

RESEARCH ARTICLE

 **Serdar Aslan**¹
 **Kemal Peker**²
 **Mehmet İlhan Yildirgan**³

¹Bahçelievler Memorial
Hospital Department of General
Surgery, Turkey

²Düzce University, Department
of General Surgery, Duzce,
Turkey

³Atatürk University, Department
of General Surgery, Erzurum,
Turkey

Corresponding Author:

Kemal Peker

Düzce University, Department of
General Surgery, Duzce, Turkey

Phone: +90 5359368528

mail: k.peker@yahoo.com.tr

Received: 02.07.2020

Acceptance: 30.03.2021

DOI: 10.18521/ktd.749787

Konuralp Medical Journal

e-ISSN1309-3878

konuralptipdergi@duzce.edu.tr

konuralptipdergisi@gmail.com

www.konuralptipdergi.duzce.edu.tr

The Role of Early Period ERCP in Acute Biliary Pancreatitis?

ABSTRACT

Objective: Acute pancreatitis; It can be defined as a clinical picture that occurs as a result of non_bacterial inflammation of the pancreas and may progress with pathological findings. For years, various studies have been conducted on the use of Endoscopic Retrograde Cholangiopancreatography and Endoscopic Sphincterotomy for therapeutic purpose in Acute Pancreatitis. For years, various studies have been conducted on the use of Endoscopic Retrograde Cholangiopancreatography and Endoscopic Sphincterotomy for therapeutic purpose in Acute Pancreatitis.

In our study, we aimed to examine either the effectiveness of Endoscopic Retrograde Cholangiopancreatography and Endoscopic Sphincterotomy in patients with mild severity, and how the endoscopic procedure affects the course of the disease.

Methods: In this study, patients with mild pancreatitis were selected among the patients who applied to the Department of General Surgery, of Atatürk University Faculty of Medicine and diagnosed with acute biliary pancreatitis (ABP).

After the patients were separated according to the mild pancreatitis, early (within 72 hours) and late period, they were randomly selected to be performed Endoscopic Retrograde Cholangiopancreatography and Endoscopic Sphincterotomy. 59 patients were detected in this way.

Results: Twelve (20.3%) of the patients included in our study were male, and 47 (79.7%) were female, and their ages were between 25-75 years (mean 64.3 years). Two groups were created in order to perform ERCP/ES in the early and late periods. All patients had acute onset abdominal pain and serum amylase levels have been ranging between (1012-7660 UI/L).

Conclusions: In patients with mild acute biliary pancreatitis, there is no significant difference in the early (first 72 hours) ERCP/ES results compared to the results of patients with ERCP/ES in the late period.

Keywords: Acute Pancreatitis, ERCP, Sphincterotomy.

Akut Bilier Pankreatitte Erken Dönem ERCP'nin Rolü?

ÖZET

Amaç: Akut pankreatit; Pankreasın bakteriyel olmayan enflamasyonu sonucu patolojik bulgularla seyredabilen klinik bir tablo olarak tanımlanabilir. Yıllardan beri Endoskopik Retrograd Kolanjiopankreatikografi ve Endoskopik Sfinkterotomi'nin Akut Pankreatit'de terapötik maksatlı olarak kullanımı ile ilgili çeşitli çalışmalar yapılmaktadır. Bu çalışmalara göre özellikle hafif şiddetli Akut Pankreatit'de erken Endoskopik Retrograd Kolanjiopankreatikografi ve Endoskopik Sfinkterotomi tartışmalı olmaya devam etmektedir. Biz çalışmamızda hafif şiddetteki Akut Pankreatit'li hastalarında, Endoskopik Retrograd Kolanjiopankreatikografi ve Endoskopik Sfinkterotomi'nin tedavideki etkinliğini, aynı zamanda yapılan endoskopik işlemin hastalığın seyrini nasıl etkilediğini araştırmayı amaçladık.

Gereç ve Yöntem: Bu çalışmada, Atatürk Üniversitesi Tıp Fakültesi Genel Cerrahi Anabilim Dalına, akut bilier pankreatit (ABP) tanısı ile müracaat eden hastalar arasından, Ranson kriterleri ve hastaların klinik durumlarına göre hafif şiddetteki pankreatitli hastalar belirlendi. Hastalar hafif pankreatit tablosuna göre ayırdıktan sonra erken (72 saat içinde) ve geç dönemde, Endoskopik Retrograd Cholangiopancreatography ve Endoskopik Sfinkterotomi yapılmak üzere randomize bir şekilde seçildi. Bu şekilde 59 hasta tespit edildi.

