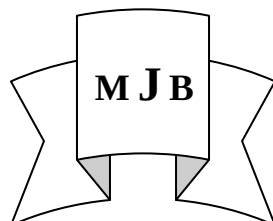


The Safety of Endoscopic Retrograde Cholangio Pancreatography (ERCP) in Elderly (over 80), Patients: Single Centre Experience

Ali Alshareefy K Walsh, P Harte*

College of Medicine, University of Babylon, Hilla, Iraq.

*L. Consultant Physician and Gastroenterologist, SGH, Sligo, Ireland.



Abstract

Background: ERCP is an invasive procedure which combines the use of x ray and endoscopy to provide a reliable way for diagnosis and treatment of hepatobiliary diseases. The diagnostic role of ERCP has largely been replaced by MRCP (Magnetic Resonance cholangiopancreatography). The valuable use of ERCP has, however, been associated with significant morbidity and mortality. **Aims:** 1) determine the safety of ERCP procedure in elderly patients. 2) compare the local complication rates with international standards using international large scale studies and British Society of Gastroenterology audit rates as standards. **Patients and Methods:** 1) Retrospective study on 106 elderly patients (over 80) 2) Cases were identified using local register and proforma used to collect data. 3) Completed data were submitted for collation and statistical analysis. **Results:** The research revealed the following rates for local complications. 1) acute pancreatitis: 5%. 2) Hemorrhage: 0%. 3) Acute cholangitis: 1%. 4) Duodenal perforation: 0%. 5) Death: 1%. **Conclusions:** 1) Elderly patients tolerate ERCP as good as young patients despite their advanced age and co-morbidities. 2) The local complication rates fall within the international ranges

Key words: ERCP, Pancreatitis, cholangitis, Perforation

Introduction

Since its first introduction in 1968, endoscopic retro-grade cholangiopancreatography (ERCP), has become a widely available procedure [1]. The diagnostic and therapeutic roles of ERCP have well been demonstrated for a variety of disorders, including the management of common bile duct stones (choledocholithiasis), the diagnosis and management of biliary malignancies, and the assessment and treatment of pancreatic diseases [2]. The diagnostic role of ERCP has been recently replaced by new imaging techniques such as magnetic resonance cholangiography (MRCP) and endoscopic ultrasound (EUS) which offer the opportunity to accurately visualize the biliary system without

instrumentation of the ducts [3]. In order for the endoscopist to accurately assess the appropriate clinical use of ERCP, it is essential to have a thorough understanding of potential complications of this procedure. Many studies have been designed to determine the expected rates of complications, potential contributing factors for these complications, and possible methods for improving the safety of ERCP. The reported rates of ERCP-related complications vary widely among these studies for number of reasons involving study design with prospective studies more likely to under-report these rates, case mix (patients with sphincterotomy and assessment suspected sphincter of Oddi dysfunction), and the definitions and criteria used for each

complication. In approximately 5-10% of cases, ERCP itself causes adverse events [4], however, significant specific related complications occur in 1.8% of all ERCPs performed, with an overall mortality of 0.6% [5]. The contraindications to ERCP are few and include severe cardiopulmonary disease and severe pancreatitis not due to gallstone disease [6]. Despite the potential benefits of ERCP, the procedure is operator dependent and patients are at risk for developing complications secondary to biliary and pancreatic manipulations or related to endoscopy [7,8]. Complication rates are lower with increased experience of endoscopist [9]. The British society of Gastroenterology recommended that, after formal training completion, endoscopists perform an adequate number of biliary sphincterotomies (BS) per year to maintain their performance and as a guide 40-50 BS per year pancreatitis, gastrointestinal haemorrhage, cholangitis, duodenal perforation, and cardiorespiratory complication [10-12]. This work has been designed to assess the safety of the procedure in elderly people, to determine the local rates of post-ERCP, early complications, and to compare them to British and international rates.

Patients and Methods

Retrospective study of 106 patients, over 80 years who had ERCP in Sligo general Hospital, Sligo, Ireland between 2004 and 2008 by single endoscopist using *Olympus Dudenoscope with ERCP accessories of Boston Scientific*. Respective cases were identified using the local register and a proforma was used to collect data. Data collected included patients demographics, pre and post ERCP assessment. Patients related data included age, sex, and co-morbidity(s). The pre-procedure

assessment included clinical, biochemical, and radiological measures. The procedural details involved pre-medications, endoscopic diagnosis, and interventions. The post-procedure assessment included clinical and biochemical (amylase level) measures to recognize the early complications of ERCP. The completed data was submitted to the clinical audit support team for collation and statistical analysis. 5 standards were determined (acute pancreatitis, gastrointestinal haemorrhage, cholangitis, duodenal perforation, and cardio-respiratory complications). The local rates were identified and evaluated against the set standards.

