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Early versus Interval Laparoscopic Cholecystectomy in Acute Calcular Cholecystitis in Grade I and Grade II According to Tokyo Guidelines

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Abstract

Background: Gall stone-related disease is one of the most common ailments that general surgeons treat. Between 10% and 15% of the population have gallstones, and of these, between 1% and 4% will be become symptomatic each year.

Aim of Study: The aim of this prospective study is to compare between early and interval laparoscopic cholecystectomy for treatment of acute cholecystitis in grade I and grade II according to Tokyo guide lines in post-operative complications hospital stay quality of life and cost.

Patients and Methods: This study was analytical prospective study; it was carried out on 20 patients presented with acute calcular cholecystitis admitted in the General Surgery Department at Al-Zahraa University Hospital in the period from April 2018 to November 2019.

Results: According to Tokyo guidelines 2013, 12 patients undergone and completed early laparoscopic cholecystectomy (6 patients from mild group and 6 patient from moderate group) while 4 patients treated by delayed laparoscopic cholecystectomy. Only 3 patients (2 in mild group and 2 in moderate group) needed intraoperative conversion. Operative time was longer in open surgery and statistically significant in early lap and conversed cases. Post-operative pain was severe in majorty of patients with open surgery and mild in laparoscopic group. The mean time of starting oral feeding and hospital stay was longer in open surgery than lap cholecystectomy.

Conclusion: These results clarify that application of Tokyo guidelines 2013 was successful in guiding us in determining the proper time of laparoscopic cholecystectomy according to severity.

Key Words: *Interval laparoscopic cholecystectomy – Acute calcular cholecystitis – Tokyo guidelines.*

Introduction

ACUTE cholecystitis is the most common cause of hospitalization for gastrointestinal disease. Although cholecystectomy is the definitive management, the timing of surgery in relation to the first episode of acute cholecystitis remains an area of considerable practice variation. Operative intervention is either undertaken early on first presenting admission or, may be delayed some 6 to 8 weeks after initial nonoperative management to allow the acute inflammation to settle **[1]**.

The clinical presentation of acute calcular cholecystitis depends on the severity of the underlying disease. Generally, it is characterized by a sudden and severe pain, mainly in the right hypochondrium. Often there is a history of previous attacks of biliary colic. Nausea and vomiting are frequent features in early stages. On examination the patient is usually febrile with tenderness and rigidity in the right upper quadrant with mid-inspiratory arrest "Murphy's sign" **[2]**.

Real-time ultrasonography and biliary scintiscanning form the mainstays in the confirmatory diagnosis of acute cholecystitis, the sonographic features include positive Murphy's sign on probing, calculi or sludge, thickened gallbladder wall and pericholecystic oedema, gall bladder scintiscanning can be used to confirm non functioning gallbladder and is regarded the most accurate test of acute cholecystitis. Normal gall bladder scintiscan is virtually 100% accurate in excluding acute cholecystitis **[3]**.

Laparoscopic cholecystectomy is the procedure of choice for elective treatment of cholelithiasis. However, in acute cholecystitis laparoscopic cholecystectomy can be done early within the first seventy two hours but with risk of conversion to open cholecystectomy and bile duct injury, as a consequence, delayed laparoscopic cholecystecto-

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my, which is performed about 6 weeks later than early laparoscopic cholecystectomy, has gained popularity. However, a number of studies have demonstrated the safety of early laparoscopic cholecystectomy [4].

Recently Tokyo guidelines 2018 has been published with minor modification regarding severity assessment and plan of treatment [5].

Aim of the work:

The aim of this prospective study is to compare between early and interval laparoscopic cholecystectomy for treatment of acute cholecystitis in grade I and grade II according to Tokyo guide lines in post-operative complications hospital stay quality of life and cost.

Patients and Methods

This study was analytical prospective study; it was carried out on 20 patients presented with acute calcular cholecystitis admitted in the General Surgery Department at Al-Zahraa University Hospital in the period from April 2018 to November 2019.

All patients were diagnosed with acute calcular cholecystitis according to Tokyo guidelines (TG13) by:

A- *Local signs of inflammation:*

1- Murphy's sign.

2- RUQ mass/pain/tenderness.

B- *Systemic signs of inflammation:*

1- Fever.

2- Elevated CRP.

3- Elevated WBC count.

C- *Imaging findings:* Abdominal us, C.T. abdomen and MRCP if needed:

1- Suspected diagnosis: One item of local signs + one item in systemic signs.