Bulgular: Çalışmamıza dahil edilen hastaların 12'si (%20,3) erkek, 47'si (%79,7) kadın olup, yaşları 25-75 yıl (ortalama 64,3 yıl) idi. Hastalara erken ve geç dönemde ERCP/ES yapılmak üzere 2 grup oluşturuldu. Hastaların 24(%40,6)'üne erken 35(%59,4)'ine geç dönemde ERCP/ES yapıldı. Tüm hastalarda akut başlayan karın ağrısı vardı ve serum amilaz seviyeleri (1012-7660 Ü/L) arasında değişmekte idi.

Sonuç: Hafif şiddetteki akut bilier pankreatitli hastalarda erken (ilk 72 saat) ERCP/ES sonuçlarının geç dönemde ERCP/ES yapılan hastaların sonuçları ile karşılaştırıldığında anlamlı bir fark yoktur. Bu nedenle hafif şiddetteki akut bilier pankreatitli hastalara erken dönemde ERCP/ES yapılabileceği kanaatindeyiz.

Anahtar Kelimeler: Akut Pankreatit, ERCP, Sfinkterotomi.

INTRODUCTION

Acute pancreatitis is a condition in which pancreatic enzymes increase in blood and urine with abdominal pain, which can proceed by a non-bacterial inflammation of the pancreas with pathological findings ranging from edema to necrosis, it can be defined as a clinical picture characterized by fibrosis and consequently irreversible endocrine and exocrine dysfunction. Although it is known that proteolytic enzymes of the pancreas play a role in the formation of pancreatic inflammation, the mechanisms by which these enzymes in inactive form are activated in pancreatic tissue are still controversial. The transformation of the inactive trypsinogen, which is located in the acinar cells of the pancreas, into the active form of trypsin by various mechanisms, activates other proteolytic enzymes (proelastase, chymotrypsinogen and phospholipase), kinin-kallikrein, complement and fibrinolysis, resulting in the local and systemic findings. Activation and retention of digestive enzymes in the acinar cell causes local destruction (auto-digestion) in the pancreas. This process leads to an increase in vascular permeability, causing edema in the pancreas and increased pancreatic injury by causing ischemia. As a result of that, a chemical inflammation in the retroperitoneal region and a systemic toxicity table accompanying this situation emerge. If microcirculation does not deteriorate in this event, the event is called acute interstitial pancreatitis. In cases where microcirculation is affected and circulation is impaired, necrotizing pancreatitis occurs. Although most of the attacks proceeds benignly, in severe attacks shock, kidney failure and respiratory failure may develop. With the elimination of the primary cause, the morphological changes in the pancreas return to normal completely. As a result of recurrent AP attacks, the development of a failure table in the endocrine and exocrine functions of the pancreas is common (1,2).

As acute pancreatitis causes significant morbidity and mortality, mortality decreases as a result of correct treatment and intensive care, by determining the severity in advance. While 80-85% of AP attacks caused by acinar cell damage are mild and recovered by simple supportive therapy, in 15-20% of cases (3) serious local and systemic complications develop.

Endoscopic Retrograde Cholangiopancreatography (ERCP) and endoscopic sphincterotomy (ES) have an important role in the treatment of AP. In the studies performed, in 45-70% of the patients who had acute biliary pancreatitis (ABP) in the early evaluation and in 15-30% of the evaluation after the symptoms were resolved permanent gallstones were detected. This situation supports the idea that emergency efforts to remove gallstones from bile ducts or ampulla of Vater will affect the course of the disease (4). Since

the late 1980s, various studies have been conducted on the use of ERCP and ES as a therapeutic purpose in AP. According to these studies, early ERCP and ES continue to be controversial, especially in mild severe AP (5,6).

In this study, we aimed to evaluate the clinical, laboratory and radiological findings of patients with mild AP accompanied by ERCP and ES, and to examine the effectiveness of ERCP and ES in the treatment of patients with AP and how it affects the course of the disease.