Results

Over 2 years, 106 patients (female=68, male=38) undertook 106 ERCP in SGH in Ireland by single endoscopist with 83% of the procedures were urgent. Pre-ERCP indications included: common bile duct stones 64% (n=64), common bile duct stricture 17% (n=17), and others 19% (n=24). Patients were assessed immediately and for 24 hours with clinical, biochemical, and radiological evidences of ERCP-related adverse effects. The reported local rates of early pos-ERCP complications were as follows: 1) Post-ERCP pancreatitis: 5% (n=5/106) which fell well with range of international and British range of 1.3 - 6.7% and 4-10% respectively. 2) Gastrointestinal haemorrhage: 0% with no case reported and full agreement with international and British rates of 0.7-2% and 1.5% respectively. 3) Acute cholangitis: 2% which was compatible with international range (0.5-5%) but fell below the British rate of (1.1%). 4) Duodenal perforation: 0% was achieved with compatible outcome with international and British rates of 0.3-1% and 0.4% respectively. 5) Cardiorespiratory complications/

death: 1% which reflected a reasonable safety of local practice that matched the international and British level of 0.5-2.3% and 1.4% respectively

Discussion

The reported rates of 5 standards(post-ERCP complications) fell well within the international rates and the British rates except for cholangitis which fell short below the British rate. The group of patients is specific group with significant co-morbidities and advanced age. The complication rates in elderly, over 80 years old patients were examined and compared against large scale studies rates for mixed group of patients from age point of view, however, elderly patients seemed to have tolerated the procedure as well as younger patients. Post-ERCP pancreatitis is the most common complication. The consensus definition of ERCP-pancreatitis is new or worsened abdominal pain and a serum amylase that is 3 or more times the upper limits of normal 24 hours after the procedure that requires at least 2 days of hospitalization [13]. Transient elevation of amylase is common (30%-70% of patients) post procedure but does not, by itself, constitute pancreatitis. Recognized risk factors of post-ERCP pancreatitis include sphincter of Oddi dysfunction [14], increased manipulation around the papilla and multiple injections of pancreatic duct [15], prior history of post-ERCP pancreatitis, balloon sphincter dilation, difficult cannulation, female gender, age<70, small common bile duct <10mm, and normal serum bilirubin [16]. Post-ERCP pancreatitis is classified into mild, moderate, and severe acute pancreatitis. It is mild to moderate in 90% of cases and resolves with simple measures of hydration and analgesia [17]. In this study 5 patients did have post-ERCP mild- moderate pancreatitis

managed by simple measures. All of 5 patients found to have multiple pancreatic duct cannulation and biliary sphincterotomy. With the international and British rates in mind, local rate of ERCP-pancreatitis seemed acceptable given the fact that the patients selected were frail, old and, with significant medical backgrounds. Cholangitis is defined by temperature elevation to more than 38C without evidence of acute cholecystitis and the diagnosis is made by the presence of pain, fever, and elevated white blood cell count. Although bacteremia is common, occurring in 15% of diagnostic and 27% of therapeutic procedures, cholangitis was reported in 1% and it was the most common cause of death following ERCP. Two of the patients involved in this study encountered cholangitis pos-ERCP with one of them died despite of early aggressive antibiotic and circulatory support. The tow of patients were frail in their advanced age and undertook biliary sphincterotomy for common bile duct stones. In this study, patients were received oral ciprofloxacin 500 mg prior to the procedure with no routine antibiotics given post-procedure. Gastrointestinal haemorrhage is essentially a complication of sphincterotomy rather than diagnostic ERCP. Significant haemorrhage is defined as clinical evidence of melena or haematemesis associated with haemoglobin drop of at least 2g/dl or the need for blood transfusion [9]. The reported incidence is between 0.7% - 1.5-2% (11). Post sphincterotomy bleeding can be immediate (within 24 hours) or delayed (after 24 hours) of the procedure and can be arterial or venous [17]. In this study, no case of gastrointestinal haemorrhage was reported. Duodenal perforation is a rare post-ERCP complication with reported rate of 0.3% to 1% [18]. No such complication has been reported in

this study. Perforations complicating endoscopic sphincterotomy can be of three distinct types: guidewire-induced, peri-ampullary, and distant, remote from the papilla perforation. Free retroperitoneal air has been seen in 29% of asymptomatic patients on CT scan obtained within 24 hours of procedure [19]. Risk factors for perforation include the presence of a Billroth II partial gastrectomy, the performance of a sphincterotomy, the intraluminal injection of contrast, the duration of procedure, biliary stricture dilation, and sphincter of Oddi dysfunction [20]. Cardiopulmonary complications following ERCP are rare (<1%), but significant and represent the leading cause of death from the procedure. They can be related to underlying morbidities or to medications used for sedation and analgesia [21]. The overall mortality rate is twice as high (0.4%) following therapeutic ERCP as that reported after diagnostic ERCP (0.2%).

