



ARTÍCULO ORIGINAL

Endoscopic retrograde cholangiopancreatography in the elderly

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ABSTRACT

Background. Endoscopic retrograde cholangiopancreatography (ERCP) is a widely used technique for the diagnosis and treatment of biliary and pancreatic diseases. **Objective.** To know the complication rate of ERCP in the elderly. **Patients and methods.** Patient files who underwent ERCP were reviewed and were divided into two groups: aged 65 and older (group 1) and less than 65 years (group 2). Socio-demographic variables, prophylactic antibiotic use, indications for ERCP and outcomes were assessed. **Results.** Mean age in group 1 was 72.9 years and 41.7 years in group 2. Group 1 had more comorbidity ($p < 0.001$). The most frequent indication for the procedure was obstructive jaundice in both groups (63% versus 44%; $p = 0.002$). Malignancy was more frequent as a cause of biliary obstruction in group 1 (45% versus 21%; $p < 0.001$). ERCP was performed once in 76% in group 1 and 93% in group 2 ($p = 0.001$). Prophylactic antibiotics were used more frequently in group 1 (84% versus 60%; $p < 0.001$). There were no differences between groups regarding infectious complications ($p = 0.700$). There was no difference in mortality rates between groups. **Conclusion.** ERCP is a safe procedure in elderly patients. The elderly frequently have more comorbidity. Nevertheless, the complication and mortality rates did not differ in this study. It is noteworthy that elderly patients received prophylactic antibiotics more frequently than younger patients but infectious complications were not different. The patients should not be excluded from ERCP based on their age.

Key words. ERCP. Jaundice. Elderly. Complication.

**Colangiopancreatografía
endoscópica retrógrada en el adulto mayor****RESUMEN**

Introducción. La colangiopancreatografía retrógrada endoscópica (CPRE) es un procedimiento ampliamente utilizado para el diagnóstico y tratamiento de las enfermedades biliares y pancreáticas. **Objetivo.** Conocer la frecuencia de complicaciones de la CPRE en los adultos mayores. **Pacientes y métodos.** Se revisaron los expedientes clínicos de pacientes que se sometieron a CPRE y se dividieron en dos grupos: de 65 años o mayores (grupo 1) y menores de 65 años (grupo 2). Se documentaron variables sociodemográficas, uso de antibióticos profilácticos, indicación de la CPRE y evolución. **Resultados.** El promedio de edad fue de 72.9 años en el grupo 1 y 41.7 años en el grupo 2. El grupo 1 presentó mayor frecuencia de comorbilidad ($p < 0.001$). La indicación más frecuente para la realización del procedimiento en ambos grupos fue la ictericia obstructiva (63 vs. 44%; $p = 0.002$). El cáncer fue más frecuente causa de obstrucción en el grupo 1 (45 vs. 21%; $p < 0.001$). La CPRE se realizó una vez en 76% del grupo 1 y en 93% en el grupo 2 ($p = 0.001$). Los antibióticos profilácticos se utilizaron con mayor frecuencia en el grupo 1 (84 vs. 60%; $p < 0.001$). Si bien, no hubo diferencias en relación con la frecuencia de complicaciones infecciosas ($p = 0.700$). No hubo diferencias en mortalidad entre los dos grupos. **Conclusión.** La CPRE es un procedimiento seguro para los adultos mayores. Los adultos mayores frecuentemente presentan mayor comorbilidad. Sin embargo, la frecuencia de complicaciones y mortalidad no fue diferente en este estudio. Es importante señalar que los adultos mayores recibieron con mayor frecuencia antibióticos profilácticos que los pacientes de menor edad, pero la frecuencia de complicaciones infecciosas no fue diferente. No debe excluirse a los pacientes de la CPRE por su edad.

Palabras clave. CPRE. Ictericia. Adultos mayores. Complicaciones.