MATERIAL AND METHODS

In this study, patients with mild pancreatitis were determined among the patients who applied to the Department of General Surgery, Atatürk University Faculty of Medicine, with the diagnosis of acute biliary pancreatitis (ABP). The following criteria were considered for acute biliary pancreatitis.

After the patients were separated according to the mild pancreatitis table, they were randomly selected to perform Endoscopic Retrograde Cholangiopancreatography (ERCP) and Endoscopic Sphincterotomy (ES) in the early (late 72 hours) and late period. In this way, 59 patients were detected. Twelve (20.3%) of the patients were male, and 47 (79.7%) were female, and their ages were 25-75 years (mean 64.3 years).

Of these patients who had mild acute biliary pancreatitis with the above-mentioned criteria, two groups were put together: those who were ERCP/ES performed in the early period (first 72 hours) and those who were ERCP/ES performed in the late period. The early group consisted of 24 (40.6%) and the late group 35 (59.4%) patients. Patients' records were examined prospectively. In our study, the tomographic appearance of pancreatic tissue to be normal (+1), inflammation was limited only in the peripancreatic area and minimal edema in pancreatic tissue, acute mild pancreatitis (++ 2), inflammation was advanced in the mesenteric area and retroperitoneal area, and the edema in the pancreas was more prominent, acute severe pancreatitis (+++ 3), and additional necrosis in the pancreas were evaluated as necrotizing pancreatitis (++++ 4). The absence of fever was accepted as (0) its presence as (1).

In both groups, the following parameters were examined before and 24 hours after the procedure, considering the study by Alfred D. Roston et al. (7). The same parameters were reworked before and after ERCP/ES in patients, and the results were compared statistically between the groups.

Statistical Analysis: SPSS package program was used in the analysis of the data. In statistical analysis, in order to compare the groups, the pairing t-test was applied to the measurements made before and after, and then the group comparison t-test was applied to the measurements made after. Early and

late ERCP/ES groups were randomly created, and it was understood that in the groups created only GGT was nonhomogeneous in twelve parameters. Eleven other parameters are homogeneous for both groups (early and late ERCP/ES patients). Therefore, both groups were considered statistically homogeneous.

RESULTS

Twelve (20.3%) of the patients included in our study were male, and 47 (79.7%) were female, and their ages were ranging between 25-75 years (mean 64.3 years). Two groups were formed to perform ERCP/ES in the early and late periods. ERCP/ES was performed in 24 (40.6%) of the patients in the early period in 35 (59.4%) of the patients in the late period. All patients had acute onset abdominal pain and serum amylase levels ranged between (1012-7660 UI/L). In 50 (84.7%) patients, stones in the biliary tract were detected by using ultrasonography (USG). No stones were detected in the biliary tract in ultrasonography (USG) in nine (15.3%) patients. However, in six patients no stones were detected choledochal pathology (stone, bile mud, large choledochal, ascaris and purulent fluid) was detected during the ERCP procedure. Bilirubin levels and liver enzymes were elevated in eight of nine patients without stones. The remaining one patient's bilirubin and liver enzymes were normal. However, as ascaris was detected during the ERCP procedure, he/she was included in the study. In 33 (55.9%) of 59 patients, one or more of the choledochal pathologies were detected in ERCP, while 26 (44.1%) of the patients were not detected in ERCP proceedings.

In 23 of these 26 patients, stones were found in the biliary tract in USG. The other 3 patients had higher bilirubin levels and liver enzymes. CT was performed before and after the procedure on all patients we included in the study. Pathology was detected in 34 patients (57.6%) in terms of pancreatitis. It was succeeded in the ERCP/ES procedure in all patients included in the study. No complications ever developed in any of our patients. The mean duration of hospital stay of

patients who underwent ERCP/ES was 9 ± 2 days in the early period, whereas the average length of hospital stay of patients with ERCP/ES in the late period was 16 ± 2 days. Treatment costs have also decreased since the hospitalization period of the patients who have undergone ERCP/ES procedure in the early period has shortened.

