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Impact of Obstructive Jaundice and Nasobiliary Drainage on Post - ERCP Cholangitis

Saieb S Al-Gaylani ; CABM; Tariq H H AL - Safi , MRCP

ABSTRACT

This prospective study was done in GIT center in Al-Shaheed Adnan Hospital form October 1999 to April 2001. Those patients who were referred for ERCP whether diagnostic or therapeutic were studied. About 110 patients underwent this procedure. Many complications might follow this invasive procedure, we had studied mainly the post ERCP cholangitis. The diagnosis of post ERCP cholangitis was based on clinical and laboratory results. There were 66 patients with obstructive jaundice and 44 patients without jaundice.

Cholangitis developed in 12 patients post ERCP. All of them had obstructive jaundice before doing the procedure. While none of the non jaundiced patients developed post ERCP cholangitis. Those patients with obstructive jaundice and who had nasobiliary drainage during the procedure, none of them had cholangitis afterward.

Obstructive jaundice was highly detrimental in the development of post ERCP cholangitis. Nasobiliary drainage procedure was efficient in reducing this complication post ERCP.

INTRODUCTION

Endoscopic retrograde cholangiopancreatogr- aphy is a combined diagnostic, therapeutic, endo-scopic [side viewing endoscope] and radiographic technique which can demonstrate the anatomy of the pancreatic and biliary systems.[1]

ERCP involves direct cannulation of the common bile duct and main pancreatic duct by a small cannula inserted through a flexible side view-ing fiberoptic endoscope.[2]

Endoscopic nasobiliary drainage is employed by introducing into the biliary tree a nasobiliary catheter, which is simply a polyethylene tube at least twice the length of endoscope and of 5 or 7 French gauge, it is introduced by endoscopy thro-ugh the ampulla into the common bile duct.

The distal end of the tube is adopted to prevent dislodgment by its pig tail shape. The main indications for nasobiliray drainage are 1) urgent drainage of biliary system in suppurative cholan-gitis 2) Temporary drainage for incomplete ductal clearance.[3]

Biliary obstruction produces closed system infection, which can progress to purulent inflam-matory process. The causative organisms predom-inantly were enteric bacteria gram negative group.

The effect of obstructive jaundice and the effect of naso-biliary drainage on the incidence of cholan-gitis post ERCP were studied.

Dr Saieb S Al-Gaylani ; Assistant Prof. In Surgery , medical College , University of Baghdad , e.mail ssaziz@uruklink.net

Dr Tariq H H AL-Safi ; specialist in medicine & gastroenterology , GIT center , AL-Shaheed Adnaan Hosp., Baghdad , IRAQ. P. Box : 61103 , Tel : +964 - 1 - 4141052 , Fax : + 964 - 1 - 4154642

PATIENTS AND METHODS

This is a prospective study which was carried out in the GIT center in Al-Shaheed Adnan Hospital from October 1999 to April 2001 and included 110 patients. There were 58 males and 52 females. The mean age for males was 52.5 years while the mean age for females was 47.5 years. Table No. 1 shows the number and age for males and females. Table No 2 shows the different indications for ERCP in which biliary stones was the commonest indication in 71(64.6%) patients followed by hydatid cyst of the liver in 10 (9%) patients. The cause of biliary obstruction was unclear in 27 (24.6%) patients. In two patients only (1.8%) the indication was pancreatic fistula.

Table No.1: Gender Distribution

Sex	No.	Mean Age
Male	58	52.5 year
Female	52	47.5 year
Total	110	

Table No.2 :Different Indications for ERCP

Indication	No.	%
Biliary stone	71	64.6
Hydatid cyst	10	90
Pancreatic Fistula	2	1.8
Biliary obstuction of unclear cause	27	24.6
Total	110	100%

All patients were admitted to the GIT center at least one day before the procedure and kept about two days after.

Triple antibiotics [ampicillin, gentamycin and metronidazole] were given to all patients on the day of the procedure and continued after according to the finding of ERCP and general condition of the patients.

Correction of the coagulopathy status of the patients was done and monitored by the results of PT, PTT and platelet count, before the procedure. Diazepam Intravenously was given for sedation during the procedure accordingly.

After the procedure, the patients were evaluated clinically, repeated liver function tests, Serum amy-lase and complete blood picture were requested for follow up.

The diagnosis of cholangitis was based on clinical finding of charcot's triad, liver function test changes and neutrophil leucocytosis.

RESULTS

Among the 110 patients who underwent ERCP procedure, there were 72 (65.4%) therapeutic and 38 (34.6%) diagnostic as shown in Table No.3.

The different findings in ERCP as shown in Table No.4 were as follow: 71 (64.6%) biliray Stones, 15 (13.8%) biliary strictures, 10(9%) peri-ampullary tumor, 10 (9%) hydatid cyst of liver ruptured into the biliary tree, two patients (1.8%) with pancreatic fistulae and two patients (1.8%) with chronic pancreatitis.