2- Definite diagnosis: One item of local signs + one item in systemic signs + imaging diagnosis of acute cholecystitis.

The cases included in the study were classified according to Tokyo guidelines (2013) into 2 groups regarding severity of attack:

- *Mild group:* 8 patients (40%) were presented with mild acute cholecystitis, they were healthy patient with signs of acute cholecystitis (persistent pain >6 hours, fever, high WBC, positive Murphy's sign) and mild inflammatory changes of the gallbladder, e.g., edematous gall bladder.
- *Moderate group:* 12 patients (60%) were presented with moderate acute cholecystitis with persistent pain >72 hours, palpable mass in the right hypochondrium, positive Murphy's sign, WBC > 1.000/mm^3 and marked gallbladder inflammation e.g., gangrenous cholecystitis.

All patients were subjected to the following:

Informed consent was obtained for all patients and approved by local ethical committee.

A- *Detailed history including:* Personal history, complaint, present history and past history of similar attack.

B- *Examination was done for all patients include:* General examination and Local abdominal examination.

C- *Investigation included:* Laboratory investigation, Radiological investigations.

According to Tokyo guidelines patients with mild and moderate attack were undergone early 4-port laparoscopic cholecystectomy American technique.

Laparoscopic cholecystectomy:

- The protocol of general anaesthesia was uniform in all patients.
- Prophylactic antibiotics were given at the time of induction of anaesthesia, usually third generation cephalosporins.

1- *Preparation and positioning:*

- General anaesthaesia was used. All the patients were intubated with a cuffed endotracheal tube and ventilated mechanically.

- Ryle tube was inserted orally to decompress the stomach and lower limb elastic stocking to guard against deep venous thrombosis.

- Single dose of a third generation cephalosporin was administered at the start of operation.

- In this study, the standard technique for lap. Cholecystectomy was used, with the patients were placed in the standard supine position with the surgeon and camera man standing at the patient's left, the second assistant on the right and the monitor at the shoulder level of the patient. The patient was generally placed in a reverse Trendelenburg position and rotated right side up.

2- *Insertion of ports and creation of pneumoperitoneum:*

Then insertion of the umbilical port using open Hasson technique and Co_2 insufflation for creation of pneumoperitoneum was done and the laparo-

scope was placed at the umbilicus to perform diagnostic laparoscopy. Then the other three ports were inserted under vision (port 2 was inserted in the epigastrium to the right of the midline, port 3 was inserted in the mid clavicular line and port 4 was placed in the anterior axillary line).

3- *Dissection of the cystic pedicle:*

• The anterior and posterior peritoneum overlying Calot's triangle was incised, usually with the L-shaped hook with creation of windows between the cystic artery and duct.

• The cystic artery and duct were clipped after obtaining the critical view of safety.

• Mass division or clipping of any large clump of tissue or duct structure was avoided.

• Care was taken for looped right hepatic artery which can be easily mistaken for the cystic artery.

4- *Dissection of the gallbladder from its liver bed:*

• Electrocautery dissection of the gallbladder completed the cholecystectomy. The dissection was started behind the Hartmann's pouch.

• Gentle traction was applied to the gallbladder moving it from side to side so that the loose areolar tissue can be demonstrated.

5- *Extraction of the gallbladder:*

A- The gallbladder was extracted through the epigastric port (Figure). Fascial closure was attempted only at the umbilical cannula site.

B- During extraction of the distended gall bladder widening of the epigastric port could be done to facilitate its extraction and to avoid spillage of its contents.

Insertion of sub hepatic drain:

In this study, when conversion to open cholecystectomy was necessary (due to difficult dissection at Calot's triangle) a right subcostal incision was performed, the area was isolated with packs, the neck of the gallbladder was grasped with sponge holding forceps, the cystic artery was divided between ligatures, the cystic duct was then ligated and divided, the gallbladder was dissected from its liver bed, then was removed, haemostasis assured and the abdominal wall was closed in layers.

Post-operative management:

All patients received good support from intravenous maintenance fluid, analgesics and had warm oral liquids after the operation once there was normal bowel movement and no nausea nor vomiting.

For two weeks patients were observed for:

• Bleeding.
• Jaundice.
• Pain.
• Bowel injury.
• Bile leak.
• Wound infection.
• Signs of abdominal collection like pain, fever, tendeness, guarding and rigidity.

These complications occur within the first few days post-operatively.