In the study, we observed that local and systemic complications decreased significantly as a result of early ERCP and ES to patients with mild biliary pancreatitis, and the length of hospital stay was significantly shorter compared to the group which undergone ERCP and ES in the late period. No significant difference was detected between the results of patients with acute biliary pancreatitis who underwent ERCP and ES in the first 72 hours compared to the parameters we specified in patients with acute biliary pancreatitis in the late 72 hours. In addition, in the group with late ERCP and ES, compared to the group with early ERCP and ES, the results were found to be importantly significant when the GGT, creatinine and glucose values studied before and after the procedure were compared. This situation was interpreted as it was due to the medical treatment given in the past period for late ERCP and ES procedures. When the post-procedure values of both groups were compared, ALT and AST values were found to be significantly different, whereas GGT values were found to be more significantly different. This was attributed to the expected time for medical treatment and procedure for ALT and AST and for non-homogeneous of GGT values when randomly selecting patients for GGT.

Study results are given in Table (1-3).

Table 1 indicates the comparison of the values studied before and after the procedure in the group with early ERCP / ES.

It was observed that the values studied before Leukocyte, CRP, BUN, ALT, AST, ALP, LDH, CT and Fever parameters compared with the values studied before the procedure decreased and it was statistically significant. Changes in GGT values were found to be statistically significant. Changes in creatine and glucose levels were statistically insignificant.

Table 1 indicates the comparison of the values studied before and after the procedure in the group with early ERCP/ES.

	Before		After		t	Statistical Situation (P)
	N	X± Standart Deviation	X±Standart Deviation			
Leukocyte	24	13029.1±4852.1	9745.8±4046.7	5.7	0.000 **	
CRP	24	6.4±6.3	3.0±3.7	3.9	0.001**	
BUN	24	18.0±8.9	11.2±5.5	3.2	0.004**	
Creatine	24	0.8±0.3	0.7±0.1	1.1	0.279 ns	
Glucose	24	130.2±57.9	120.9±57.8	0.6	0.552 ns	
ALT	24	320.4±282.9	95.1±72.5	4.1	0.000**	
AST	24	394.1±402.9	189.6±235.3	3.9	0.001**	
ALP	24	469.8±277.0	363.0±268.7	3.5	0.002**	
GGT	24	376.7±250.8	295.1±260.6	2.4	0.021*	
LDH	24	744.1±414.0	519.2±293.8	3.8	0.001**	
CT	24	1.5±0.5	1.0±0.2	4.4	0.000**	
Fever	24	0.7±0.4	0.0±0.0	7.4	0.000**	

X: is the average value; **: P<0.01 *: P< 0.05 ns: Insignificant

Table 2 indicates the comparison of the values studied before and after the procedure in the group with late ERCP / ES.

Leukocyte, CRP, BUN, Creatine, The values studied before the procedure in terms of glucose, ALT, AST, ALP, GGT, LDH, CT and Fever were compared with the values studied after the

procedure and the values were found to be statistically significant.

In the group with late ERCP and ES, as different in the group with early ERCP and ES, the results were found to be highly significant when the GGT, Creatine and glucose values studied before and after the procedure were compared.

Table 2 indicates the comparison of the values studied before and after the procedure in the group with late ERCP/ES.

	N	Before	After	t	Statistical Situation (P)
		X±Standard Deviation	X±Standard Deviation		
Leukocyte	35	14348.5±4901.7	8514.2±2636.6	6.9	0.000 **
CRP	35	7.4±6.2	1.9±1.7	6.1	0.000**
BUN	35	18.9±10.4	10.5±4.9	5.6	0.000**
Creatine	35	1.0±0.5	0.8±0.2	2.8	0.007**
Glucose	35	134.5±46.5	103.3±31.1	3.5	0.001 **
ALT	35	216.3±163.3	55.4±59.0	5.7	0.000**
AST	35	222.1±196.9	79.1±121.2	4.4	0.000**
ALP	35	426.8±336.4	250.4±236.8	6.5	0.000**
GGT	35	192.3±138.1	68.6±51.5	6.4	0.000**
LDH	35	669.4±259.8	403.3±201.9	8.0	0.000**
CT	35	1.7±0.5	1.2±0.5	4.6	0.000**
Fever	35	0.7±0.4	0.0±0.2	7.6	0.000**

X: is the average value; **: P<0.01 * : P< 0.05 ns: Insignificant

Table 3 shows the comparison of the studied values of both groups after the procedure. When the post-procedure values of both groups were compared, ALT and AST values were found to be highly significantly different, whereas GGT values

were found to be significantly different. The difference between the post-processing values of other parameters other than these parameters was statistically insignificant.

Table 3 shows the comparison of the studied values of both groups after the procedure.

