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More complex but equally safe and effective

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Laparoscopic cholecystectomy for acute calculous cholecystitis in elderly. More complex but equally safe and effective.

AIM: *Acute calculous cholecystitis (ACC) is one of the most common pathologies in the elderly. Laparoscopy is the gold standard for ACC treatment, regardless of age. This study aimed to compare different classes of elderly patients affected by ACC and assess whether laparoscopy has the same safety and effectiveness as younger patients.*
MATERIALS AND METHODS: *Patients aging ≠ 70 y-o presenting with ACC treated with laparoscopic cholecystectomy were prospectively enrolled from 2010 to 2020. Three groups were identified: age 70-75 (Group 1); age 76-80 (Group 2); Age > 80 (Group 3). Major postoperative complications were considered as more than grade II according to the Clavien and Dindo classification. Demographic, intra-, and postoperative outcomes were compared. A multivariate analysis was also performed to identify predictive factors of morbidity.*
RESULTS: *We reviewed 832 patients: 302 (36.3%) were ≠ 70 y-o. Group 1 accounted for 124 patients (41.1%), group 2 for 74 (24.5%) and group 3 for 104 (34.3%). Male gender was significantly less represented with increasing ages (p<0.001). ASA score >2 (p=0.010), CACI score (p<0.001), and ERD score (p<0.001) were more frequent in group 3. No significant differences were found about AAST distribution and comorbidities. Conversion to open rate was significantly higher in group 1 (6.5%) and group 3 (8.7%) (p=0.019). Common bile duct stones rate was higher in group 3 (14.5% vs 13.5% vs 31.7%; p<0.001). Median postoperative hospital length of stay was increasingly longer (p<0.001). AAST grade ≠ 3 (OR 3.187; 95% CI 1.356-7.489; p=0.008), age ≠ 70 y-o (OR 3.358; p<0.001), and CBD stones (OR 2.912; 95% CI 1.456-5.824; p=0.003) were identified as predictive factors of morbidity between < and ≠ 70 ys. Among the three groups of elderly, age > 80 ys was associated with an increase of OR of postoperative complication by 2.94 (95% CI 1.099-7.912; p = 0.032).*
CONCLUSIONS: *Laparoscopy can be safely offered in elderly patients, although longer postoperative hospital stay. The presence of associated CBD stones may increase the risk of morbidity.*

KEY WORDS: Acute calculous cholecystitis, Cholecystectomy, Common bile duct lithiasis, Elderly, Frailty, Laparoscopy

Introduction

With the progressive aging of the population in industrialized countries, acute calculous cholecystitis (ACC) has constantly increased among the elderly. ACC is the most common complication of biliary gallstone disease in the elderly [1]. In 2017, the incidence of gallstone disease in Italy was 18.8% in women and 9.5% in men; the prevalence was 15% and 24% at 70 years and 24% and 35% at 90 years, for males and females, respectively [1]. The role of laparoscopic cholecystectomy (LC) for acute cholecystitis (AC) in the elderly is still debated due to increased comorbidities, surgery-related complications, morbidity, and mortality in such a very frail cohort of the population. More recent international guidelines stated that laparoscopic cholecystectomy for

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ACC is safe, feasible, with a low complication rate associated with a shortened hospital stay, even in elderly patients. However, no specific studies focused on elderly and "*super*" elderly were taken into account [1]. In fact, to our knowledge, no published studies analyzed the routine laparoscopic approach for ACC in elderly patients to date [2].

The present study aimed to compare different classes of elderly patients affected by ACC and assess whether laparoscopy has the same safeness and effectiveness as younger patients.

