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Original Research Article

Assessment of Socio-Demographic Profile and Clinical Presentation among Patients Diagnosed with Acute Cholecystitis of Nepal: An Observational Study

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Abstract:

Background: Acute cholecystitis is defined as an inflammation of the wall of the gallbladder. In many cases an impacted gallstone in the gallbladder infundibulum or in the cystic duct is the cause for the inflammatory process. About 80% of patients with acute cholecystitis give a history compatible with chronic cholecystitis. Acute cholecystitis begins as an attack of biliary colic, but in contrast to biliary colic, the pain does not subside. The pain is typically in the right upper quadrant or epigastrium and may radiate to the right upper part of the back or the interscapular area.

Objective: To assess the signs, symptoms and radiological findings for the diagnosis of acute cholecystitis.

Material: Present study is a hospital based descriptive study conducted at B.P. Koirala Institute of Health Sciences, Dharan, NEPAL. This Study was conducted among patients who attended Emergency or Out-patient department during September 2017 to August 2018. History was taken regarding onset of symptoms (pain, fever, jaundice). Physical examination was done and pulse rate, blood pressure, co-morbid conditions and icterus, abdominal examinations including tenderness, lump. All the patients underwent random blood sugar, complete blood count, Blood group, chest x-ray, serum urea, creatinine, Liver function test and ultrasonography of abdomen and pelvis.

Result: Most of the patients were in the age group between 35-65 years. There were a total of 21 males and 39 females. Out of 60 patients 47(78.3%) had history of vomiting. Out of 60 patients 19(31.6%) had fever during presentation. None of them had jaundice. One patient had recurrent attack of cholecystitis during initial conservative period and 7(11.6%) patients had history of biliary colic. Seven (11.6%) patients had history of hypertension. 7 (11.6%) had history of diabetes mellitus. 10 (16.6%) had past history of surgery. On radiological imaging mean gall bladder wall thickness of all patients was 6.09±1.89 and out of 60 patients 11(18.33%) patients had pericholecystic collection.

Keywords: Acute Cholecystitis, Pericholecystic, Epigastrium, Gall Bladder, Abdomen and Pelvis.

Introduction

Acute cholecystitis is defined as an inflammation of the wall of the gallbladder. In many cases an impacted gallstone in the gallbladder infundibulum or in the cystic duct is the cause for the inflammatory process.[1] Acute cholecystitis can be found at any age; however, the incidence increases with age, with a peak between 70 and 75 years. About 60% of patients with cholecystitis are women due to a three-fold higher incidence of cholelithiasis in women compared with men.[2] However, men tend to have a more severe cholecystitis. [3] Acute cholecystitis is secondary to gallstones in 90% to 95% of cases. Acute acalculous cholecystitis is a condition that typically occurs in patients with other acute systemic diseases. In <1% of acute cholecystitis, the cause is a tumor obstructing the cystic duct. Obstruction of the cystic duct by a gallstone is the initiating event that leads to gallbladder distention, inflammation, and edema of the gallbladder wall. Why inflammation develops only occasionally with cystic duct obstruction is unknown. In acute cholecystitis, the gallbladder wall becomes grossly thickened and reddish with subserosal hemorrhages. Pericholecystic fluid often is present. The mucosa may show hyperemia and patchy

necrosis. In severe cases, about 5% to 10%, the inflammatory process progresses and leads to ischemia and necrosis of the gallbladder wall. More frequently, the gallstone is dislodged and the inflammation resolves.[4] Gram-negative bacteria of gastrointestinal origin, such as Klebsiella subspecies, Enterobacter, and Escherichia coli, or anaerobes are the most common pathogens.[1]

