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Outcomes of elective and urgent laparoscopic cholecystectomy in the over eighties

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Abstract

Background: Over eighties usually undergo laparoscopic cholecystectomy in urgency. Indeed over eighties aren't usually operated in election for cholelithiasis, even when already symptomatic for colic without fever. The aim of this study is to understand the differences between the elective and urgent setting and if the current approach is appropriate.

Materials and methods: We consider 41 patients who underwent laparoscopic cholecystectomy between 2013 and 2016 at Chiari Hospital. The mean age was 83. 26 patients were female whereas 15 male. 18 patients underwent elective surgery whereas 23 urgent laparoscopic cholecystectomy. There are no significat differences in comorbidities between the two groups. For every patient we have considered conversion to open surgery, length of hospital stay, post-operative morbidity.

Results: Mortality rate was null. No case of conversion to open surgery was recorded in the elective setting, whereas 8,7% (2/23) of urgent laparoscopic cholecystectomies were converted. The mean length of hospital stay was 2 days in the elective group versus 6 days in the urgent group. No post-operative complications were recorded after elective surgery, whereas rate of post-operative morbidity was 17,4% after urgent cholecystectomy.

Conclusions: Laparoscopic cholecystectomy in the over eighty is a safe procedure with acceptable morbidity even for multi-pathological patients in an urgent setting.

The good outcomes of the elective surgery should induce surgeons to operate over eighties in election even when there are few symptoms, preventing morbidity associated to urgent intervention.

Background

Cholelithiasis is frequently diagnosed in over eighties and its prevalence is estimated about 38% to 53% in different studies [1,2].

Diseases of the gallbladder and biliary tract are the most common cause of abdominal pain in the elderly, determining for this kind of patient one third of all the abdominal operations [3].

Elderly patients have a high risk of acute cholecystitis with increased mortality and a longer hospital stay than younger patients.

Elderly patients present a lot of comorbidities and limited functional reserve: in this setting perioperative mortality rate can increase especially in patient with more than three diseases. Advanced age represents an independent risk factor for postoperative death after laparoscopic cholecystectomy.

So over eighties aren't usually operated in election for cholelithiasis even when already symptomatic for biliary colic, unless very fit for surgery. Many surgeons tend to be more conservative with these patients.

The most part of laparoscopic cholecystectomies in over eighties are performed in an urgent setting. This kind of setting implicate relevant rates of mortality and morbidity.

The aim of this study is to evaluate the outcomes of urgent and elective laparoscopic cholecystectomy in over eighties, in order to understand if the current practice is mandatory.

Material and methods

41 patients underwent laparoscopic cholecystectomy at Chiari Hospital (ASST Franciacorta) between 2013 and 2016.

The data were collected retrospectively from database and hospital records.

For every patient we considered: age, sex, comorbidities, ASA score, timing of surgery.

Diagnosis was always made based on clinical (Murphy's sign, right upper abdominal pain, fever), laboratory (WBC count, PCR) and ultrasound criteria (gallstones, edema and thickening of gallbladder, pericholecystic fluid).

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"Elective" surgery was defined when outpatients were admitted in hospital for planned surgery.

A laparoscopic cholecystectomy was defined "urgent" if performed during the first 48 hours after admission to the Emergency Department.

For both the elective group and the urgent one we have considered the following outcomes: rate of conversion to open surgery, length of hospital stay, mortality and morbidity during hospital stay.

Morbidity was evaluated according to Clavien Dindo classification.

The average values of elective group and urgent one were compared for every outcome with T student test with significance level P<0.05.

Results

26 were female and 15 were male. The average age was 83 (range: 80-92). 18 patients underwent elective surgery whereas 23 patients urgent cholecystectomy. There were no statistically significant difference in terms of comorbidities between these last two groups (Table 1 and 2).

We evaluated the proportion of patients with ASA score ≥ 3 in each group, recording no significant differences.

The specific analysis for each kind of comorbidity (cardiovascular, pulmonary, neurological, renal and hepatic diseases, diabetes) was not statistically relevant.

The outcomes in the two groups (urgent and elective settings) are shown in Table 3.

Table 1. ASA score

ASA score	All patients (n=41)	Election (n=18)	Urgency (n=23)	P value
1-2	37/41 (90.24%)	17/18 (95.16%)	20/23 (86.96%)	0.44
≥3	4/41 (9.76%)	1/18 (4.34%)	3/23 (13.04%)	0.44

Table 2. comorbidities

Kind of comorbidity	Election (n=18)	Urgency (n=23)	P value
Cardiovascular	2 (11.1%)	3 (13.0%)	0.85
Pulmonary	1 (6.1%)	2 (8.7%)	0.71
Neurological	0 (0%)	1 (4.3%)	0.38
Renal	1 (6.1%)	1 (4.3%)	0.86
Hepatic	1 (6.1%)	2 (8.7%)	0.71
Diabetes	1 (6.1%)	2 (8.7%)	0.71
At least one	5 (27.8%)	8 (34.8%)	0.64