The majority of patients were discharged from the hospital after 24 hours. Some patients needed more, patients who undergone conservative management for 48-72 hours some of them improved and discharge for late laparoscopic Cholecystectomy, others worsens and needed urgent intervention either open cholecystectomy or cholecystostomy, patients were reviewed for follow-up for two weeks in the outpatient clinic.

Statistical analysis:

Recorded data were analyzed using the statistical package for social sciences, Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean ± Standard Deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

• Independent-samples *t*-test of significance was used when comparing between two means.
• Chi-square (χ^2) test of significance was used in order to compare proportions between two qualitative parameters.
• The confidence interval was set to 95% and the margin of error accepted was set to 5%. The *p*-value was considered significant as the following:
• Probability (*p*-value):
  - *p*-value <0.05 was considered significant.
  - *p*-value <0.001 was considered as highly significant.
  - *p*-value >0.05 was considered insignificant.

Results

This study included 20 patients with acute calcular cholecystitis. 8 patients (40%) presented with mild attack, 12 patients (60%) presented with moderate attack.

Table (1): Distribution of the studied cases according to different groups (n=20).

	No.	%
Mild	8	40.0
Moderate	12	60.0
Total	20	100%

Mild group (Grade 1):

Table (2): Showing age and sex data among this study.

Age:		
Min.-max.	39-55	
Mean ± SD	46.63±6.82	
	N	%
Sex:		
Male	2	25
Female	6	75
Total	8	100

The mild group included 8 patients, 2 (25%) of them were male while 6 (75%) were female and the mean age group was 46.63 ±6.82 years.

Table (3): Comparison between group conversion to open cholecystectomy and group laparoscopic cholecystectomy in intraoperative.

	Laparoscopic group (N=6) Mean ± SD	Conversion group (N=2) Mean ± SD	*p*-value
Bleeding	1±0.00	1±0.00	–
CBD injury	0	0	–
Bowel injury	0	0	
Time (minutes)	56.66±15.24	90±7.17	0.042

p<0.05: Significant. *p*>0.05: Not significant.

According to intra operative course there was intraoperative bleeding in one patients (50%) needed intra operative conversion from lap. To open which was statistically significant in comparison to only 1 patients (16.6%) from patients completed the lap. cholecystectomy. There was no CBD injury or bowel injury in both groups. The median time of operation was longer in conversion group (90 minutes) in comparison to (56.6 minutes) in lap group which is statistically significant.

There was no post-operative bleeding, jaundice, evidence of bowel injury or abdominal collection in both groups. 33.3% in mild group presented with severe pain while 50% of conversion group presented with severe pain and 50% in mild group presented with severe pain which is statistically significant. 16.6% in lap group presented with bile leak which was statistically non-significant. 50% in conversion group presented with wound infection which was statistically non-significant. Median time of hospital stay was 2.5 days in conversion group in comparison to 1 day in lap group which was statistically non-significant. Median time of starting post-operative oral feeding was longer in conversion group (about 14 hours) in comparison to only 8 hours in lap group which was statistically sim.

Table (4): Comparison between group conversion to open cholecystectomy and group laparoscopic cholecystectomy in post-operative.

	Laparoscopic group (N=6)		Conversion group (N=2)		*p*-value
	N	%	N	%	
Pain:					
Mild	4	66.7	1	50	–
Severe	2	33.3	1	50	
Bleeding	0	0	0	0	–
Jaundice	0	0	0	0	–
Leakage	1		0	0	–
Wound infection	0	0	1	50	–
Oral feeding:					
Min-max.	6-24		24-24		0.051
Mean ± SD	14.52±6.62		24.11±0.12		
Hospital stay (days):					
Min-max.	1-2		2-3		0.643
Mean ± SD	1.52±0.54		2.52±0.71		

p<0.05: Significant. *p*>0.05: Not significant.

Moderate group (Grade 2):

Table (5): Distribution of the studied cases in moderate group according to demographic data (n=12).

Baseline characteristics	Early group (N=7) Mean ± SD	Delayed group (N=5) Mean ± SD
Age	40.71±9.36	46.20±10.31
Gender: Male/female	1/6	2/3

The moderate group included 12 patients, 3 (25%) of them were male while 9 (75%) were female and the mean age group was 40.71 ±9.36 years in early group, while in delayed group the mean was 46.20± 10.31 years.

Table (6): Comparison between the early and delayed laparoscopic cholecystectomy groups cording to intraoperative course.

