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Laparoscopic Cholecystectomy for Acute Cholecystitis in Elderly Patients

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ABSTRACT

Background: Acute cholecystitis is the major complication of biliary lithiasis, for which laparoscopic treatment has been established as the standard therapy. With longer life expectancy, acute cholecystitis has often been seen in elderly patients (>65 years old) and is often accompanied by comorbity and severe complications. We sought to compare the outcome of laparoscopic treatment for acute cholecystitis with special focus on comparison between elderly and nonelderly patients.

Method: This study was a prospective analysis of 190 patients who underwent laparoscopic cholecystectomy due to acute cholecystitis or chronic acute cholecystitis, comparing elderly and nonelderly patients.

Results: Of 190 patients, 39 (21%) were elderly (>65 years old) and 151 (79%) were not elderly (≤65 years), with conversion rates of 10.3% and 6.6% (P=0.49), respectively. The incidence of postoperative complications in elderly and nonelderly patients were the following, respectively: atelectasis 5.1% and 2.0% (P=0.27); respiratory infection 5.1% and 2.7% (P=0.6); bile leakage 5.1% and 2.0% (P=0.27), and intraabdominal abscess 1 case (0.7%) and no incidence (P=1).

Conclusion: According to our data, laparoscopic cholecystectomy is a safe and efficient procedure for the treatment of acute cholecystitis in patients older than 65 years of age.

Key Words: Acute cholecystitis, Elderly, Cholecystitis, Laparoscopic cholecystectomy.

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INTRODUCTION

Elderly patients who undergo surgery have more postoperative complications and prolonged hospital stay.[1–5] Acute cholecystitis is the second most common cause of inflammatory acute abdomen, and the laparoscopic approach is the standard treatment.[6–10] Laparoscopic cholecystectomy (LC) has the advantages of less pain, shorter hospital stay, early return to work, and minimal invasiveness compared with laparotomy.[4,11–24] Because of these advantages, LC represents a beneficial therapeutic approach to acute cholecystitis in elderly patients.[5,13,19,24,25,26] The goal of this study was to compare the benefits of LC in the treatment of elderly and nonelderly patients with acute or chronic acute cholecystitis.

METHODS

The study was conducted at the General Surgery Service of the São Rafael Hospital, Salvador-BA, Brazil. During a 10-year period, 1864 patients admitted for emergency or elective surgery underwent laparoscopic cholecystectomy due to biliary lithiasis.

All patients who had acute cholecystitis or chronic acute cholecystitis in pathology studies were included in the study.

Patients diagnosed with choledocholithiasis, biliary pancreatitis, acalculous cholecystitis, and gallbladder cancer or polyps were excluded from the study.

The patients underwent surgery after complete preoperative evaluation (blood analysis, chest radiography, and electrocardiogram when necessary) and ultrasonography with biliary lithiasis. The surgery was performed with the patient under general anesthesia. First-generation cephalosporin was the prophylactic antibiotic used. The same surgical team performed all laparoscopies.

We do not generally perform cholangiography as a routine procedure in our service. Those patients who had jaundice or dilated common biliary duct on ultrasonography underwent magnetic resonance cholangiopancreatography (MRCP) for study of the biliary tree.

Patients were divided into 2 groups according to age. Patients >65 years were assigned to Group 1, and patients ≤65 years were assigned to Group 2.

The following data were obtained: age, sex, symptoms, physical examination, severity criteria, American Society of Anesthesiologists Classification Grading (ASA), conversion rate, postoperative complications (related or not related to the surgery site), and death rate.

A longitudinal study and analyses of collected data were performed prospectively from hospital records on a standard form.

We used the software SPSS for Windows (version 10.0) for statistical analyses. For univariate analysis, the variables described above were analyzed by the chi-square test or Fisher's exact test, when appropriate. Continuous variables were analyzed by the Student *t* test. $P<0.05$ was considered statistically significant.

RESULTS

Of the 1,864 patients who underwent laparoscopic cholecystectomy, we selected the patients who had acute cholecystitis or chronic acute cholecystitis based on the pathology studies for a total of 190 patients.

There were 39 (21%) elderly patients, >65 years old, (Group 1) and 151 (79%) nonelderly patients, ≤65 years, (Group 2).

Females predominated in both groups: 28 (71.8%) in Group 1 and 109 (72.2%) in Group 2.
Table 1 lists the symptoms and signs on physical examination and their degree of occurrence experienced by elderly and nonelderly patients with acute cholecystitis. Abdominal pain was the most significant symptom. Vomiting was the second most frequent symptom. In Group 1, only 13 (33.3%) patients had previous symptoms of cholelithiasis, while in Group 2, 60 (39.7%) patients had such symptoms.

The most frequent comorbidities in the elderly group were hypertension and other cardiac diseases (P=0.001) **(Table 2)**.

In the elderly group, 7 (17.9%) smokers were identified, and 31 (20.5%) smokers were identified in Group 2 (P=0.82). Alcohol abuse was identified among 6 (15.4%) of the elderly patients and 22 (14.6%) of the nonelderly patients (P=1).