BACKGROUND

Since 1970s, endoscopic retrograde cholangiopancreatography (ERCP) changed the diagnosis and treatment of pancreatic and biliary disease. ERCP as gastrointestinal endoscopy has been proved to be a safe and useful procedure in the elderly population.¹⁻⁹ Although ERCP is considered as a minimally invasive procedure, it has potential serious complications.^{1,2} The incidence of complications has risen with the increment in therapeutic interventions,¹⁻³ especially when a sphincterotomy is performed or a stent is placed.^{1,2} The prevalence of complications varies among 5.4% to 10% whereas the mortality is reported between 0.5% to 4.7%.^{1-5,8,10-14}

There are well-defined risk factors for post-ERCP complications: less than 59 years of age, opacification of the pancreatic duct and the absence of stones in the common biliary duct.¹ Other proposed risk factors are: difficulty to cannulate the biliary duct, a previously cut sphincter, Oddi's sphincter dysfunction and the number of procedures done in the endoscopy unit.^{1,15,16} Due to their severity, infectious complications shall be discussed in a separate paragraph. Antibiotic prophylaxis is used based on the extrapolation of the results obtained in surgery of the biliary tract and their utility has not been proved convincingly.¹⁻³

The aim of this study is to describe the prevalence of post-ERCP complications in the geriatric population in a university third level hospital.

PATIENTS AND METHODS

Patient clinical files were reviewed from subjects submitted to ERCP in a university tertiary referral center between May 2001 to May 2002. Data regarding age, gender, indication and results of the procedure and complications were collected. The use of prophylactic antibiotics (defined as the administration in the hour prior to the procedure, and up to two more doses afterwards) was noted.

The patients were divided in two groups according to their age: Group 1 ≥ 65 years and Group 2 < 65 years.

Statistical analysis was performed with Student *t* test, χ^2 and Fisher exact tests. A *p* value ≤ 0.05 was considered as statistically significant. For \leq the main variables 95% confidence intervals were calculated. All analyses were made on SPSS version 10.0 for Windows.

RESULTS

During the study period a total of 186 patients underwent ERCP were included. Group 1 was composed of 75 patients and group 2 had 111. The general characteristics are described in table 1. The average age for group 1 was 72.9 ± 6.1 years and in group 2 the average age was 41.7 ± 13.5 years. Women predominated in both groups (*p* = 0.419). There was a higher comorbidity in group 1, where diabetes mellitus was the most frequent disease (*p* < 0.001).

The evaluation of obstructive jaundice was the most frequent indication in both groups (63% versus 44%; *p* = 0.002). Malignant biliary obstruction was more frequent in group 1 (45% versus 21%; *p* < 0.001). Biliary tract drainage was more successful in those with < 65 years (76% versus 93%; *p* = 0.001). There were no differences in the way it was drained (*p* = 0.153); tables 2 and 3

Complications are listed in table 4. The prevalence of any type of complication attributable to the procedure was not different between the groups (*p* = 0.590). There was one death in each group and was not related to ERCP. There were no differences related to the number of infectious complications (7/75

Table 1. Characteristics of patients

| | Group 1 (≥ 65 years) (n = 75) | Group 2 (< 65 years) (n = 111) |
|----------------------------|----------------------------------------|--------------------------------------|
| Age (mean \pm SD*) | 72.9 \pm 6.1 | 41.7 \pm 13.5 |
| Gender: Male/Female (%) | 26/49 (35/65) | 45/66 (40/60) |
| Comorbidity (%): | | |
| • Type 2 diabetes mellitus | 31 (41) | 15 (13)*** |
| • Neoplasia | 5 (7) | 4 (4)*** |
| • Others** | 29 (39) | 64 (58)*** |

* Standard deviation.

** Hypertension, coronary heart disease, hypothyroidism, chronic airflow obstruction, cirrhosis and portal hypertension.

*** *p* < 0.001

Table 2. Indications for ERCP

| | Group 1 (≥ 65 years) (n = 75) | Group 2 (< 65 years) (n = 111) |
|--------------------------|----------------------------------------|--------------------------------------|
| Obstructive jaundice (%) | 45/75 (63) | 49/111 (44)* |
| Pancreatitis (%) | 5/75 (7) | 28/111 (25)* |
| Therapeutic (%) | 22/75 (29) | 25/111 (22)* |
| Others** (%) | 1/75 (1) | 9/111 (9)* |

