Outcomes of bile duct drainage by means of ERCP in geriatric patients


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ABSTRACT

Background and objective: endoscopic retrograde cholangiopancreatography (ERCP) is usually the procedure of choice for relieving bile duct obstruction. A large number of patients undergoing this intervention are geriatric population (aged 75 years of age and older). Our aim was to assess the efficacy of ERCP in this group of patients as compared to younger ones.

Patients and methods: a retrospective study. All patients in whom a therapeutic biliary endoscopy had been performed over a four-year period of time (2002-2005) were included.

Results: 178 geriatric patients and 159 younger ones underwent ERCP. No differences were found in successful biliary drainage (97.7% vs. 98.7%), complication number (11.8% vs. 14.4%), or mortality rate (1.1% vs. 0.6%). On the other hand, more common bile duct stones were found in geriatric patients (57.3% vs. 39.6%, p = 0.004), and also more self-expanding metal stents were employed to drain malignant obstructive jaundice (47% vs. 8%, p = 0.0035). In the youngest group, more ERCPs were repeated in the same patients (4% vs. 10%, p = 0.001).

Conclusions: the geriatric population showed similar success and morbidity & mortality rates when compared to younger patients in draining their bile duct by means of ERCP. Common bile duct stones were more frequently found in geriatric patients. No patients needing an ERCP should be excluded only because of their age.

Key words: ERCP. Geriatrics. Biliary obstruction.

INTRODUCTION

Endoscopic retrograde cholangiopancreatography (ERCP) has been for more than 30 years the usual procedure of choice for relieving biliary obstruction (1).
Imaging methods currently available, especially endoscopic ultrasounds and magnetic resonance cholangiopancreatography, have turned ERCP into a mainly therapeutic procedure. The minimally invasiveness character of the technique has placed ERCP in an outstanding position within interventional endoscopy, and made it suitable to be applied to a great variety of patients. Advanced age patients needing ERCP are an excellent example of the advantages of this technique and its high benefit/risk ratio. A paradigm of the aforementioned advantages can be found in growing reports on ERCP in patients having 90 years of age and older (2).

On the other hand, results from studies performed in very elderly patients were obtained in large centers with a high number of annual ERCPs (more than 200), and perhaps these results could not be reproduced in smaller sites (3-5).

Besides, good results achieved with ERCP in patients 90 years of age and older are really an striking example of the minimally invasive character of the technique. But, at last, they represent only a small group of patients. For this reason we decided to perform a study about the outcomes of endoscopic biliary drainage in geriatric patients, and to compare its results with those obtained in younger people. In addition, it should be noted that our center can be considered a small ERCP unit.

PATIENTS AND METHODS

A retrospective study has been done on therapeutic biliary ERCPs performed during a four-year period (2002-2005). The majority of interventions were carried out in our center by two of the authors (JGC y JGM), with experience in interventional biliary endoscopy.

Conscious sedation with meperidine and midazolam was used during the procedure. Those drugs were administered by the same endoscopists. Buscopan was given to inhibit duodenal peristalsis. In general, the same team of nurses and endoscopy assistants attended all the procedures. Heart rate and blood oxygen were monitored during ERCP. Oxygen was administered to patients by means of a nasal cannula. ERCPs were performed in the Radiology Department with fluoroscopy facilities. Patients gave their consent for the procedure after proper medical information.

Therapeutic duodenoscopes with a 4.2-mm accessory channel were used. Cannulation of Vater’s papilla, sphincterotomy, dilatation, stent insertion, and other ERCP procedures were done according to previously reported techniques (6) (Fig.1). Therapeutic failure was defined as lack of successful endoscopic treatment, as a general rule no successful biliary drainage. Common bile duct stones that could not be completely extracted were not considered a therapeutic failure if a stent could be inserted to maintain adequate bile drainage (Fig. 2). As a general rule, it was intended to insert a stent seven French in diameter (a bit more than 2 mm) and nine cm in length, with a double pigtail. Migration of this kind of stent is difficult because of its shape, either into the common bile duct or into the duodenum. Although the stent can become obstructed in a bit more than a month, biliary flow is achieved not only through the stent, but also around it, especially if a biliary sphincterotomy has been performed. In addition, the stent can help to avoid the impaction of non-extracted common bile duct stones in the ampulla.