Table 2.
Comorbidity in Elderly and Nonelderly Patients With Acute Cholecystitis

	Elderly Group 1	Nonelderly Group 2	P
Diabetes mellitus	6 (15.4%)	4 (2.6%)	0.06
Cardiac diseases	10 (25.6%)	4 (2.6%)	0.001
Hypertension	20 (51.3%)	37 (24.5%)	0.002

Table 1.
Signs and Symptoms of Elderly and Nonelderly Patients With Acute Cholecystitis

	Elderly (Group 1; N = 39)	Nonelderly (Group 2; N = 151)	P
Symptoms			
Abdominal pain	36 (92.3%)	139 (92.1%)	1.0
Right upper abdominal quadrant pain	26 (74.3%)	87 (63.5%)	0.36
Epigastric pain	5 (14.3%)	39 (28.5%)	0.36
Colic pain	14 (43.8%)	64 (54.7%)	0.47
Upper abdominal pain	1 (2.9%)	1 (0.7%)	0.36
Vomiting	21 (53.8%)	81 (53.6%)	1.0
Physical Exam			
Right upper abdominal quadrant pain	31 (79.5%)	113 (74.8%)	0.67
Wall rigidity	4 (10.3%)	4 (2.6%)	0.57
Palpable vesicle	5 (12.8%)	12 (7.9%)	0.35
Murphy	6 (15.4%)	41 (27.2%)	0.14

In the evaluation of severity criteria, leukocytosis, jaundice, and fever were observed in both study groups **(Table 3)**.

During the anesthetic risk evaluation, ASA 2 predominance was observed in Group 1 (21 or 58.3%) and ASA 1 predominance was seen in Group 2 (74 or 56.7%) **(Table 4)**.

Conversion to open surgery was necessary in 4 (10.3%) Group 1 patients and 10 (6.6%) Group 2 patients (P=0.49).

Of all patients included in the study (190 patients), 117 (61.6%) cases of acute cholecystitis and 73 (38.4%) cases of chronic acute cholecystitis were documented by the pathology studies.

The complications were divided as related or not related to the surgical site.

The most frequent complication related to the surgical site, in both groups, was bile leakage, with 2 (5.1%) cases in the elderly group and 3 (2.0%) cases in the nonelderly group (P=0.27).

One (0.7%) case of intraabdominal abscess occurred in Group 2 (P=1) and none in Group 1.

Of the complications not related to the surgical site, respiratory infection, atelectasis, and sepsis occurred **(Table 5)**.

Table 3.
Gravity Criteria for Elderly and Nonelderly Patients With Acute Cholecystitis

	Elderly	Nonelderly	P
Leukocytosis	61.5%	49.7%	0.21
Fever	28.2%	16.6%	0.11
Jaundice	15.4%	6%	0.08

Table 4.
Anesthetic Risk for Elderly and Nonelderly Patients With Acute Cholecystitis

ASA Classification*	Elderly (Group 1)	Nonelderly (Group 2)
I	13.1%	56.7%
II	58.3%	28.2%
III	19%	6.8%
IV	0%	0.8%

*American Society of Anesthesiologists Classification grading.

Table 5.
Nonrelated Surgical Site Complications for Elderly and Nonelderly Patients With Acute Cholecystitis

Complication	Elderly (Group 1)	Nonelderly (Group 2)	P
Respiratory Infection	2 (5.1%)	4 (2.7%)	0.6
Atelectasia	2 (5.1%)	3 (2.0%)	0.27
Sepsis	1 (2.6%)	3 (2.0%)	1

One death occurred in each group, representing 2.6% for the elderly patient group and 0.7% for the nonelderly group.

DISCUSSION

Laparoscopy has been used in several surgical arenas to obtain minimal invasiveness for the treatment of surgical pathologies.[27–29]

Bingener et al[1] reported conversion rates of 17% in elderly patients, which decreased during the study to 7%. The decrease in conversion rates depends on inherent factors of the patients and on the surgeons' experience; with an increase in laparoscopic skills, conversion rates generally decrease.[11,20,30]

Reports[1,20,25,29,31–34] mention conversion rates of LC to conventional surgery between 3.6% and 20% for the elderly patients with a diagnosis of acute cholecystitis. In our study, we had a 10.3% conversion rate in elderly patients with cholecystitis and 6.6% in nonelderly patients (P=0.49). Therefore, our conversion rate coincides with that reported in the literature, and the conversion rates were not affected by patient age.

Concerning nonrelated surgical site complications, 2 (5.1%) patients had respiratory infection, 2 (5.1%) patients had atelectasis, and 1(2.6%) patient had sepsis in the elderly group after LC. Our work demonstrates variations of 2% to 4% for respiratory infection, 1.4% to 4% for atelectasis, and 0% to 1% for sepses.[1,11,18,34] All of the nonrelated surgical site complications observed in this study were larger than the conversion rates.

Bile leakage was the main complication related to surgical site, with 2 (5.1%) cases in the elderly patients and 3 (2.0%) in the nonelderly. Values around 0.5% to 2% and 5% were described in other series, respectively.[1,12,35]

One (0.7%) case of intraabdominal abscess occurred in Group 2 and none in Group 1. Values around 0.5% to 1% were reported in the literature.[1,11,18,34]

In the elderly group, the death rate was 2.6%, and in the nonelderly group it was 0.7%. The literature[1,3,16,20,25,35] reports mortality rates between 0% and 1.4% in patients older than 65.

In this work, we obtained elevated conversion rates, surgical and nonsurgical postoperative complications, and death rates in the elderly group compared with those of the nonelderly group, with no statistical significance. In addition, our conversion rates are comparable to those reported in the literature, demonstrating that the use of laparoscopic cholecystectomy is feasible for the treatment of acute cholecystitis in patients >65 years of age.

CONCLUSION

According to our data, laparoscopic cholecystectomy is a safe and efficient procedure for the treatment of acute cholecystitis in patients >65 years of age.

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