Conclusions

The study has clearly demonstrated that elderly people did tolerate the procedure well and the complication rates among this specific group of population are comparable to that of general population despite their advanced age and co-morbidities. The study highlighted the fact that the careful selection of patients and the effective monitoring during and after the procedure are still the most effective measure to reduce the complication rates.

References

1. McCune WS, Shorb PE, Moscovitz H. Endoscopic cannulation of ampulla of Vater. A preliminary report. *Ann Surg* 1968; 167:725-6
2. American Society of Gastrointestinal endoscopy. Complications of ERCP 2003; 633: 638, Volume57, No.6
3. E J Williams, J Green, I Beckingham, R Parks, D Martin, M Lombard. Guidelines on management of common bile duct stones (CBDS). *Gut* 2008;57: 1004-10021
4. Harpreet K, Pannu, Elliot K. Fishman. Complications of Endoscopic Retrograde Cholangiopancreatography: spectrum of Abnormalities demonstrated with CT. *RSNA*,2001;21:1441-1453
5. The Victoria Surgical Consultative Council (VSCC) guidelines. Complications of ERCP;2007
6. Siegel JH. Indications, contraindications, and preparation. In Siegel JH, ed. *Endoscopic retrograde cholangiopancreatography: technique, diagnosis, and therapy*. NewYork, NY:Raven, 1992; 7-11
7. Cohen SA, Siegel JH, Kasmin FE. Complications of diagnostic and therapeutic ERCP *Abdom Imaging* 1996;21:385-394.
8. Aliperti G. Complications related to diagnostic and therapeutic endoscopic retrograde cholangiopancreatography. *Gastrointest Endosc Clin N Am* 1996; 6:379-407.
9. Freeman ML, Nelson DB, Sherman S, et al. Complications of endoscopic sphincterotomy. *N Engl J Med* 1996; 335:909-918.
10. Loperfido S. Angelini G, Benedetti G, et al. Major early complications from diagnostic and therapeutic ERCP: a retrospective multicentre study. *Gastrointest Endosc* 1998;48:1-10.
11. Masci E, Toti G, Mariani A, et al. Complications of diagnostic and

- therapeutic ERCP: a multicentre study. *Am J Gastroenterol* 2001;96:417-423
12. Christensen M, Matzen P, Schulze S, et al. Complications of ERCP: a prospective study. *Gastrointest Endosc* 2004;60:721-731.
 13. Cotton PB, Lehman G, Vennes J, Green JE, Russell RC, Meyers WC, et al. Endoscopic sphincterotomy complications and their management: an attempt at consensus. *Gastro intest Endosc* 1991;37:383-393.
 14. Freeman ML. Complications of endoscopic sphincterotomy. *Endoscopy* 1998;30:A216-A220
 15. Shimizu S, Kutsumi H, Fujimoto S, Kawai K. Diagnostic endoscopic retrograde cholangiopancreatography. *Endoscopy* 1999; 31:74-79.
 16. Freeman ML, DiSario JA, Nelson DB, et al. Risk factors for post-ERCP pancreatitis: a prospective, multicentre study. *Gastrointes Endosc* 2001; 54:425-434.
 17. Baille J. Complications of ERCP. In: Jacobson IM, ed. *ERCP and its applications*. Philadelphia, Pa: Lippincott-Raven, 1998;37-54.
 18. Howard TJ, Tan T, Lehman GA, Sherman S, Madura JA, Fogel E, et al. Classification and management of perforations complicating endoscopic sphincterotomy. *Surgery* 1999; 126: 658-65.
 19. Genzlinger JL, McPhee MS, Fisher JK, Jacob KM, Helzberg JH. Significance of retroperitoneal air after endoscopic retrograde cholangiopancreatography with sphincterotomy. *Am J Gastroenterol* 1999;94:1267-1270.
 20. Enns R, Eloubeidi MA, Mergener K, Jowell PS, Branch MS, Pappas TM, et al. ERCP- perforations: risk factors and management. *Endoscopy* 2002; 34:293-8.
 21. ASGE. Guidelines for the use of deep sedation and anesthesia for gastrointestinal endoscopy. *Gastrointest Endosc* 2002;56:613-7.