Materials and Methods

Study Design

We reviewed the data of a prospectively collected database of patients aging ≠ 70 y-o undergoing laparoscopic cholecystectomy for ACC during 2010-2020 at the Department of Emergency Surgery of Pisa Hospital. Informed consent was obtained from all the patients. The present study was registered on Clinicaltrial.gov with the number NCT04596306. The diagnosis of ACC was obtained through the clinical presentation, laboratory parameters (including complete blood count with formula, hepatic function test, and biochemical blood test), and imaging studies. An ultrasound scan was performed for all the patients with suspected acute cholecystitis, and computed tomography was required when a discrepancy between the clinical presentation and the ultrasound was found. According to patients' age, three groups were identified: 70-75 y-o (group 1), 76-80 y-o (group 2), and >80 y-o (group 3). Antibiotic prophylaxis was administered about 30 minutes before the surgical operation according to the international guidelines of antibiotic prophylaxis in general surgery. Patients were discharged after the evidence of good clinical condition, absence of fever, and a satisfying oral intake.

Surgical Technique

According to the policy of our Unit, laparoscopic cholecystectomy for ACC was performed within 72-92 hours from the hospital admittance. Laparoscopic surgery was accomplished with a supine patient in an anti-Trendelenburg position. Pneumoperitoneum was established with CO2 at 14 mmHg, placing a Veress's needle in the umbilical area or with Hasson's open technique in case of previous abdominal operations. Two 5 mm trocars were inserted in the epigastric area and another one on the left flank side. Following laparoscopic exploration of the whole abdominal cavity and identifying signs of acute cholecystitis, the hepatocystic triangle was dissected. The elements of Calot's Triangle were transected by using clips. If it was not possible to safely identify the cystic artery and duct, an anterograde cholecystectomy was attempted. Intraoperative cholangiography was performed in case of suspicion of concomitant biliary tract gallstone disease at the preoperative diagnostic work-up: increased level of the gamma-glutamyl transferase, phosphatases alkaline, total, and direct bilirubin; dilatation of intra- and/or extrahepatic bile duct system, recent episode of mild acute pancreatitis. If choledocholithiasis was detected, laparoscopic common bile duct exploration was accomplished via trans-cystic incision, choledochotomy, or intraoperative CRPE. Post-exploration fluoroscopy was performed to confirm effective drainage. The gallbladder was dissected from the cystic plate, placed inside a bag, and extracted through the supraumbilical incision. Accurate hemostasis of gallbladder bed and ports' sites was performed. In case of abdominal contamination, a complete evacuation was performed with warm saline solution irrigation followed by its suction until an adequate peritoneal clearance was obtained. In case of gangrenous cholecystitis, abscesses, or peritonitis, a 21 Fr silastic drain was placed.

Data Collection and Statistics

The following parameters were analyzed and compared between two groups: age, gender, BMI, comorbidities, American Society of Anesthesiology Score, Charlson-age comorbidity index (CACI), estimated risk of death (ERD), AAST (American Association of Surgery Trauma) classification of acute cholecystitis, associated common bile duct lithiasis, conversion to open and causes of conversion, operative time, in-hospital morbidity, major complication rate, in-hospital mortality, and duration of postoperative hospital stay. Major complication rate comprehended complications of Clavien and Dindo classification grade >2. A comparison of demographic data, clinical characteristics, preoperative and postoperative findings was performed.

Continuous variables were represented as median (interquartile range [IQR]), while categorical variables as n (%). Kolmogorov-Smirnov Test was used to verify the normality of the quantitative variables. Univariate analysis was performed to compare the studied groups. The Mann-Whitney and the Kruskall-Wallis test were used to compare continuous variables. Pearson's chi-squared test or Fisher exact test were used to compare categorical variables. Multivariate analysis adjusting for factors with a *p-value* < 0.2 or with clinical relevance was used to identify possible risk factors for morbidity. Hosmer-Lemeshow (HL) test and the Area Under the Receiver Operating Characteristics (AUROC) were applied to verify the model's goodness of fit. Statistical analysis was performed using SPSS Statistics 23 (SPSS Inc., Chicago, IL). A p-value lower than 0.05 was considered statistically significant.

