

Results and Complications of ERCP in Older Asians with Obstructive Jaundice

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ABSTRACT

Background: Obstructive jaundice is one of the difficult diagnostic problems in patients with advanced age. Traditionally, surgery carries a high rate of complications. Lately, ERCP has been accepted as a less invasive treatment for obstructive jaundice

Objectives: To review ERCP findings, results and complications in elderly patients with obstructive jaundice.

Patients and Methods: ERCP database of patients, 70 years of age or older with obstructive jaundice at The King Chulalongkorn Memorial hospital from January 2003 to October 2005 were analyzed retrospectively.

Results: Fifty-nine patients (33 men and 26 women) with obstructive jaundice underwent ERCP. One patient had a previous failed ERCP outside The King Chulalongkorn Memorial hospital. Fifty-two patients (88%) received conscious sedation (midazolam/meperidine) for their procedures. Therapeutic duodenoscope (Olympus TJF 160, Tokyo, Japan) was used in 81% of the procedures. The most common finding from routine upper endoscopy was perampullary diverticulum (34%). Cholangiographic diagnoses included; malignant biliary stricture (44%), choledocholithiasis (17%), benign stricture (3%) and miscellaneous (36%). Therapeutic procedures were performed in 98% of diagnosed patients and successful in 95%. The overall complication rate was 9% of which mainly pancreatitis. No procedure related mortality occurred.

Conclusions: ERCP is safe and effective in geriatric population with obstructive jaundice.

Key words : ERCP, older patients, obstructive jaundice

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INTRODUCTION

Over the last decade life expectancy has been increasing because of advanced medical treatment. Hence more geriatric population is expected. In elderly group, biliary and pancreatic diseases are common. Obstructive jaundice is one of the most common disease manifestation. CT scan and MRI are commonly used for diagnostic purpose. Apart from surgery and percutaneous biliary drainage, ERCP is the only modality that can offer therapeutic benefit. However, surgery in patients with advanced age, especially those with concomitant diseases carries a high morbidity and mortality rates^(1,2). In addition, percutaneous biliary drainage can lead to bile loss and patient's discomfort from external tube. To date, there have been many reports on the outcome of ERCP in elderly^(3,4). However, there are not so many studies that demonstrated ERCP outcome in a subgroup of geriatric population with obstructive jaundice. We then report the findings, results and complications of elderly patients with obstructive jaundice who underwent ERCP at King Chulalongkorn Memorial hospital.

PATIENTS AND METHODS

A total of 552 ERCP procedures were performed by 3 experienced endoscopists at King Chulalongkorn Memorial hospital between January 2003 and October 2005. Fifty-nine jaundiced patients with 70 years of age or older (33 men, 26 women) underwent ERCP. Informed ERCP consent was obtained from all patients. One patient had a failed ERCP from outside hospital prior to the study. Types of sedations were conscious sedation, general anesthesia, and no sedation. Endoscopic findings, cholangiogram and pancreatogram were reviewed. Biliary and pancreatic therapies were recorded. Complications and their severity were defined by using standard criteria⁽⁵⁾. Initial outcomes were classified into the following groups as described elsewhere⁽⁴⁾: 1) primary failure (objectives of the procedure not attained, and death caused by the illness for which the procedure was performed) 2) secondary failure (patients suffered a relapse) 3) adverse sequelae (complications inherent to procedures) and 4) unrelated problems (new problems or aggravation of an existing problem not related to procedure or caused by it).

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RESULTS

Type of sedation

Fifty-two patients (88%) underwent ERCP with conscious sedation. No sedation and general anesthesia were used in the remaining 4 (7%) and 3 (5%) respectively. Topical pharyngeal anesthesia was used in all.

Type of duodenoscope

Three types of duodenoscope, JFV (Olympus Tokyo), TJF 160 (Olympus, Tokyo) and ED 410XT (Fujinon, Tokyo) were used in 10 (17%), 48 (81.4%) and 1 (1.6%) of procedures respectively.

Endoscopic findings

Routine upper endoscopy with duodenoscope was obtained in 56 patients (95%). In the remaining 3 patients, it was not done. Ten patients had more than one abnormal endoscopic finding. Three patients have 3 abnormal endoscopic findings. The endoscopic findings are shown in Table 1.

Diagnostic ERCP

A total of 59 procedures were performed in 59 geriatric patients. A cholangiogram was obtained in

Table 1 Endoscopic findings during routine examination with duodenoscope

Endoscopic findings*	n (%)
Normal	16 (27%)
Not done	3 (5%)
Gastroduodenal ulcer	2 (3%)
Duodenitis	1 (1%)
Duodenal varices	1 (1%)
Multiple gastric and duodenal polyps	1 (1%)
Periampullary diverticulum	20 (34%)
Ampullary mass	7 (12%)
Hemobilia	1 (1%)
Purulent bile + PD mucin	1 (1%)
S/P sphincterotomy	7 (12%)
Biliary stent in place	8 (14%)
Biliary stent migration	1 (1%)
Pancreatic stent migration	2 (3%)

*Endoscopic findings in each patient can be more than one

58 patients (98%). In the remaining 1 patient, selective bile duct cannulation was unsuccessful. Further procedure was not attempted. Definite diagnoses were concluded from cholangiogram, pancreatogram and endoscopic findings. Definite diagnoses are shown in Table 2.