Table No.3: ERCP Therapeutic and Diagnostic

Procedure	No.	%
Therapeutic	58	64.4
Diagnostic	52	34.6
Total	110	100%

Table No.4 :Different Findings in ERCP

Indication	No.	%
Biliary stone	71	64.6
Hydatid cyst	15	13.8
Tumor	10	9.0
Hydatid cyst	10	9.0
Pancreatic Fistula	2	1.8
Chronic pancreatitis	2	1.8
Total	110	100%

The total number of patients who developed post ERCP cholongitis was 12 patients out of total (10.9%).

There were 66 patients with obstructive jaundice and 44 patients without jaundice.

After ERCP, cholangitis developed in 12 patients and all of them had obstructive jaundice before the procedure, while none of patients who were not jaundiced before the procedure got cholarigitis. This was shown in Table No.5 which shows that obstructive jaundice is a significant risk factor for developing post ERCP cholangitis with P-value less than 0.005 by Fisher Exact test.

Post ERCP cholangitis developed in 12 patients with out nasobiliary drainage, while those with nasobiliary drainage does not have this complication, as shown in Table No.6 and it shows that nasobiliray drainage is a significant factor in reducing post ERCP cholangitis with P-value less than 0.005 by Fisher Exact test.

Table No.5: Relation of per ERCP obstructive jaundice with post ERCP cholangitis

	Cholangitis	%	No cholangitis	%	Total
Obstructive jaundice	12	18%	54	82%	66
No jaundice	0	0%	44	100%	44
Total	12		98		110

Table No.6 Relation of Nasobiliary Drainage with post ERCP cholangitis

	Cholangitis	%	No cholangitis	%	Total
Nasobiliary Drainage	0	31%	27	100%	27
No Drainage	12	0%	27	69%	39
Total	12		54		66

DISCUSSION

The percentage of post ERCP cholangitis in our study was 10.9%. Leese et al. in 1985 found that the incidence of post ERCP cholangitis was 1.8% in his study which included 394 patients.[4]

Alveyn in 1993 found that the incidence of bacteraemia following ERCP was 0.16-10% and he noted that clinically significant sepsis is the most common cause of death due to ERCP with fatality rate between 8-20%.[5]

An important factor influencing the incidence of post ERCP cholangitis is the disinfection of instruments and cleansing. The ideal cleansing of these instruments includes the mechanical method by brushing and disinfection by rinsing into glutaraldehyde. Tubes and channels should be air dried after cleansing and instrument storage should by according to manufactures instructions. Accessories, snares, biopsy forceps and cytology brus-hes need immediate cleansing after use and the preferable method is by ethylene oxide steriliz-ation.[6]

The higher post ERCP cholangitis risk in our study can be explained by the following points :-

1. The defects in ideal sterilization of instruments.
2. Shortage and inavailability of accessories like stents, nasobiliary catheters, sphincterotomes and percutaneous transhepatic cholangiogr-aphy drainage that will help in ameliorating the post ERCP complications.
3. Late referral of patients for ERCP will compli-cate their original diseases and increase their morbidity and mortality.

In our study we found that biliary obstruction is a significant risk factor for developing post ERCP cholangitis. This was also noted by Baur [7] in 1981 and Beazley [8] in 1984.Alveyn-CG in 1993 found that in patients without signs of biliary obstruction the risk of infection is low and prophylaxis may be unnecessary.[5]

Lai-EC in 1989 found that the incidence of post ERCP cholangitis in case of biliary obstruction was 7%[5] while Pasanen found it 2.9% in his study in 1992. [13]

Biliary obstruction produces closed system infection, which can progress to purulent inflammatory process.

Several studies have shown that obstructive jaundice leads to alteration in glycogen metabolism, impaired mitochondrial and hepatic reticuloendothelial functions, decreased cell mediated immunity, high levels of circulating endotoxins and depressed synthesis of several hemostatic factors.[11]

NeoptoJemos found that the most important factor in preventing post ERCP cholangitis was the relief of obstruction by removing stones or providing nasobiliary or stent drainage[12].

Benchimol - D in 1992 said that biliary decompression decreases the incidence of post ERCP cholangitis. [13] and this fact was clear in our study where those patients with pre ERCP nasobiliary drainage had not developed cholangitis.

CONCLUSION:

1. Patients with biliary obstruction subjected to ERCP could have a series of risky complications and post ERCP cholangitis stand among the severest ones.
2. To handle this invasive procedure safely and to avoid its serious complications, we recommend that endoscopic biliary drainage via nasobiliary drain or stenting is important to decrease the occurrence of post ERCP cholangitis.

   Percutaneous biliary cannulation is another option and when practiced after proper training will help a lot in diagnostic and therapeutic biliary procedures.
3. Full precaution should be followed before admitting the patients to this procedure and the

collaborative work within a team of the clinicians Involved in this procedure like the endoscopists ,the surgeons, the anaesthetists, the laboratory peoples will help in provision of the highest safety level.

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