Results

Eighty hundred thirty-two patients underwent laparoscopic cholecystectomy for ACC over the study period. Patients ≥ 70 y-o accounted for 302 (36.3%) (Table I). Between < and ≥ 70 y-o groups, there were significant differences in terms of ASA score >2 (p<0.001), diabetes mellitus (p=0.003), arterial hypertension (p<0.001), CaCI score (p < 0.001), ERD score (p<0.001), AAST grading distribution (p<0.001), conversion to open rate (p=0.001), operative time (p<0.001), common bile duct stones rate (p 0.004), in-hospital morbidity (p<0.001), and length of hospital stay (p<0.001) (Table I). Adhesions (1.4%), technical issues (0.6%), intense inflammation (0.5%), and respiratory distress (0.2%) represented the main causes of conversion to open surgery. Among patients ≥ 70, there were: 124 (41.1%) aging 70-75 y-o (Group 1); 74 (24.5%) aging 76-80 y-o (Group 2) and 104 (34.3%) with more than 80 y-o (Group 3) (Table II). Male gender was significantly less represented with increasing ages (p<0.001). ASA score >2 was more frequent in group 3 (p=0.010). The same was for CACI score (p<0.001) and the ERD score (p<0.001) (Table II). No significant differences were found about AAST distribution and comorbidities. Conversion to open rate was significantly higher in group 1 (6.5%) and group 3 (8.7%) (p=0.019). Common bile duct stones rate significantly increased with aging: 14.5% vs 13.5% vs 31.7% (p<0.001). In case of associated CBD lithiasis, the clearance was performed via trans-cystic route in 10.5% vs 12.2% vs 18.3% (p=0.221), through a choledochotomy in 0 vs 1.4% vs 9.6% (p<0.001), and an intraoperative CRPE in 4% vs 0 vs 3.8% (p=0.210). Median postoperative hospital length of stay was significantly different among three groups (p<0.001) (Table III).

At the multivariate analysis between under 70ys and over 70ys, age > 70 years (OR 3.358; 95% CI 1.637-6.887; p<0.001), AAST ≠ 3 (OR 3.187; 95% CI 1.356-7.489; p=0.008) and the presence of associated CDB stones (OR 2.912; 95% CI 1.456-5.824; p=0.003) resulted to be independent risk factors for morbidity (Table IV).

TABLE I - *Demographics and clinical data from the overall cohort of ACC patients.*

	Total N = 832	**Age < 70 N = 530 (63.7%)**	**Age ≥ 70 N = 302 (36.3%)**	**P value**
Age (years), median (IQR)	63.5 (50 – 74)	54 (44 – 62)	77 (73 – 83)	< 0.001
Male gender (%)	473 (56.9)	288 (54.3)	185 (61.3)	0.058
BMI (kg/m^2), median (IQR)	27.3 (24.5 – 30.6)	27.5 (24.7 – 31.1)	27 (24.4 – 30.1)	0.126
ASA score > 2 (n, %)*	161 (19.4)	60 (17.2)	101 (52.6)	< 0.001
Comorbidities (n, %)				
Diabetes mellitus	37 (4.4)	15 (2.8)	22 (7.3)	0.003
Arterial hypertension	139 (16.7)	52 (9.8)	87 (28.8)	< 0.001
Heart disease	63 (7.6)	25 (4.7)	38 (2.6)	< 0.001
CACI, median (IQR)	2 (1 – 4)	1 (0 – 2)	4 (3 – 5)	< 0.001
ERD, median (IQR)	2.1 (1.5 – 4.4)	1.5 (1 – 2.1)	4.4 (3.0 – 6.4)	< 0.001
AAST				< 0.001
1	639 (76.8)	441 (83.2)	198 (65.6)	
2	116 (13.9)	48 (9.1)	68 (22.5)	
3	24 (2.9)	16 (3.0)	8 (2.6)	
4	22 (2.6)	11 (2.1)	11 (3.6)	
5	31 (3.7)	14 (2.6)	17 (5.6)	
Associated disorder				
Hydrops	180 (21.6)	102 (19.2)	78 (25.8)	0.029
Polyposis	3 (0.4)	2 (0.4)	1 (0.3)	1.000
Pancreatitis	17 (2.0)	12 (2.3)	5 (1.7)	0.620
Jaundice	28 (3.4)	15 (2.8)	13 (4.3)	0.317
Conversion rate (n, %)	24 (2.9)	7 (1.3)	17 (5.6)	0.001
Operative time, median (IQR)	100 (65 – 140)	95 (60 – 135)	110 (75 – 160)	< 0.001
Common bile duct stones (n, %)	128	67 (12.6)	61 (20.2)	0.004
CBD clearance				
Trans-cystic	94 (11.3)	53 (10.0)	41 (13.6)	0.138
Common bile duct incision	18 (2.2)	7 (1.3)	11 (3.6)	0.044
Intraoperative CRPE	16 (1.9)	7 (1.3)	9 (3.0)	0.116
Biliary drain	8 (0.9)	1 (0.2)	7 (2.3)	0.005
In-hospital morbidity	70 (8.4)	27 (5.1)	43 (14.2)	<0.001
Major complication rate	14 (1.7)	6 (22.2)	8 (18.6)	0.764
In-hospital mortality	3 (0.4)	0	3 (1)	0.105
Post-operative HLOS, median (IQR)	2 (1 – 3)	2 (1 – 3)	3 (2 – 4)	<0.001