Table 3. comorbidities

Outcome	Election (n=18)	Urgency (n=23)	P value
Conversion Rate	0 (0%)	2 (8.69%)	0.21
Mortality	0 (0%)	0 (0%)	///
Morbidity	0 (0%)	4 (17.39%)	0.06
Length of stay (days)	2	6	0.0004

Table 4. morbidity in the urgent group

Kind of morbidity	Treatment	Incidence
Pneumonia	Antibiotics	2/23 (8.69%)
Urine infection	Antibiotics	1/23 (4.34%)
Bleeding with anemia	Transfusions	1/23 (4.34%)

Table 5. Outcomes of urgent cholecystectomy in literature

Author	N° patients	ASA≥3 (%)	Conversion rate (%)	Morbidity (%)	Mortality (%)	Length of stay (days)
Brunt6 (2001)	70	61.0	15.7	29.0	2.8	-
Bingener11 (2003)	49	-	10.2	17.3	2.0	-
Hazzan12 (2003)	67	57.0	7.4	18.0	0	-
Tambyraja2 (2004)	117	-	5.0	22.0	0.8	-
Pavlidis5 (2008)	21	52.4	19.0	14.3	0	-
Kim9 (2009)	35	20.0	5.7	5.7	0	-
Yetkin14 (2009)	11	81.8	27.2	36.4	0	-
Kuy4 (2011)	63	-	12.3	38.3	3.2	-
Sang-III Lee16 (2015)	35	5.7	8.5	3.3	0	-
Petric17 (2016)	37	-	29.7	7.7	0	5.9
Current study	23	13.04	8.69	17.39	0	6.08

Table 6. Outcome of elective laparoscopic cholecystectomy in literature.

Author	N° patients	ASA ≥3 (%)	Conversion rate (%)	Morbidity (%)	Mortality (%)	Length of stay (days)
Marcari15 (2011)	42	30.9	4.8	16.7	0	-
Kuwabara8 (2011)	100	-	-	-	0	2.3
Current study	18	4.34	0	0	0	2.2

Rates of conversion to open surgery between the two group (Table 3) don't differ significantly even if we didn't recorded any cases in the elective group and 2 cases (2/23=8.69%) in the urgent one. Both cases were converted to open surgery because of several adhesions.

Mortality was null in both groups.

No complications were recorded after surgery in the elective group, whereas after urgent cholecystectomy there were 2 cases of pneumonia, a case of urine infection and one case of bleeding requiring transfusion (Table 4). All the comorbidities were so classified as Clavien-Dindo I or II. The rates of post-operative morbidity don't differ according to T student test even with a P value near to the significance level of 0.05.

The length of stay was significantly longer after urgent cholecystectomy (P< 0.01).

Discussion

Symptomatic cholelithiasis is one of the most common cause of surgery in elderly people. As the average age of population is increasing, the number of laparoscopic cholecystectomies for elderly patients is likely to become more and more.

Also in elderly patients laparoscopic cholecystectomy is associated with a shorter postoperative hospitalization than open cholecystectomy [4-5].

However elderly patients could be challenging to treat because of vague symptoms that are difficult to distinguish from other abdominal etiologies and nearly two-thirds of them are admitted to the hospital in an emergency setting.

Moreover advanced age is usually associated with significant comorbidity and limited functional reserve.

ASA score is an effective method to predict the postoperative morbidity and mortality of geriatric patients. This score can be really useful to assess which over eighties can be treated in an elective setting without significant postoperative morbidity.

Surgeons must prefer elective surgery. Rates of conversions in this setting are lower in literature [4-15] and even in our study. Conversions, such as in our series, is usually due to extensive adhesions. If possible conversion must be prevent: open surgery determines worse outcomes in terms of length of stay, postoperative morbidity and postoperative pain.

We recorded no case of death. Mortality is rare in literature, but possible after urgent cholecystectomy, more than after elective one.

Post-operative morbidity in the elderly is quite relevant. For example Kuy [4] et al. demonstrated that over eighties were more than three times more likely to need blood transfusions.

Incidence of complications after surgery is higher in the urgent setting even if acceptable in the most part of studies. Indeed complications are at most classified as Clavien-Dindo I and II. This implies that elective surgery is to be preferred to urgent one and it can be performed safely also in the over eighties. Also data about length of stay are significantly better in the elective setting.

Surgeons tend to be conservative with these patients, probably due to a greater percentage of complicated diseases, but this approach is nowadays not justified by scientific data.

Moreover on the other side conservative treatment may not benefit patients. Trust7 et al. demonstrated that elderly patients have a high rate of readmission after conservative treatment of symptomatic cholelithiasis.

This study has some weak points. It is retrospective and about a relative small series. Studies about more significant series may be useful to confirm these first data and maybe to understand which features of the patient could preclude elective surgery with particular risk profile.

Conclusions

Laparoscopic cholecystectomy is a safe and feasible procedure even for over eighties. The morbidity even in the urgent setting is acceptable.

According to better outcomes in the elective setting surgeons should plan laparoscopic cholecystectomy for symptomatic cases preventing urgent surgery. Age shouldn't preclude elective laparoscopic cholecystectomy.

Conclusions

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