About 80% of patients with acute cholecystitis give a history compatible with chronic cholecystitis. Acute cholecystitis begins as an attack of biliary colic, but in contrast to biliary colic, the pain does not subside. The pain is typically in the right upper quadrant or epigastrium and may radiate to the right upper part of the back or the interscapular area. The patient is often febrile, complains of anorexia, nausea, and vomiting, and is reluctant to move, as the inflammatory process affects the parietal peritoneum. On physical examination, focal tenderness and guarding are usually present in the right upper quadrant. A mass, the gallbladder and adherent omentum, is occasionally palpable; however, guarding may prevent this. A Murphy's sign, an inspiratory arrest with deep palpation in the right subcostal area, is characteristic of acute cholecystitis. A mild to moderate leukocytosis (12,000–15,000 cells/mm3) is usually present. However, some patients may have a normal WBC. A high WBC count (above 20,000) is suggestive of a complicated form of cholecystitis such as gangrenous cholecystitis, perforation, or associated cholangitis. Serum liver chemistries are usually normal, but a mild elevation of serum bilirubin, <4 mg/mL, may be present along with mild elevation of alkaline phosphatase, transaminases and amylase.[5]

Severe jaundice is suggestive of common bile duct stones or obstruction of the bile ducts by severe pericholecystic inflammation secondary to impaction of a stone in the infundibulum of the gallbladder that mechanically obstructs the bile duct (Mirizzi's syndrome). In elderly patients and in those with diabetes mellitus, acute cholecystitis may have a subtle presentation resulting in a delay in diagnosis. The incidence of complications is higher in these patients, who also have approximately 10-fold the mortality rate compared to that of younger and healthier patients. The differential diagnosis for acute cholecystitis includes a peptic ulcer with or without perforation, pancreatitis, appendicitis, hepatitis, perihepatitis (Fitz-Hugh–Curtis syndrome), myocardial ischemia, pneumonia, pleuritis, and herpes zoster involving the intercostal nerve.

Cholecystectomy is one of the most common surgical procedures performed. Open cholecystectomy, first performed by Carl Langenbuch in 1882, has been the primary treatment of gallbladder disease through the early 1990s. [6]

Objectives

- To assess the Socio-demographic profile of patients diagnosed with acute cholecystitis.
- To describe the signs, symptoms and radiological findings for the diagnosis of acute cholecystitis.

Material and Methods

Material: Present study is a hospital based descriptive study conducted at B.P. Koirala Institute of Health Sciences, Dharan, NEPAL. This Study was conducted among patients who attended Emergency or Out-patient department during September 2017 to August 2018. Patients older than 16 years and able to provide informed consent. Patient with Severe sepsis, Immunocompromised, Perforated cholecystitis, Biliary peritonitis, Cholangitis, Acute pancreatitis and Pregnancy were excluded from this study.

Methodology: Ethical clearance was obtained from the institutional review board before the start of the study. All the patients presented to the Emergency/Out Patient Department with severe abdominal pain were enrolled and eligible patients were counseled about the options of treatment and informed written consent was obtained. After obtaining an informed written and understood consent, patients were taken up for the examination and investigations. History was taken regarding onset of symptoms (pain, fever, jaundice). Physical examination was done and pulse rate, blood pressure, co-morbid conditions and icterus, abdominal examinations including tenderness, lump. All the patients underwent random blood sugar, complete blood count, Blood group, chest x-ray, serum urea, creatinine, Liver function test and ultrasonography of abdomen and pelvis.

The patients received analgesics (diclofenac 75 milligram intramuscular 8 hourly) and parenteral antibiotic (ceftriaxone 1 gram 12 hourly) pre-operatively. For patients planned delayed surgery, received intravenous antibiotics and analgesic for symptomatic relief and discharged once clinically sound with plan to do surgery after 6 weeks. The nature of the surgery, chance of conversion to open cholecystectomy and the benefits likely to be achieved from laparoscopic cholecystectomy were explained to the patients and their relatives in detail. Surgery was performed by the surgeon who had performed at least hundred laparoscopic cholecystectomy. Data was collected and entered in a predesigned proforma, data was analysed by using EpiInfo software and results were represented in form of suitable charts, graphs and tables.