	Early ERCP/ES	Late ERCP/ES	t	Statistical Deviation(P)
	X± Standard Deviation	X± Standard Deviation		
Leukocyte	9745.8±4046.7	8514.2±2636.6	1.3	0.198ns
CRP	3.0±3.7	1.9±1.7	1.3	0.190ns
BUN	11.2±5.5	10.5±4.9	0.5	0.604ns
Creatine	0.7±0.1	0.8±0.2	0.7	0.472ns
Glucose	120.9±57.8	103.3±31.1	1.5	0.121ns
ALT	95.1±72.5	55.4±59.0	2.3	0.025*
AST	189.6±235.3	79.1±121.2	2.1	0.042*
ALP	363.0±268.7	250.4±236.8	1.6	0.97ns
GGT	295.1±260.6	68.6±51.5	4.2	0.000**
LDH	519.2±293.8	403.3±201.9	1.6	0.10ns
CT	1.0±0.2	1.2±0.5	1.8	0.72ns
Fever	0.0±0.0	0.0±0.2	1.4	0.160ns

X: is the average value; **: P<0.01 * : P< 0.05 ns: Insignificant

DISCUSSION

The most common disease of the pancreas is acute pancreatitis. Acute pancreatitis is an acute inflammatory process of the pancreas. Its incidence is around 1-5/10,000 (8). Acute pancreatitis displays a wide clinical picture, ranging from mild interstitial edema to severe hemorrhagic gangrene and necrosis. In addition to clinically spontaneous improvement, a severe picture can be seen resulting in abdominal pain or hypotension, fluid sequestration, metabolic disorders, sepsis and death (2). The clinic of acute pancreatitis is variable and covers a spectrum ranging from mild abdominal pain to multiple organ failures and death. The most common symptoms are abdominal pain, nausea and vomiting (7-10). Increasing levels of pancreatic enzymes in the blood is extremely important in

diagnosis (11). The mild clinical picture occurs in 90% of patients. The remaining 10% of patients experience severe pancreatitis (8,10,12). Besides clinical findings, laboratory data are also important in the diagnosis of acute pancreatitis. Serum amylase, lipase level, C-reactive protein, leukocyte, blood sugar, BUN, creatine and radiological examinations are helpful for diagnosis (13-15). In addition, elevation in polymorphonuclear elastase, phospholipase A, interleukin 6, α 2-macroglobulin values are important hematological and serological blood tests showing the severity of acute pancreatitis and pancreatic necrosis (7). Ultrasonography (USG), Computed tomographic (CT), magnetic resonance imaging (MRI) and ERCP can provide valuable information in

determining morphology and complications in patients with acute pancreatitis (8,13,14). Life threatening serious complications can emerge especially in approximately 20% of cases with necrotizing pancreatitis. The most common complication is infection. Abscess, pancreatic and gastrointestinal haemorrhage, shock, lung and kidney failure are the most common serious complications (8,13).

Ultrasonography offers very useful information in diagnosis. Imaging methods not only provide us with an understanding of the severity of the table, but also provide important information in determining complications and treatment modalities (8). In addition to the diagnosis of the disease, CT is also used for grading the severity of the disease (14).

Discussions about the treatment of acute pancreatitis continue since the day Senn and Fitz made clinical and pathological definitions of the disease in the late 1800s (15,16). The use of prophylactic antibiotics came to light after clarifying the etiopathogenesis of the disease and standardizing certain terms, and after Berger reported that bacterial infection following pancreatic necrosis was progressing with high mortality and morbidity (15,17,18). Although the infection is seen at the rate of 8-10% in patients with acute pancreatitis, it is responsible for 80% of deaths. Since gram negative bacteria are responsible for most of the infections (15,19), the prophylactic antibiotic to be selected must be effective against these micro-organisms. Apart from antibiotic therapy, aprotinin was widely used in medical treatment for protease inhibition. However, after determination of inadequate penetration of pancreatic acinar cells due to its high molecular weight, aprotinin was replaced by gabexate mesylate, a low molecular weight protease inhibitor, but studies with this agent also did not yield any positive result (20). Whereas, it has been reported that it decreases the rate of ERCP-related pancreatitis (20,21). Inhibition of exocrine the pancreatic secretion with octreotide which is somatostatin or its synthetic analogue, has been extensively studied. Although many studies have reported the effect of exocrine secretion inhibition on the course of the disease (11,22,23), it has also been reported that it reduces complications in elective surgery (24) and positively affects (25). In consequence, the place of medical treatment in acute pancreatitis treatment is very limited. Infected necrosis, pancreatic abscess, sterile necrosis leading to multiple organ failures not responding to 72-hour treatment, massive intra-abdominal bleeding, ongoing ileus, intestinal perforation, portal vein thrombosis are conditions that require surgery (26). While pseudocysts developed due to acute pancreatitis have been treated surgically before, today only symptomatic and large cysts are treated

and endoscopic and percutaneous drainage is an alternative to surgery (27).