	Early laparoscopic (N=6) Mean ± SD	Delayed laparoscopic (N=4) Mean ± SD	*p*-value
Bleeding	2±0.00	1±0.00	–
CBD injury	0	0	–
Bowel injury	0	0	
Time (minutes)	47.52±11.92	65.12±11.92	0.013

p<0.05: Significant. *p*>0.05: Not significant.

According to intra operative course there was intraoperative bleeding in the 2 patient with early laparoscopic cholecystectomy, only one case in

delayed laparoscopic was intraoperative bleeding. Cholecystectomy there was no CBD injury or bowel injury in both groups the median time of operation was longer in delayed group (65 minute) in comparison to (47 minutes) in early lap group.

Table (7): Comparison between the early and delayed laparoscopic cholecystectomy in moderate groups cording to post-operative follow-up.

	Early laparoscopic (N=6)		Delayed laparoscopic (N=4)		*p*-value
	N	%	N	%	
Pain:					
Mild	5	83.3	3	75	0.157
Severe	1	16.7	1	25	
Bleeding	0	0	1	25	–
Leakage	0	0	1	25	–
Jaundice	0	0	0	0	–
Wound infection	0	0	1	25	–
Oral feeding:					
Min-max	8-24		8-24		0.141
Mean ± SD	13.25±4.27		15.75±6.65		
Hospital stay (days):					
Min-max	1-3		1-3		0.391
Mean ± SD	1.75±0.971		1.25±0.532		

p<0.05: Significant. *p*>0.05: Not significant.

16% of patients in early lap in comparison to 25% of delayed lap group presented with severe pain which is statistically non-significant. There was no post-operative bleeding, jaundice, evidence of bowel injury or bile leak in both groups. One case of delayed lap group presented with wound infection which was statistically non-significant. Median time of starting post-operative oral feeding was longer in delayed group (about 16 hours) in comparison to only 13 hours in earlylap group. Median time of hospital stay was about 2 days both groups.

Table (8): Comparison between the early and delayed open cholecystectomy in moderate groups cording to postoperative follow-up.

	Early open (N=1)		Delayed open (N=1)		*p*-value
	N	%	N	%	
Pain:					
Mild	0		0	0	–
Severe	1	100	1	100	
Bleeding	0	0	0	0	–
Leakage	0	0	0	0	–
Jaundice	0	0	0	0	–
Wound infection	0	0	0	0	–
Oral feeding:					
Min-max	24-24		24-24		–
Mean ± SD	–		–		
Hospital stay (days):					
Min-max	3-3		3-3		–
Mean ± SD	–		–		

p<0.05: Significant. *p*>0.05: Not significant.

In comparison between open cholecystectomy in early and late groups, there were severe pain in both groups, with no leakage, jaundice or wound infection, the time of hospital stay about 3 days in both groups, the oral feeding start 24h post-operative in both groups.

Discussion

The present study included twinty patients presented with acute calcular cholecystitis admitted in General Surgery Department at Al-Zahraa University Hospital during the period from April 2018 to November 2019. According to Tokyo guidelines 2013 **[6]**. The patients were classified into 2 groups according to severity of attack in to: 8 patients (40%) presented with mild attack, 12 patients (60%) presented with moderate attack.

In our study, there were 5 (25%) patients were male while 15 (75%) were female which revealed female predominance, this was expected as the incidence of gallbladder stones and its complications as acute calcularcholecystitis is higher in females than in males. Possible explanations for these discrepancies may be due to lifestyle-related behaviors, female sex hormones; parity, oral contraceptive use i.e., oestrogen replacement therapy are established risk factors for cholesterol gallstone formation because oestrogen stimulates the liver to remove more cholesterol from blood and divert it into the bile **[7]**.

This was in agreement with Jamal **[8]** study who found that a female-to-male proportion of 2.9 between the ages of 30 to 39 years; the proportion limited to 1.6 between the ages of 40 to 49 years and supported by the study of Rehman et al., **[9]** who reported that female to male ratio was 3.9:1 in acute cholecystitis. El Reweny et al., **[10]** also reported that 72% of patients in their study were female.

This didn't correlate with the studies done by Rajcok et al., **[11]** and Agrawal et al., **[12]** whom reported no predominance in sex, the male predominance was (63.6%) in gangrenous gall bladder while Sánchez-Carrasco et al., **[13]** reported in his study that male-to-female proportion of 1.6.

In this study the range of age of patients with acute cholecystitis in the mild group was 30 to 55 years with a mean age of 46.63 ±6.82 years, and the range of age of patients with acute cholecystitis in the moderate group was 22 to 60 with a men age of 46.20± 10.31 years.