All patients undergoing ERCP were inpatients, and stayed in hospital at least the night after the intervention. In the next days, the occurrence of possible complications was ruled out. These were graded according to a 1991 consensus (7).

Data regarding the procedure and complications were recorded in a prospective way, although the whole analysis was performed in a retrospective manner. Qualitative variables were compared using the Chi-squared test or Fisher’s test when appropriate. For means, Student’s t-
test was used. A p value < 0.05 was considered statistically significant.

RESULTS

During the study period of time, 178 (53%) geriatric patients (aged 75 years and older) and 159 (47%) younger patients (fewer than 75 years) underwent therapeutic biliary endoscopy by means of ERCP. When both groups were compared (Table I), a statistically significant difference was found obviously in patient age, which was a previous condition for the study. Geriatric patients had a mean of 82 years and younger ones had 63 years on average.

Success rates for biliary drainage were similar in both groups (Table I). In the same way, complications and mortality percentages were also similar. Table II shows in detail ERCP complications in both groups. Two women died in the group of geriatric patients (1.1% mortality). Causes of death included a stroke after ERCP in one patient, and acute pancreatitis resulting from the procedure in another. In the group of patients with younger age, another woman passed away after having hemorrhage secondary to biliary sphincterotomy (mortality 0.6%).

A statistically significant difference was found in common bile duct stones rate as a cause of common bile duct obstruction (Table I). They were more frequently found in geriatric patients (57.3%) than in the group of younger patients (39.6%), p = 0.004. Common bile duct stones could not be completely extracted in the first endoscopic session in 27/102 (26.4%) of older patients and in 12/63 (19%) of younger subjects. These percentages showed no statistically significant difference.
In younger patients ERCP should be more frequently repeated in the same patient; this is another statistically significant difference that was found (4% repeated procedures in geriatric patients vs. 10% in younger patients, \( p = 0.001 \)). It was due to sequential dilation of biliary benign strictures –postoperative, from chronic pancreatitis, etc.– by means of plastic stents (Fig. 3). These strictures were more frequently found in younger patients, although no statistically significant difference was found regarding the frequency of such strictures in the older ones. Besides, in the group of younger patients, a greater number of repeat attempts to completely extract common bile duct stones were performed. In geriatric patients, instead of new ERCPs, sphincterotomy and a plastic stent (inserted to assure biliary drainage) were often deemed an appropriate long-term treatment (Fig. 2). On the other hand, in younger patients, usually more ERCPs were performed in the same patient hoping to completely clear the bile duct from stones. This is another fact that explains more frequent ERCPs in younger patients.

Malignant biliary obstruction presented with the same frequency in both groups (Table I). In geriatric patients 16 pancreas head carcinomas, 10 cholangiocarcinomas, three periampullary neoplasms, seven gallbladder carcinomas, and two bile duct extrinsic compressions from metastatic lymph nodes were found. In the younger group 10 pancreas head carcinomas, seven cholangiocarcinomas, four gallbladder carcinomas, and two bile duct extrinsic compressions due to malignant lymph nodes were found. Although both groups had a similar tumor occurrence, geriatric patients received more self-expanding metal stents (SEMS) to decompress the bile duct; 18 (47%) SEMS were employed in this group (Fig. 4), whereas only 2 were used in the younger group (8%), \( p = 0.0035 \). This is because more patients were referred to surgery in the latter group, in an attempt to achieve a radical tumor treatment, and more biliary plastic stents were chosen to decompress the bile duct.