* ASA: 291 missing. BMI: body mass index; CACI: Charlson Age Comorbidity Index; ERD: estimated risk of death; CBD: common bile duct; HLOS: hospital length of stay

TABLE II - *Demographics and clinical data among subgroups in groups ≥ 70 y-o.*

	Group 1 Age 70-75 N = 124 (41.1)	**Group 2 Age 76-80 N = 74 (24.5)**	**Group 3 Age > 80 N = 104 (34.3)**	**P value**
Male gender (%)	90 (72.6)	47 (63.5)	48 (46.2)	< 0.001
BMI (kg/m2), median (IQR)	27 (24 – 30)	27 (26 – 30)	26 (23 – 31)	0.12
ASA score > 2 (n, %)*	38 (46.9)	19 (41.3)	44 (67.7)	0.010
Comorbidities (n, %)				
Diabetes mellitus	11 (8.9)	5 (6.8)	6 (5.8)	0.693
Arterial hypertension	38 (30.6)	19 (25.7)	30 (28.8)	0.761
Heart disease	12 (9.7)	12 (16.2)	14 (13.5)	0.384
CACI, median (IQR)	3 (3 – 4)	3 (3 – 5)	4 (4 – 6)	< 0.001
ERD, median (IQR)	3 (3 – 4)	3 (3 – 6)	4.4 (4.4 – 9.2)	< 0.001
AAST				0.817
1	83 (66.9)	48 (64.9)	67 (64.4)	
2	27 (21.8)	16 (21.6)	25 (24.0)	
3	2 (1.6)	1 (1.4)	5 (4.8)	
4	5 (4.0)	4 (5.4)	2 (1.9)	
5	7 (5.6)	5 (6.8)	5 (4.8)	
Associated disorder				
Hydrops	24 (19.4)	21 (28.4)	33 (31.7)	0.087
Polyposis	0	0	1 (1.0)	0.589
Pancreatitis	2 (1.6)	3 (4.1)	0	0.112
Jaundice	3 (2.4)	2 (2.7)	8 (7.7)	0.152

* ASA: 110 missingBMI: body mass index; CACI: Charlson Age Comorbidity Index; ERD: estimated risk of death.

TABLE III - *Operative data and outcomes among subgroups in groups over 70 ≥ y-o.*

	Group 1 Age 70-75 N = 124 (41.1)	**Group 2 Age 76-80 N = 74 (24.5)**	**Group 3 Age > 80 N = 104 (34.3)**	**P value**
Conversion rate (n, %)	8 (6.5)	0	9 (8.7)	0.019
Operative time, median (IQR)	110 (60 – 155)	110 (70 – 145)	120 (80 – 181)	0.082
Common bile duct stones (n, %)	18 (14.5)	10 (13.5)	33 (31.7)	0.001
CBD clearance				
Trans-cystic	13 (10.5)	9 (12.2)	19 (18.3)	0.221
Common bile duct incision	0	1 (1.4)	10 (9.6)	< 0.001
Intraoperative ERCP	5 (4.0)	0	4 (3.8)	0.210
Biliary drain	1 (5.6)	1 (10.0)	5 (15.2)	0.754
In-hospital morbidity	12 (9.7)	10 (13.5)	21 (20.2)	0.074
Major complication rate	28 (16.7)	0	6 (28.6)	0.204
In-hospital mortality	0	1 (1.4)	2 (1.9)	0.469
Post-operative HLOS, median (IQR)	2 (2 – 3)	3 (2 – 4)	4 (2 – 7)	< 0.001

CBD: common bile duct; HLOS: hospital length of stay.