Result

In the present study total 60 patients diagnosed with acute cholecystitis were included, most of these patients i.e. 65% were in the age group between 39-58 years. The mean age of the patient was 46.82 ± 11.88 (mean±SD) year; ranging from 18 to 65 years. There were total of 21 males (35%) and 39 females (65%). The male to female ratio was 1:1.8. Out of 60 cases, 30 (50%) cases were from mid socioeconomic status, 18 (30 %) cases from low socioeconomic status and 12 (20%) cases from high socioeconomic status. Most (58.33 %) of the patients in our study were from terai region, 33.33 % from hilly region and 8.33% from Himalayan region of Nepal.

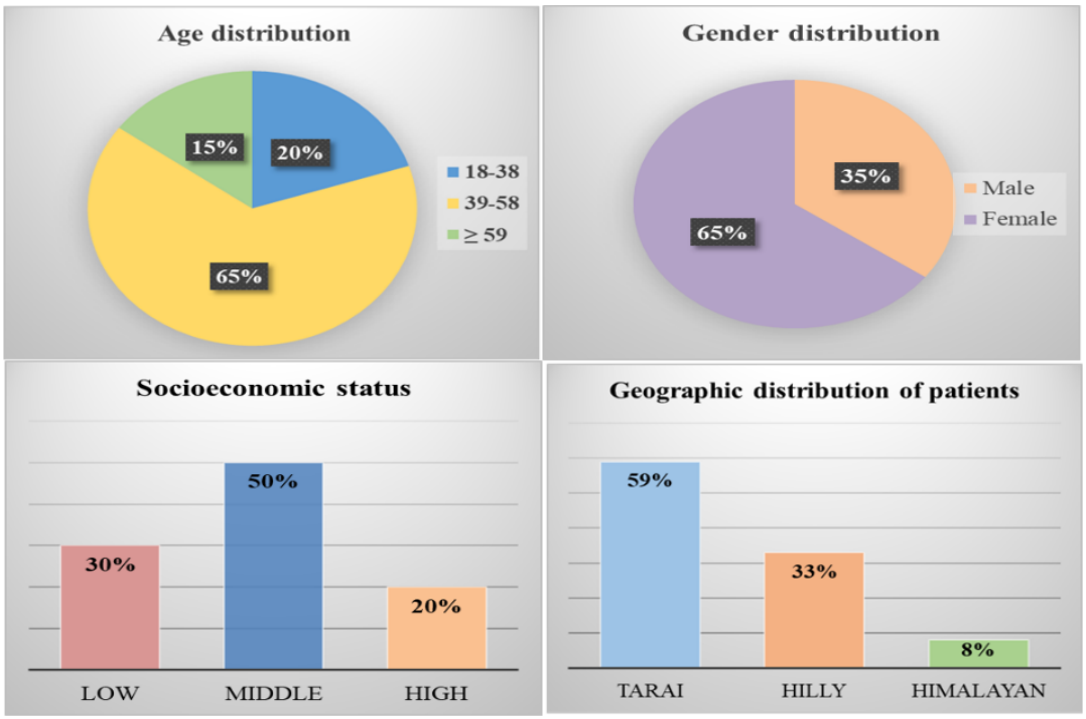

Figure 1: Socio-demographic distribution of patients diagnosed with acute cholecystitis

All the patients included in present study presented to emergency had pain. Out of 60 patients 47 (78.33%) had history of vomiting, out of 60 patients 19 (31.6%) had fever during presentation, none of them had jaundice. This has been illustrated in Table 1. Out of 60 patients, 1 patient had recurrent attack of cholecystitis during initial conservative period. Out of 60 patients, 7 had history of biliary colic Out of 60 patients; 7 (11.6%) patients had history of hypertension.

Seven (11.6%) patients had history of diabetes mellitus. Ten (16.6%) patients had past history of surgery as shown in Table 1.