Procedure length was around an hour in both groups. As this is a retrospective study, the anesthesiologic risk score (ASA), based on the preexisting illnesses, could not be properly measured in all patients. In the group of patients where it was possible a higher score of ASA was found in the geriatric group (Table I).

Fig. 3. Two plastic stents exiting from an intradiverticular papilla. They were inserted to dilate a benign biliary stricture.

Fig. 4. A 92-year-old patient who presented with obstructive jaundice due to a pancreatic head carcinoma. Self-expanding metal biliary stent made of nitinol (Zilver stent), immediately after its insertion. A waist is seen in the stricture zone, where the stent had not yet completely expanded. A huge dilated common bile duct is delineated by the aerobilia.
DISCUSSION

ERCP is an established method to treat bile duct conditions. The first endoscopic biliary sphincterotomies to extract common bile duct stones were reported in 1974 (8,9), and in 1979 the firsts biliary drainage procedures by means of plastic stents began to be performed (10). ERCP, in spite of being the most difficult technique in digestive endoscopy, with complications occurring in around 10% of procedures and with a mortality rate close to 1% (11), has been time honored and its huge benefits have consolidated.

When possible, ERCP should be performed in especially dedicated centers having a high number of annual interventions. Nevertheless, distribution and access of patients to health resources make frequently necessary to perform this technique in hospitals in which a low annual volume (less than 200 procedures per year) can be expected. Previous studies by our own group (12,13) and in other hospitals (14-16) have attested that usual, constant, and continuous dedication of a few individuals in a small center can achieve acceptable ERCP results, whenever it should be necessary to perform this technique. We think the current study can help support that, in the same way as in larger centers; there are no differences in ERCP outcomes according to patient age.

Thus, having an effective technique to drain the bile duct not depending on patient age is very relevant, taking into account, for instance, that the incidence of bile stones affects almost a third of patients from the age of 70, and that morbidity and mortality from biliary surgery increase with age (17).

In our study, the rate of complete common bile duct extractions at first ERCP was similar in both groups. We had not had the same results when only patients with 90 years of age and older had been considered (2). In these patients, it seems that common bile duct stones are more difficult to extract (5). In the experience of Huguet et al. (18) patients older than 90 years also presented common bile duct stones that were big in size and difficult to extract. When common bile duct stones still remain after an ERCP the easier method to deal with them is to place a plastic stent to assure bile duct drainage (19,20) (Fig. 2). Afterwards, new endoscopic attempts at extraction can be made, or the stent can be considered a definitive partial treatment. Our results showed that the number of repeated ERCPs in these same patients was statistically significantly higher in younger subjects. One of the reasons for these higher number of repeat ERCPs is because these patients underwent repeat extraction procedures for common bile duct stones.

Geriatric patients have a higher comorbidity rate versus younger ones (17). As our study is retrospective, it has been possible to properly score the ASA only in a group of patients. As it is showed in table I the anesthesiologic risk was higher in geriatric patients.

In younger patients, a higher number of biliary plastic stents was used for the palliation of malignant obstructive jaundice. It was due because more of these patients were referred to surgery to try a radical treatment of their disease. Although it was thought that SEMS could imply more difficulties for the surgical bilio-digestive anastomosis, more recent studies show that, at least in distal bile duct strictures, as is the case with pancreas head carcinoma, there are not more surgical complications with SEMS. Besides, if surgery has to be delayed, for instance for preoperative radiotherapy, the risk of stent obstruction is lower (21).

In conclusion, in our study the success rate and the morbidity and mortality rates for relieving bile duct obstruction by means of ERCP was found to be similar in geriatric patients and in younger ones. Older patients have a higher number of common bile duct stones, and in younger subjects ERCP had to be more often repeated in the same patients to treat benign biliary strictures and to achieve a complete clearance of common bile-duct stones. Therefore, no patients needing ERCP should be excluded only because of their age (22).

REFERENCES