Therapeutic ERCP

Based on diagnostic findings, a therapeutic intervention was performed in 58 patients (98%) (Table 3). Benign lesions were demonstrated in 20 patients (36%) and successful therapeutic interventions were accomplished in all. Thirty-eight patients had malignant lesions (69%) and successful therapeutic interventions

Table 2 Definite diagnoses

Definite diagnosis*	n (%)
Non diagnostic (failed cholangiogram)	1 (1.2%)
Choledocholithiasis	14 (17%)
Cholelithiasis	3 (5%)
Benign biliary structure	2 (3%)
Malignant biliary structure	26 (44%)
Pancreatic pseudocyst	1 (1%)
Pancreatic ductal leak	1 (1%)
Pancreatic cancer	9 (15%)
Ampullary tumor	4 (8%)
Cholangiocarcinoma	5 (9%)
Mirizzi syndrome	1 (1%)
Hemobilia	2 (3%)
CA gall bladder	1 (1%)
S/P choledochoduodenostomy	1 (1%)

*Some patients had more than one definite diagnosis

Table 3 Therapeutic interventions at initial ERCP

Therapeutic interventions	Benign lesions	Malignant lesions
	n (%)	n (%)
SS only	3 (5%)	4 (7%)
SS + BD clearance	10 (18%)	0
Mechanical lithotripsy	4 (8%)	0 (0%)
SS + BD clearance + plastic stent	2 (4%)	1 (1%)
SS + plastic stent placement	2 (4%)	15 (27%)
SS + metallic stent placement	0	14 (25%)
Nasobiliary tube placement	0	2 (4%)
Unsuccessful treatment	0	3 (5%)

BD, Bile duct

SS, Standard biliary sphincterotomy

Table 4 Complications in patients 70 years of age or older with obstructive jaundice

Complications	n (%)
Mild pancreatitis	2 (3%)
Moderate pancreatitis	1 (2%)
Post sphincterotomy bleeding (Epinephrine injection)	1 (2%)
Perforation (Healed by medical management)	1 (2%)

were achieved in 35 patients (92%). In the remaining 3 patients, endoscopic treatments were unsuccessful. Complications and mortality

No complication was detected in 53 of the 58 procedures performed (91%). All complications that occurred in 5 patients were mild. (Table 4) No surgical intervention was required.

No procedure related mortality occurred. Primary failure of the ERCP procedure was declared in one patient. No secondary failure was recorded. Five patients developed minor degree adverse sequelae.

DISCUSSION

In patients with advanced age, biliary and pancreatic diseases are common. They often present with obstructive jaundice. Tumors and stones are common causes of obstructive jaundice. Choledocholithiasis is more common in males whereas biliary channel related growth and masses are more common in females⁽⁶⁾. The standard therapy in the past was mainly surgery. Generally, pancreaticobiliary surgery has low complication rates. The mortality rate in the young for standard choledocotomy for bile duct stones clearance is less than 1%. In addition, more advanced resection such as pancreaticoduodenectomy carries less than 5% of mortality rate.⁽⁷⁾ In contrast the mortality rates are higher in the elderly population. It is 4% to 10% for elective surgical exploration of the bile duct and 20% for urgent intervention in patients between 70 and 80 years of age.^(4,5,8,9) ERCP was first reported in 1968⁽¹⁰⁾ and was soon accepted as a safe, direct technique for evaluating biliary and pancreatic diseases.^(11,12) Over the last two decades, ERCP has evolved from a diagnostic procedure to a therapeutic procedure. Although there are more advanced noninvasive techniques for biliary imaging including EUS, CT and MRCP but therapeutic interventions were not allowed with these methods⁽¹³⁾. Therefore, ERCP

Ridtitid W, *et al.*

is more useful in those who required treatment. In addition, high surgical risk patients would have the most benefit. To date, there are only a few published series of ERCP in elderly patients and all are from the West. In addition, there is no such series that focus on the outcome of ERCP in elderly with obstructive jaundice.

In the present series, therapeutic interventions were indicated in 98% of the patients. Failed endoscopic therapy occurred in 3 patients (5%). All three had failed stent insertion for malignant stricture.

Many recent studies have shown that ERCP is practicable in patients with advanced age.^(3,4) The most common primary indication was obstructive jaundice but the numbers of jaundiced patients in these studies are relatively small. Our series has shown that biliary stricture is the main cause of obstructive jaundice in these patients. Of these strictures, malignant tumors are the main etiologies. Palliative biliary drainage was achieved in almost of our patients during the first ERCP attempt. Only 3 patients with malignant stricture in our series required alternative method of biliary drainage. Choledocholithiasis is the second common cause of obstructive jaundice in our series. ERCP for stone extraction for these patients was required and finished in only one session. No patient underwent repeat ERCP during the follow up period. In contrast to many studies, they found that ERCP in elderly with choledocholithiasis required many sessions of endoscopy due to large size of the stones^(3,14). In these series, mechanical lithotripsy was not performed quite often. It seems that our patients had stone that small enough for simple balloon extraction. In addition, we were fortunate enough that mechanical lithotripsy was required in only 4 patients and all were successful within one session of ERCP. Many series demonstrated the benefit of long-term plastic stenting in elderly patient who endoscopic stone clearance was impossible despite multiple attempts of mechanical lithotripsy⁽¹⁵⁻¹⁷⁾. A group from Wales demonstrated the benefit of this technique to postpone definite treatment for stone removal. They also demonstrated that 9 patients (18%) remained alive and well with their stents still in place⁽¹⁷⁾.