Table 1: Distribution of patients diagnosed with acute cholecystitis according to history and presenting symptoms

Characteristics	No of patients
Symptoms	
Pain	60
Vomiting	47
Fever	19
Jaundice	0
Past history of surgery	
Attack of cholecystitis	1
Biliary colic	7
Co-morbidity	
Hypertension	7
Diabetes mellitus	7
Past history of surgery	10

The mean systolic blood pressure at the time of presentation was 115.17 ± 8.92 (mean ± SD) mm of Hg, and mean diastolic was 73.83 ± 6.67 (mean ± SD) mm of Hg. The mean body temperature of patients presenting to emergency was 99.02 ± 0.627 (mean ± SD) °F. Similarly, the mean pulse rate and respiratory rate of patient was 81.67±9.57 (mean ± SD) per minute and 17.38 ± 2.07 (mean ± SD) per minute respectively as shown in Table 2. The mean pre-operation hemoglobin of all patients was 12.56 ± 1.79 (mean ± SD). The mean post-operation hemoglobin of all patients was 11.87 ± 1.71 (mean ± SD). The mean gall bladder wall thickness of all patients was 6.09 ± 1.89 (mean ± SD) and 11 (18.3%) patients had pericholecystic collection as shown in table 2.

Table 2: Clinical examination of patients diagnosed with acute cholecystitis

Temperature, Pulse and respiration	
Examination findings	**Mean ± SD**
Temperature (°F)	99.02 ± 0.627
Pulse (per minute)	81.67 ± 9.57
Respiration (per minute)	17.38 ± 2.07
Pre and post operation Hemoglobin	
Pre-operation hemoglobin	12.56 ± 1.79
Post-operation hemoglobin	11.87 ± 1.71
Ultrasonographic findings	
GB wall thickness (mm)	6.09 ± 1.89
Pericholecystic collection (%)	11 (18.3)

Table 3: Comparison of Pre **and post operation Hemoglobin among the patients diagnosed with acute cholecystitis**

Hemoglobin	**Mean ± SD value**	**t-test (p-value)**
Pre-operation hemoglobin	12.56 ± 1.79	2.159
Post-operation hemoglobin	11.87 ± 1.71	(0.032)

Table 3 represent the comparison of hemoglobin among the patients diagnosed with acute cholecystitis in mean and standard deviation (SD) form, the mean pre-operation hemoglobin of all patients was 12.56±1.79 and the mean post-operation hemoglobin of all patients was 11.87±1.71 and difference is significant with p-value 0.032.

Discussion

The mean age of patients presenting with acute calculus cholecystitis was 46.82 ± 11.88 years which was similar (F: M = 1.8:1) study done by Gut et al. [7] All the patients had pain abdomen. Out of 60 patients 47 (78.33%) had history of vomiting, out of 60 patients 19 (31.6%) had fever during presentation, none of them had jaundice. In the study done by Alper Bilal et. al. [8] there was also history of pain abdomen in all patients but fever was present in 10 (33.3%) patients in the early group which was higher 9 (45%) in intermediate group in our study group.

One (5%) patient had history of recurrent attack of cholecystitis during the initial conservative period so laparoscopic cholecystectomy had to be done in that patient during intermediate period. In a study done by Didier Roulin et al [9], there was a recurrent attack of cholecystitis in 3 (6.81%) patients which is comparable to our study.

Out of 60 patients, 7(11.6%) patients had history of previous biliary colic. In a study done by Kolla et al [11], history of biliary colic was present in 5(12.5%) patients. In our study sample 7 (11.6%) patients had hypertension, 7 (11.6%) had diabetes and 10 (16.6%) had past history of abdominal surgery. In other study, done by Roulin et al [10] 2016 out of 86 patients 27 (31.3%) had hypertension, 8 (9.3%) had diabetes and 16 (18.6%) had history of previous abdominal surgery.

At the time of presentation, the mean systolic pressure of the patients in our study was 115.17 ± 8.92 and diastolic pressure was 73.83 ± 6.67, but the study done by Carsten. N et al [11] showed the mean systolic and diastolic pressure at the time of presentation to be 134.9 ± 20.1 and 78.5 ± 10.9 mm Hg. Right hypochondrial tenderness was present in almost all cases in our study group which is similar to study done by Carsten N et al [11].