TABLE IV - *Multivariate analysis for morbidity between under 70ys and over 70ys.*

	Adjusted p	**OR**	**95 % CI**	
Age ≥ 70	<0.001	3.358	1.637	6.887
ASA ≥ 3	0.706	0.863	0.403	1.850
Diabetes	0.353	0.484	0.105	2.240
Heart disease	0.839	1.108	0.412	2.984
AAST ≥ 3	0.008	3.187	1.356	7.489
Conversion to open	0.474	1.651	0.419	6.511
CBD stones	0.003	2.912	1.456	5.824

Binary logistic regression was performed with potentially causative variables in which the p-value was <0.2 in the univariate analysis or clinically relevant. Multicollinearity test was check before doing multivariate analysis. Hosmer-Lemeshow test: p=0.856. AUROC: 0.725 (0.641 - 0.809)

TABLE V - *Multivariate analysis for major complication rate between under 70ys and over 70ys.*

	Adjusted p	OR	95 % CI	
Age ≥ 70	0.548	0.680	0.193	2.397
Heart disease	0.853	1.188	0.192	7.333
AAST ≥ 3	0.216	2.285	0.617	8.465
CBD stones	0.578	1.445	0.395	5.285

Binary logistic regression was performed with potentially causative variables in which the p-value was <0.2 in the univariate analysis or clinically relevant. Multicollinearity test was check before doing multivariate analysis. Hosmer-Lemeshow test: 0.119. AUROC: 0.682 (0.545 – 0.820)

TABLE VI - *Multivariate analysis for morbidity among ages 70-75 / 76-80 / > 80ys.*

	Adjusted p	OR	95 % CI	
Age groups				
Age 70-75	REF			
Age 76-80	0.927	1.062	0.289	3.909
Age > 80	0.032	2.949	1.099	7.912
ASA ≥ 3	0.769	1.145	0.466	2.814
Conversion rate	0.947	0.944	0.173	5.153
CBD stones	0.069	2.335	0.938	5.814

Binary logistic regression was performed with potentially causative variables in which the p-value was <0.2 in the univariate analysis or clinically relevant. Multicolinearity test was check before doing multivariate analysis. Hosmer-Lemeshow test: 0.987. AUROC: 0.689 (0.577 - 0.801)

Conversely, none of them emerged as a risk factor for major complications (Table V). Among the three groups of elderly, age > 80 y-o was associated with an increase of OR of postoperative complication by 2.94 (95% CI 1.099-7.912; p=0.032) (Table VI).
The Hosmer-Lemeshow test was not significant (p=0.856, p=0.119, and p=0.987, respectively). The AUROC was 0.725, 0.682, and 0.689 respectively. These findings showed a good level of fitness.

