice parameters committee of the American College of Gastroenterology. Practice guidelines in acute pancreatitis. Am J Gastroenterol 101: 2379-2400.
4. Golub R, Siddiqi F, Pohl D (1998) Role of antibiotics in acute pancreatitis: A meta-analysis. J Gastrointest Surg 2: 496-503.
5. Yasuda T, Ueda T, Takeyama Y (2007) Treatment strategy against infection: Clinical outcome of continuous regional arterial infusion, enteral nutrition and surgery in severe acute pancreatitis. J Gastroenterol 42: 681-689.
6. Morimoto A, Imamura T, Ishii R (2008) Successful management of severe L-asparaginase-associated pancreatitis by continuous regional arterial infusion of protease inhibitor and antibiotic. Cancer 113: 1362-1369.
7. Imaizumi H, Kida M, Nishimaki H (2004) Efficacy of continuous regional arterial infusion of a protease inhibitor and antibiotic for severe acute pancreatitis in patients admitted to an intensive care unit. Pancreas 28: 369-373.
8. Seta T, Noguchi Y, Shimada T (2004) Treatment of acute pancreatitis with protease inhibitors: A meta-analysis. Eur J Gastroenterol Hepatol 16: 1287-1293.
9. Toshihiro M, Shuichi S, Mutsuo O (2009) Intensive management of acute pancreatitis. Surg Ther 100: 368-374.
10. Publish committee of amend for Guideline for diagnosis and treatment of acute pancreatitis (2010) Guideline for diagnosis and treatment of acute pancreatitis. Toukyou, Kanehara publish house .
11. Seigler DS (1976) Plants of northeastern unites states that produce cyanogenic comopounds. Economic Bot 30: 395-407.
12. Bever BO, Zahnd GR (1979) Plants with oral hypoglycemic action. Q J Crude Drug Res 17: 130-196.
13. Tong-il K, Mu-pyong R, Gun-we P (1988) Korean Rhubarb, Koryo Medicine Dictionary. Pyongyang. Science Encyclopaedia Publish House 1: 256-257.
14. Ji-Yao W (2010) Acute pancreatitis. Int Med, Beijing, People's Pubilc Health Publish House 1: 554.