Ultrasonogram was the initial imaging modality of choice for the diagnosis of acute calculus cholecystitis, out of 60 patients only 11 (18.33%) patients had pericholecystic fluid collection. The finding is similar to that of Kolla et al results (15%) for early group and higher to that of kolla et al [11] results (15%) for the delayed group. In our patients gall bladder wall was thickened. The mean gall bladder wall thickness among all patients was 6.09 ± 1.89 mm. The gall bladder thickness was comparatively more in intermediate and delayed

group. In the study done by Kolla et al, only 60% of patients had thickened gallbladder wall 6.62 ± 1.24 mm in early group and only 50% of patients had thickened gallbladder wall 6.95 ± 1.62 mm in delayed group.

Conclusion

As per the result of this Study, it can be concluded that, acute calculus cholecystitis has been found to be more common in females. All the patients had pain abdomen while vomiting and fever are major presenting symptoms. At the time of presentation, the mean systolic pressure of the patients in our study was 115.17 ± 8.92 and diastolic pressure was 73.83 ± 6.67, the mean body temperature of patients presenting to emergency was 99.02 ± 0.627°F. Right hypochondrial tenderness was present in almost all cases in our study group.

References

1. Sjödahl, R., Tagesson, C. H., & Wetterfors, J. On the pathogenesis of acute cholecystitis. Surgery, gynecology & obstetrics, 1978;146(2): 199-202.
2. Everhart, J. E., Khare, M., Hill, M., & Maurer, K. R. Prevalence and ethnic differences in gallbladder disease in the United States. Gastroenterology, 1999;117(3): 632-639.
3. Bass, E. B., Pitt, H. A., & Lillemoe, K. D. (1993). Cost-effectiveness of laparoscopic cholecystectomy versus open cholecystectomy. The American journal of surgery, 1993;165(4): 466-471.
4. Strasberg, S. M. Cholelithiasis and acute cholecystitis. Baillière's clinical gastroen terology, 1997;11(4): 643-661.
5. Trowbridge, R. L., Rutkowski, N. K., & Shojania, K. G. Does this patient have acute cholecystitis? Jama, 2003;289(1): 80-86.
6. Stefanidis, D., Sirinek, K. R., & Bingener, J. Gallbladder perforation: risk factors and outcome. Journal of Surgical Research, 131(2), 204-208.
7. Gutt, C. N., Encke, J., Köninger, J., Harnoss, J. C., Weigand, K., Kipfmüller, K., & Büchler, M. W. Acute cholecystitis: early versus delayed cholecystectomy, a multicenter randomized trial (ACDC study, NCT00447 304). Annals of surgery, 2013;258(3): 385-393.
8. Gutt, C. N., Encke, J., Köninger, J., Harnoss, J. C., Weigand, K., Kipfmüller, K., & Büchler, M. W. Acute cholecystitis: early versus delayed cholecystectomy, a multicenter randomized trial (ACDC study, NCT0 0447304). Annals of surgery, 2013;258(3): 385-393.
9. Özkardeş, A. B., Tokaç, M., Dumlu, E. G., Bozkurt, B., Çiftçi, A. B., Yetişir, F., & Kılıç, M. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: a prospective, randomized study. International surgery, 2014;99(1):56-61.
10. Roulin, D., Saadi, A., Di Mare, L., Demartines, N., & Halkic, N. Early versus delayed cholecystectomy for acute cholecystitis, are the 72 hours still the rule? a randomized trial. Annals of surgery, 2016;264(5): 717-722.
11. Kolla, S. B., Aggarwal, S., Kumar, A., Kumar, R., Chumber, S., Parshad, R., & Seenu, V. Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: a prospective randomized trial. Surgical Endoscopy and Other Interventional Techniques, 2004;18: 1323-1327.