Discussion

In the present study, we found that laparoscopic cholecystectomy for acute calculous cholecystitis gives the same outcomes in younger and elderly patients, even though the rate of conversion to open is significantly higher in the latter group. However, the more the age increases, the more the morbidity gets worst, and the postoperative hospital stay becomes longer.
Increased age is associated with increased comorbidities and decreased life expectancy. In general, the laparoscopic approach to acute cholecystitis is safer than the open approach: morbidity and mortality, in the case of laparoscopic procedure, are 10% and 1%, respectively, compared to 25% and 2% for the open procedure [3]. Aged patients are at increased risk of conversion from laparoscopy to open procedure. That may produce a worsening impact on the outcome [4-7]. The current opinion is that elderly patients presenting with acute cholecystitis should be offered a laparoscopic approach unless contra-indicated by anesthesiologic reasons or by the presence of a septic shock.
Recently, Escartin et al. suggested that elderliness is not a limit to LC. So far, they recommended a physical status or disease severity index to choose the best therapeutic option [8]. Wiggings et al found a 30-day mortality rate of 11.6% for all elderly patients who underwent cholecystectomy, although the laparoscopic approach was associated with an 84% relative risk reduction in 30-day mortality. These data are probably due to the reduced rate of postoperative pneumonia. In fact, pulmonary function seems to improve more rapidly after laparoscopic surgery if compared to open cholecystectomy (OC) [9]. In their meta-analysis published in 2014, Antoniou et al suggested that OC is frequently preferred to LC in elderly patients because they are more frequently subject to complicated AC, although morbidity data are in favor of the laparoscopic approach. Thus, the authors stated that there is no evidence to support or reject the routine laparoscopic approach to AC in elderly patients, suggesting its use only in selected cases [2]. Our study did not observe significant differences in mortality, while the rate of in-hospital morbidity was significantly higher in the elderly (5.1% vs. 14.2%; p<0.001). Conversely, we identified that the major complication rate was quite similar in all groups analyzed.
There is no standard in the criteria of dividing the cohort of patients according to their age. The choice to set the age at 70 was justified by similar studies, which focused on the safety and efficiency of laparoscopy comparing the elderly patients with those at a younger age [10-15]. The analysis among the three different subgroups of elderly (71-75; 76-80; > 80 y-o) identified significant differences in terms of male gender (p<0.001); ASA score > 2 (p<0.010), CACI score (p<0.001) and ERD (p<0.001). However, no significant differences were found in terms of grading of ACC severity. Interestingly, the rate of common bile duct lithiasis associated was significantly higher in the "super" elderly (> 80 y-o), who probably caused the longer operative time and postoperative stay.
The Tokyo guidelines have recently been updated to recommend early laparoscopic cholecystectomy also in patients with severe cholecystitis (severity grade III) if an appropriate experience is available and if the patients do not have any risk morbidity predictive factors such as jaundice, neurological dysfunction, or respiratory failure *16*. However, some elderly patients with ASA III/IV, performance status 3 to 4, or septic shock may remain

unfit for surgery. It has been shown that laparoscopic cholecystectomy is associated with a mortality rate of 0-0.8% in the general population. Mortality increases dramatically up to 14-30% in elderly or critically ill patients with comorbid diseases [17]. In our study, we found that older patients more frequently presented more severe grades of ACC (p<0.001), associated common bile duct lithiasis rate (12.6 % vs 20.2%; *p*=0.004), and more severe co-morbidities, mainly in terms of diabetes mellitus (*p*=0.003), arterial hypertension (*p*<0.001) and heart disease (*p*<0.001). Probably, a more frequent condition of severe ACC and associated CBD lithiasis may have influenced the rate of conversion to open and the mean operation time, which were higher (*p*=0.001) and longer (*p*<0.001), respectively, in the elderly. Furthermore, a longer postoperative stay found in the elderly may be principally a result of a more compromised status before the operation, which might have also influenced the higher rates of in-hospital morbidity with increasing ages. Instead, it appears that a longer postoperative stay is not linked to surgical complications that occur, without differences, in all groups of ages (*p*=0.764).

The multivariate analysis showed that ages > 70 y-o, more severe grades of ACC, and the presence of associated CBD lithiasis represent independent risk factors of morbidity. Notably, an age > 80 y-o was the only independent factor for morbidity in "super" elderly patients. In these cases, we should expect longer postoperative stays. In a recent study by Sato et al. on 423 cholecystitis patients treated with laparoscopic cholecystectomy, grade II (moderate) or grade III (severe) cholecystitis according to the modified Tokyo guidelines and a POSSUM score of ≥48.3 represented independent risk factors of postoperative complications, showing an overall postoperative morbidity rate of 4.3% [18]. However, the author excluded patients undergoing cholecystectomy with a stone in the common bile duct in their analysis. Although the authors stated that early LC for older patients without assessing the general condition could be dangerous due to the risk of deterioration of the comorbidities and general condition after LC, their results may be limited by the selection bias and the criteria adopted for patients' exclusion. We partially agree with the fact that more severe grades of ACC and a compromised status before the operation (found more frequently in ages > 70 y-o) effectively may represent risk factors for a complicated postoperative course. Still, we also believe that a CBD lithiasis found pre- or intra-operatively represents a not negligible factor. Interestingly, in our analysis, these factors were not significant for major complications, whose occurrence probably might be related to other technical or clinical issues.