* *p* = 0.002

** Others: Pancreatic or biliar fistula and follow-up.

Table 3. Results and procedures

| | Group 1 (≥ 65 years) (n = 75) | Group 2 (< 65 years) (n = 111) |
|----------------------------------------|----------------------------------|-----------------------------------|
| - ERCP normal (%) | 6/75 (8) | 32/111 (29)* |
| - Benign obstruction | 35/75 (47) | 54/111 (49)* |
| - Malignant obstruction | 34/75 (45) | 23/111 (21)* |
| - Others** | - | 2/111 (1) |
| Successful CBD*** clearance (%) | 57/75 (76) | 103/111 (93)**** |
| Procedures of drainage (%): | | |
| • Sphincterotomy | 35/75 (47) | 66/111 (59) |
| • Stent placement | 27/75 (36) | 24/111 (22) |
| • Dormia's basket | 4/75 (5) | 9/111 (8) |
| • None | 9/75 (12) | 12/111 (11) |

* p < 0.001, ** Others: Pancreas divisum, *** Common bile duct, **** p = 0.001.

Table 4. Complications after ERCP

| | Group 1 (≥ 65 years) (n = 75) | Group 2 (< 65 years) (n = 111) |
|---------------------------|----------------------------------|-----------------------------------|
| Infectious complications* | 7/75 | 11/111 |
| Pancreatitis | 1/75 | 6/111 |
| Died | 1/75 | 1/111 |
| Total (%) | 10/75 (13) | 18/111 (16) |

* Cholangitis, bacteremia or sepsis.

[8%], $p = 0.700$ [95% IC 0.34-0.93] versus 11/111 [10%], $p = 0.611$ [95% IC 0.35-0.82]). Antibiotic prophylaxis were used more frequently in group 1 (63/75 [84%] versus 67/111 [60%]; $p < 0.001$). Of those who did not receive prophylaxis, only two had an infectious complication ($p = 0.065$). There were no differences between the group that did receive prophylaxis and the group that had a formal antibiotic regime ($p = 0.572$).

DISCUSSION

Endoscopic retrograde cholangiopancreatography has shown to be a safe and well tolerated procedure in the geriatric patient. As in other series, the incidence of complications seems to be independent of age.^{1,17} The group aged 65 and older had a significant higher comorbidity and increment in morbimortality could be expected, this was not true. The prevalence of complications was not different between the groups, however, the overall frequency was slightly higher than the reported elsewhere.^{1,10,16,18,19} This is probably related to the hospital

population, a third level reference hospital with a sicker population.

The indications for the procedure and the findings were similar as those of other groups.^{1,18,20} Even though the benign obstruction was the most frequent finding in both groups, the malignant obstruction was significantly higher in our series; this is a reflection of the population in our hospital. The number of instrumentations in the biliary tract was similar between both groups and the rate of successful drainage in younger subjects was similar to other series (93%). This was not repeated in the older subjects where the rate of success was 76%, related to the high frequency of malignant stenosis which is harder to cannulate.^{8,20,21} Still, ERCP is a safer procedure to drain the biliary duct than surgery, with a less than one percent mortality.²²⁻²⁷

The fear of major complications associated with ERCP in the geriatric population limits its use and its benefits. As in other series, this study show ERCP to be a safe procedure in this patients, even in the very elderly people, with a rate of complications

(infectious and non infectious) similar to that of the younger group.^{10-18,21,22,28-30}

Nevertheless, it is worth to mention that in our series, the older group received more antibiotic prophylaxis than the other group. The incidence of infectious complications was very low and was not different between the two groups. Maxton et al. reported an incidence of post-ERCP colangitis of 26% in patients which required an endoprosthesis placement.²⁰ Thirty-six percent of the patients in the older group required a prosthesis, we didn't observe such incidence.

It is not clear if this is the result of the antibiotic prophylaxis because its use is not recommended widely.³¹⁻³⁵ The results in these studies support our findings in which only two patients who did not receive antibiotics had an infectious complication. More research is needed to define why older patients receive more antibiotics and if prophylaxis is necessary in this group of patients.

In conclusion, our series demonstrates that in patients aged 65 and older ERCP is a safe procedure; the incidence of complications is similar to the reported for the younger subjects. Even though the use of antibiotic prophylaxis is wider in the older population, there is no evidence that this practice is the causal effect of the same incidence of infectious complications in the younger group, so its use should be individualized accordingly to comorbidity and clinical circumstances of the patient. Our results support the existing evidence that a patient must not be excluded of the benefits of ERCP based on their age.

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