Conscious sedation is the most popular way to sedate patient during ERCP procedure. Usually, the most favorite agents for conscious sedation are midazolam and meperidine. The use of combination agents (midazolam and meperidine) for sedation did not cause significant complications despite advanced ages of the patients. Several studies have shown no

relation between risk from conscious sedation and old age or coexisting medical conditions.⁽¹⁸⁻²⁰⁾ Majority of our patients underwent ERCP with conventional sedation (midazolam and meperidine). We did not encounter any significant complication from this mode of sedation. However, in our series, four elderly patients with significant co-morbid medical conditions were already elected to undergo general anesthesia for their procedures.

Our routine upper endoscopic examination with duodenoscope showed many interesting and unexpected findings. However, complete examination was not achieved with a side viewing scope alone especially for esophageal examination. In the present series, periampullary diverticulum was the most common finding in our elderly patients. Cholangiogram was unsuccessful in one patient due to periampullary diverticulum. The result is similar to those in recent series.^(3,4) Periampullary diverticulum is frequent in the elderly and can reduce the cannulation success rate from 92% to 62%.⁽²¹⁾ In the present series, we discovered non-pancreaticobiliary related lesions in 5 patients. Of these, there were 3 peptic ulcers. Duodenal varices were found in one patient and gastroduodenal polyps in another. In this study we did not routinely perform a confirmation upper endoscopic study by a regular gastroscope unless there was a significant finding.

For malignant lesions in this study, plastic and metallic stent insertion were performed in most of the cases.^(3,4) Moreover, metallic stent was placed in almost 50% of malignant strictures. Many malignant strictures were resectable by radiological criteria. However, we elected to place metallic stent in some of them due to their poor surgical risk. Many elderly patients with resectable tumors had a lot of co-morbid illness and carried a high surgical risk thus palliative biliary drainage with metallic stent might be a safer option when compared with curative resection. In addition, surgery can still be performed later when patient general condition is improved. A recent data from Texas has shown that metallic stent is no longer contraindicated in resectable tumors⁽²²⁾. Thirteen patients with resectable pancreaticobiliary related cancers underwent endoscopic metallic stent insertion. Subsequently, 12 patients were able to undergo pancreaticoduodenectomy without peri or post operative stent related complications. They also suggested that metallic stent insertion should be considered for patients with resectable biliary related cancer, especially if surgery is not

immediately planned as more patients are now receiving preoperative chemoradiation. Although the malignant group had less satisfactory results than others causes of obstructive jaundice but endoscopic biliary drainage relieved symptoms and improved quality of life.

Benign stricture was detected in two patients (chronic pancreatitis and post cholecystectomy stricture). Those were treated successfully with multi-session of biliary dilation and plastic stent insertion.

In our series, the overall complication rate is not higher than general population^(18,19,23,24). However it was slightly higher than a recent study⁽⁴⁾ in geriatric patients (9% and 2.5%) but no procedure related occurred. All complications were mild and did not require surgery. The most frequent complication was post-ERCP pancreatitis. The incidence of pancreatitis in this series is much lower than other series in which containing younger patients but comparable to those series containing extreme elderly^(3,4). Pancreatic atrophy, dilated bile duct and avoiding unnecessary pancreatic opacification are possible the main reasons for low incidence of pancreatitis in our population. Moreover, it has been confirmed that younger age is one of the risk factor for ERCP related pancreatitis⁽¹⁸⁾. Interestingly, a slight younger age group in this series (older than 70 vs. older than 90^(3,4)) did not significantly increase the risk of post ERCP related pancreatitis.

Post-sphincterotomy hemorrhage was the main adverse effect in other studies of elderly patients and led to procedure-related death.⁽⁴⁾ Fortunately, our only one patient with post sphincterotomy bleeding was detected immediately during the procedure and the bleeding was controlled by epinephrine injection.

Post sphincterotomy perforation happened in one of our elderly with a diagnosis of papillary stenosis. Prompt recognition was followed by nasobiliary drainage and broad spectrum antibiotics administration. This in turn led to a successful recovery without surgical intervention.

In conclusion, ERCP is an important diagnostic and therapeutic tool for older patients with obstructive jaundice. The main causes of jaundice in older Asians are malignant stricture and choledocholithiasis. Conscious sedation with midazolam/meperidine is safe without significant adverse event. Therapeutic treatments are mainly stone removal and biliary drainage. The success rate and complication are acceptable and comparable to the young.

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Ridtitid W, *et al.*

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