Our study has several limitations that should be taken into consideration. First, this study was a retrospective study using information obtained from a database of a single center. Second, there were some cases in which more severe cholecystitis was treated with other procedures like percutaneous transhepatic gallbladder drainage. Another limitation is probably the heterogeneity of the operators, even though all of the operators are experienced surgeons.

However, the straightness of the present study represented mainly by the large cohort of patients and the completeness of inclusion criteria may increase the significance of the results shown.

Conclusions

Laparoscopy can be safely offered in elderly patients, although longer postoperative hospital stays. The presence of associated CBD stones may increase the risk of morbidity.

Riassunto

OBIETTIVO: La colecistite acuta litiasica (CAL) è una delle patologie più comuni nell'anziano. La laparoscopia rappresenta il gold standard terapeutico, indipendentemente dall'età. Il presente studio ha lo scopo di confrontare diverse classi di pazienti anziani affetti da CAL e valutare se la laparoscopia ha la stessa sicurezza ed efficacia che presenta nei pazienti più giovani.

MATERIALI E METODI: I pazienti di età ≠ 70 anni affetti da CAL trattati con colecistectomia laparoscopica sono stati arruolati in maniera prospettica dal 2010 al 2020. Sono stati identificati tre gruppi in base all'età: 70-75 anni (Gruppo 1); 76-80 anni (Gruppo 2); > 80 anni (Gruppo 3). Le complicanze postoperatorie sono state considerate maggiori se superiori al grado II secondo la classificazione di Clavien e Dindo. I risultati demografici, intra-e post- operatori sono stati confrontati. È stata inoltre eseguita un'analisi multivariata per identificare i fattori predittivi di morbilità.

RISULTATI: Abbiamo esaminato 832 pazienti: 302 (36,3%) avevano un'età ≠ 70 anni. Il gruppo 1 era costituito da 124 pazienti (41,1%), il gruppo 2 da 74 (24,5%) e il gruppo 3 da 104 (34,3%) pazienti. Il genere maschile era significativamente meno rappresentato con l'aumentare dell'età (p<0,001). Un punteggio ASA>2 (p=0,010), un punteggio CACI (p<0,001) e un punteggio ERD (p<0,001) più elevati erano più frequenti nel gruppo 3. Non sono state riscontrate differenze significative circa la distribuzione del punteggio AAST e delle comorbidità. Il tasso di conversione laparotomica è stato significativamente più alto nel gruppo 1 (6,5%) e nel gruppo 3 (8,7%) (p=0,019). Il tasso di litiasi della via biliare principale era più alto nel gruppo 3 (14,5% vs 13,5% vs 31,7%; p<0,001). La durata media della degenza postoperatoria è risultata progressivamente più lunga nei tre gruppi (p<0,001). Un grado AAST ≠ 3 (OR 3,187; IC 95% 1,356-7,489; p=0,008), un'età ≠ 70 anni (OR 3,358; p<0,001) e la presenza di calcoli

nella via biliare principale (OR 2,912; IC 95% 1,456-5,824; p=0,003) sono stati identificati come fattori predittivi di morbilità tra i pazienti di età < e ≠ 70 anni. Tra i tre gruppi di anziani, l'età > 80 anni è stata associata ad un aumento nell'OR di 2,94 per quanto concerne le complicanze postoperatorie (IC 95% 1,099-7,912; p=0,032).

CONCLUSIONI: La laparoscopia può essere proposta in sicurezza nei pazienti anziani, sebbene comporti una degenza postoperatoria più lunga. La presenza di litiasi associata nella via biliare principale può aumentare il rischio di morbilità.

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