This was in agreement with results of studies done by Rehman et al., [9] who found that mean age of patients in acute inflammation group was 46.36±13.47 years, also El-Reweny et al., [10] reported that the mean age of patients was 39.6 years ±10.27 years. Rajcok et al., [11] reported that the average age of the patients was 47.8 years.

In our study the patients can be operated with early laparoscopic cholecystectomy even after 72 hours of onset of symptoms as the duration of pain before hospital admission was between 6 hours and 3 days in all patients in mild group and in some of patients in moderate group while the majority of patients in moderate group presented with pain more than 3 days and most of them undergone early lap cholecystectomy safely.

Multiple studies correlate with our study like El-Reweny et al., [10] and Khalid et al., [14] where early laparoscopic cholecystectomy was performed within 7 days of onset of symptoms.

Regarding fever, mean temperature in mild group was 37.96±0.616C, 38.4±0.51C in moderate group this correlates with Agrawal et al., [12] and Khalid et al., [14] as in their study fever was more than 37.5ºC. El Reweny et al., [10] in his study 92% patients suffered from fever. This isn't correlate with Inoue et al., [15] as in his study only 29.4% of grade II patient presented with fever at time of admission.

Regarding TLC count, its mean value was (12.87±2.71, 19.06±2.37) in mild and moderate groups respectively. These results correlate with Tokyo guidelines 2013 (TG13) in diagnosis and assessment of severity of attack of acute calcular cholecystitis as elevated TLC and CRP are of the most important systemic signs of inflammation and elevated TLC and more than 18.000 is diagnostic of moderate attack of inflammation [6].

This was correlated with Ambe et al., [12] as in his study mean WBC was 11.8±3.2c/ml^3 in mild grade, 17.5±5.7c/ml^3 in moderate grade, 17.9±5.1 c/ml^3 in severe grade. Inoue et al., [15] reported TLC.

In our study, 100% of patients had tendenness, guarding, positive murph's sign in right hpochondrium and there was palpable right hypochondrial mass in only 37.5% in mild group, in 25% in moderate group.

In El-Reweny et al., [10] there was positive Murphy's sign in 40% of patients while in Agrawal et al., [12] it was 56% in his study.

In our study, 100% of mild group and 100% of moderate group and 89% of severe group were diagnosed only by U.S and needed no more radiological investigations.

In study done over 373 patients, Terho et al., [16] reported that ultrasound was the main choice of imaging in (80.7%) of patients with clinical suspicion of acute cholecystitis.

Early laparoscopic cholecystectomy is suggested as the first line treatment in acute cholecystitis. According to Tokyo guidelines 2013 [6], all patients in mild and moderate group undergone early laparoscopic cholecystecyomy. Two patients (25%) in mild group and one patient (16.6%) in moderate group needed intraoperative conversion to open surgery due to difficulty in securing haemostasis, distorted unclear Callots triangle and multiple dense adhesions all around the Callots triangle with the surrounding structures making dissection difficult.

In our study, post-operative pain was severe in all patient (100%) undergone open surgery in moderate group and 50% in mild group but in most patients undergone laparosopic surgery it was mild both in early lap (66.7% in mild group, 83.8% in moderate group). The severity in post-operative pain was statistically significant between lap and open surgery.

These results were expected as decrease in post-operative pain is one of the known advantages of laparoscopic surgery. Our results correlate with Jamal [8] who reported that post-operative pain was nearly similar inboth early and late groups. Also, Saber and Hokkam [17] reported mild pain in 98% in early group and 66% in late group.

In our study, in all studied cases there was no post-operative bleeding, clinical evidence of jaundice or evidence of bowel injury which indicate good intraoperative hemostasis in spite of reported intraoperative bleeding in some cases, good handling of the tissues during the operation. This correlates with study done by El Reweny et al., [10]. One study done by Rajcok et al. [11] reported postoperive immediate bleeding 2 cases in delayed laparoscopic group (8.7%) and needed urgent laparotomy to stop bleeding. Another study by Radunovic et al., [18] reported post-operative bleeding in 3.64%.

Regarding post-operative wound infection, although its results wasn't statistically significant in our study, its incidence was only one case with open surgery with percentage of (33.3).

Regarding laparoscopic cholecystectomy our incidence of wound infection wasn't high in correlation with Jamal **[8]** who reported that wound infection observed in 24% of early lap and 20% of late lap, Khalid et al., **[14]** who reported wound infection in 8.8% in early lap and 12.2% in late lap.