Endoscopic Retrograde Cholangiopancreatography (ERCP) application is gradually increasing. The Baby Scope, which has been on the agenda in recent years, as it can pass through the working channel of the doudenoscope and so provides direct visualization of the pancreas and biliary tract, as well as it offers an opportunity to interfere through a separate working channel. The success of ERCP application has reached 90-95% in accomplished centers. The most frequent causes among the factors that prevent success in ERCP are; the lack of selective cannulation, oddi fibrosis, periampullary diverticulum and malignancies (28-30). The most common indication for ERCP is the presence of stones in the bile duct. Emergency ERCP and ES are the most important treatment options in acute suppurative obstructive cholangitis due to stone (31).

Complications are observed in ERCP, especially in approximately 7-10% of those who underwent ES. While life-threatening conditions such as bleeding, cholangitis, pancreatitis, duodenal perforation gram-negative sepsis are 2-3%, mortality is between 0.1-1.5% (32-35). A small amount of spontaneous bleeding usually occurs shortly after sphincterotomy. However, hemorrhage to the extent required transfusion occurs in 2-3% of patients (36-38) and mortality has been reported as 0.3% (32). The surgical requirement in these patients is 1%.

Ascending cholangitis after bacterial infection of the obstructed biliary tract, usually gram-negative microorganisms occur especially by (*Pseudomonas* and *Enterobacteriaceae*) and result in bacteremia. While some authors recommend prophylactic antibiotic treatment before the ERCP (39,40), some authors report that there is no need to that treatment (38,41). The most commonly recommended agents for prophylactic antibiotics are ceftriaxone and cefotaxime, rate of excretion from the bile ducts of which is 45%, and are effective against gram-negative microorganisms. Since anaerobes are also effective at the rate of 9% in bile in obstructive jaundice, it is recommended to add an agent including these microorganisms to the treatment. In order to prevent infection, all the tools that will be used in the process must be well cleaned, sterilized, stored in an aseptic environment and utmost care must be taken during the procedures. Another way to prevent infection is to avoid the injection of pressurized and excessive contrast material into the bile ducts which completely or almost completely blocked (42-44).

An asymptomatic amylase usually develops after the ERCP procedure. Clinical pancreatitis develops 2-3% approximately like bleeding. There are studies indicating that it is beneficial to use a protease inhibitor Gabexate mesylate to prevent

pancreatitis developing after ERCP (43). The discussion on the use of somatostatin prophylactically to prevent pancreatitis after ERCP is also pending. While some authors support this treatment protocol (44,45), some authors do not find it economic (43-45).

In the discussions on the use of octreotide, which is a somatostatin analog, while some authors prophylactically recommend the use of octreotide (44-47), some others do not find it necessary (32,48).

Perforation is one of the most feared complications of each endoscopic intervention. Perforation due to sphincterotomy is less than 1% and the vast majority thereof are retroperitoneal (32,37). The most important reason of the perforation is the uncontrolled incision and the incision of most of the sphincterotomy wire in the papilla. The mistake is caused by the incision length not being proportioned to the width of the choledochus. This complication can be prevented by keeping more than half of the sphincterotomy wire visibly outside the papilla and performing a controlled incision using the coater at short intervals. In addition, it is very important for a safe incision to set the angle well before the incision and the guidewire that passes through the sphincterotomy in the choledochus (32).

Late complications of ERCP include 5-10% restenosis and cholecystitis after 5 years. Papillary stenosis after a sufficient sphincterotomy is a clinically rare condition (49,50). Restenosis usually occurs in the first year. No restenosis is expected after a complete sphincterotomy. Recurrent cholangitis is another late complication that can develop due to forgotten stone or papillary stenosis. The approach to these patients should again be with ERCP. The mentioned late complications have not yet developed in our patients.