The mean time of starting oral feeding was higher in open surgery with value of (24.11 ±0.12 and 24) hours in open cases either mild or moderate groups respectively.

This result was expected as in open surgery, there was more intraoperative manipulation due to severe adhesions which leads to prolonged time of post-operative ileus.

The mean time of hospital stay was higher in open surgery most probably due to delay in starting oral feeding and the severe pain reported post-operative. The mean average time was (2.52 ±0.71 and 3) days in open cholecystectomy in mild and moderate group.

Rubert et al., **[19]** reported the length of postoperative stay was shorter in patients undergoing laparoscopic cholecystectomy, averaging 2.01 ±0.9 days, while the open cholecystectimy group stayed for 4.95± 1.5 days.

Regarding laparoscopic surgery the mean time of hospital stay was short with value of 1 and 1.5 days in early and late lap respectively, this was expected due to early starting of oral feeding and the mild pain and little incidence of post-operative complication in relation to its large number of patients.

Our results in agreement with Khalid et al., **[14]** reported that the mean post-operative hospital stay was 1.67±0.89 days in the earlier group and 4.38 ± 1.48 days in the delayed group and El-Reweny et al., **[10]** reported he mean hospital stay was 1.76 ± 1.05 days after early laparoscopic cholecystectomy.

El Reweny et al., **[10]** reported one case (4%) port site infection that was managed conservatively.

Conclusion:

Laparoscopic cholecystectomy is the standard treatment of acute calcular cholecystitis. Tokyo guidelines 2013 can be used in diagnosis of acute cholecystitis and it is agood predictor of severity of acuta cholecystitis.

Patients with mild and moderate acute cholecystitis can be managed safely with early laparoscopic cholecystectomy.

Open cholecystectomy has more post-operative complications than laparoscopic cholecystectomy regarding wound infection, more operative time, delay in starting post-operative oral feeding and long-time of hospital stay.

More studies are needed on large number of patients using newly published Tokyo guidelines 2018 regarding modified parameters in assessment and treatment of acute cholecystitis.

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مقارنة ما بين الإستئصال المبكر آو بعد فترة للمرارة بالمنظار فى حالات إلتهاب المراره الحصوى الحاد فى الدرجة الآولى والثانية من قواعد طوكيو

يعتبر إلتهاب المرارة الحاد مع زيادة عدد كرات الدم البيضاء مع إرتفاع درجة الحرارة بغض النظر عن السبب هو السبب الثانى الآكثر شيوعاً آلام البطن الحاده، وقد آصبح إستئصال المراره بالمنظار هو العلاج الآمثل للمرضى الذين يعانون من الإلتهاب الحصوى المزمن بالمراره منذ آوائل التسعينات.

تعتبر مبادئ طوكيو التوجيهية سنة ٢٠٠٧ (TG07) هى المبادئ التوجيهية الآولى فى العالم لتشمل معايير التشخيص وتقييم شدة إلتهاب المراره الحصوى الحاد وتم تحديثها فى عام ٢٠١٣ (TG13) مع تغييرات طفيفه.

فى هذه الدراسة تم تشخيص ٢٠ مريض وفقاً لقواعد طوكيو التوجيهية (TG13) مع إلتهاب المراره الحصوى الحاد فى قسم الجراحة العامة بمستشفى الزهراء الجامعى.

وكانت نتائج الدراسة آن ٢٥٪ من الذكور بينما ٧٥٪ من الإناث وكان متوسط العمر فى المجموعة الخفيفة (46.63±6.82) بينما متوسط العمر فى المجموعة المعتدلة (40.71±9.36) وتم تشخيص جميع الحالات بواسطة الآشعة التلفيزيونية للبطن.

وفقاً لمبادئ طوكيو التوجيهية ٢٠١٣ فقد خضع ٦ حالات للمنظار الجراحى وتم إستكمال العملية بينما إحتاج حالتين فقط إلى التحويل لإستئصال جراحى بديل للمنظار فى المجموعة الخفيفة. كان وقت بدء التغذية ومتوسط وقت الإقامة بالمستشفى آطول فى الحالات التى خضعت للإستئصال الجراحى آكثر من الحالات التى تمت بواسطة المنظار.

آوضحت هذه النتائج آن توجيهات طوكيو ٢٠١٣ ساعدتنا فى تحديد الوقت المناسب لإستئصال المراره بالمنظار بآمان مبكراً آو متآخراً بدون حدوث مضاعفات.