The relation between acute pancreatitis and gallstones has been described. If cholecystectomy is not performed, recurrences are frequent. But if biliary tract pathology is corrected, recurrences are rare. The effects of gallstones as a cause of pancreatitis are not fully understood, but they are thought to emerge depending on obstruction of the major pancreatic duct (51,52). To differentiation of the causes of pancreatitis is important. Serum amylase levels are high in non-alcoholics. This is due to the reduction of intracellular amylase levels of the pancreas damaged by chronic alcohol intake. The height of liver enzymes although not very specific, shows that increased bilirubin, ALP, GGT, ALT, AST are possibly of biliary origin (51,53).

The most common imaging method for gallstones is USG (32,54). Although there are different specificity and sensitivity descriptors for acute biliary pancreatitis, the following conditions are an expression of pancreatitis originating in biliary origin. Jaundice, cholangitis, serum amylase to be above 800IU/L, the increase in the level of

serum transaminases three times and gallstones and dilatation in bile ducts in USG (50,55). However, it has been stated in a study that the sensitivity, specificity and diagnostic value are not high for each of the three parameters consisting of serum bilirubin, serum ALP and USG. None of these tests is sufficient alone for the detection of choledocholithiasis. However, when these three tests are combined, an important result emerges. If the three parameters specified are normal, the incidence of stone in choledocus is 4.8%. If one of these parameters is abnormal, the presence of stone in the choledocus is 59.3%. This rate is significantly high. Therefore, routine ERCP is not recommended for patients who are normal in biochemical and ultrasonographic terms (14).

In a study performed without considering the severity of pancreatitis, ES or conservative treatment was initiated with ERCP randomly in the first 24 hours in 195 patients. After the acute pancreatitis clinic improved in the conservatively treated group, ERCP was applied electively, and in the same group, ERCP was applied to the patients whose clinic deteriorated during the follow-up. In 127 (65%) of 195 patients, stones were identified as the cause of acute pancreatitis. It was determined that local and systemic complications developed in both groups. However, in the conservatively treated group, severe pancreatitis was found to be higher (30%) and biliary sepsis developed more frequently. In the emergency sickle treated group, complications were found to develop less (18%) compared to the conservatively treated group (51). In another study, 280 patients with acute biliary pancreatitis performed ERCP in the first 24 hours. Stone was removed by performing ERCP and ES to seventy-five patients. Other patients received ERCP and conservative treatment randomly. There was a significant decrease in complications and mortality after treatment in the group ERCP and ES were performed. While the decrease in complications decreased from 36% to 17%, mortality decreased from 13% to 1% (51). In a similar study conducted multicentric, 238 patients with acute biliary pancreatitis who had no icterus were applied emergency ERCP or conventional therapy in 72 hours. 126 of these patients were performed ERCP and in 121 patients successes was achieved. Stone was detected in 58 of these patients. 20 of 112 patients undergoing conservative treatment had ERCP under more elective conditions and 13 of these patients had stones. As a result of the study, it was reported that early ERCP/ES is not beneficial, on the contrary severe complications such as respiratory failure develop (51,56-58).

CONCLUSION

In the light of these informations, in conclusion, ERCP and ES procedures should be performed within 24-48 hours for patients with mechanical icterus, cholangitis or co-canal dilatation, and in the first 24 hours for patients with

severe pancreatitis. Together with the current indications for ERCP, ES should be performed in the following cases. ES should be performed together with ERCP in acute biliary pancreatitis, which is accompanied by stones in the common bile duct during ERCP, in pancreatitis cases that are thought to be biliary origin although there is no stone in the common bile duct in ERCP, recurrent acute pancreatitis with mud and/or microlithiasis in the biliary duct with post-cholecystectomy or developing during pregnancy. In patients with acute biliary pancreatitis, possibly patients requiring stent

and patients with pancreatic duct damage during the course of pancreatitis,

In patients with mild acute biliary pancreatitis, there is no significant difference in the early (first 72 hours) ERCP/ES results compared to the results of patients who underwent ERCP/ES in the late period. For this reason, we are of the opinion that ERCP/ES can be performed early in patients with mild acute biliary pancreatitis. In addition, early ERCP/ES procedures will shorten the patient's length of hospital stay and so reduce the treatment costs.

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