

A Comparative Prospective Study On Various Modalities Of Management Of Acute Cholecystitis In Tertiary Care Centre

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Abstract

The most common surgical disease affecting people in industrialized nations is cholecystitis. Cholecystitis is a group of related disease states with varying causes, severity levels, clinical trajectories, and treatment options rather than a singular clinical entity. A thorough knowledge of acute, chronic, and calculous cholecystitis syndromes, as well as awareness of their unique clinical feature and potential complications, are necessary for providing patients with a diseased gallbladder with the proper care.

This research evaluated cholecystitis in tertiary care centres' demographic distribution, associated comorbidities, personal history, presenting clinical features, and association with other anomalies.

Various management strategies based on the patient's health, time of presentation morbidities, and accompanying anomalies have been reviewed in this study. Though clinical features, presenting complaints and severity of illness vary among the patient population, the decision and treatment selection is optimised for individual patient, as the clinical response to management is subjective.

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I. Introduction:

Acalculous cholecystitis, which can also appear without gallstones, is more frequently a complication of gallstone disease. Acute cholecystitis is the most common result of biliary system obstruction from stones. However, acalculous disease is only to blame for 10% of all instances of cholecystitis [1]. Both calculous and acalculous diseases exhibit comparable symptoms, such as nausea, vomiting, and abdominal pain. After consuming a meal high in fat, many people report that their pain gets worse [2-3].

Imaging tests are typically performed on patients who present with these well-known symptoms to establish a diagnosis for which frequently used imaging modalities for biliary illness are MRCP (magnetic resonant cholangiopancreatography) and USG (ultrasound) whole abdomen [3]. The symptoms, clinical signs, associated anomalies, comorbidities, and treatment are discussed in this article.

Aim:

Comparative prospective study on different modalities for the treatment and management of acute cholecystitis among both sexes in tertiary care centres.

Type of Study: Prospective Study

Inclusion Criteria:

- All clinically suspected patients
- USG-proven cholecystitis
- MRCP-proven cholecystitis
- Both sex
- Age between 20 to 60 years.

Exclusion Criteria:

- Patients presenting with acute abdomen, proven otherwise as cholecystitis.

II. Materials & Methods:

Our study population has 30 patients who were admitted to Sree Balaji Medical College Hospital & Research Centre - the tertiary care centre, in Chennai.

All the patients were initially consulted as outpatients in the Department of General Surgery, during which detailed history, significant clinical signs were elicited and appropriate investigations were ordered and patients were admitted.

Laparoscopic Cholecystectomy was performed using the standard 4 port technique. One 10mm umbilical optical port for the camera, one 10mm epigastric working port, one 5mm working port in the right mid-clavicular line and one 5mm retraction port at the right anterior axillary line.

Open Cholecystectomy through Kocher's incision was done in a few cases as a bailout procedure following initial laparoscopic cholecystectomy,

Study Period:

August 2022 to January 2023 (6 Months)

III. Discussion:

The gallbladder wall's inflammatory alterations show up as fever and pain in the right upper quadrant. Patients will show guarding and pain while being examined in the right upper quadrant. Visceral pain fibres are activated when the gallbladder lumen cannot empty because of a stone in the gallbladder neck, producing discomfort in the right upper quadrant or epigastrium

Acute calculous cholecystitis is the term used when a stone is the cause of the cystic duct blockage that causes acute cholecystitis. In acute cholecystitis, the blockage persists, causing inflammation, oedema, and subserosal haemorrhage, whereas the occlusion in chronic cholecystitis is transient and recurrent. The bile pool's occlusion is followed by an infection. Gallbladder ischemia and necrosis will proceed without clearing the obstruction [3]. When accompanied by infection with a gas-forming bacterium, acute cholecystitis eventually progresses to acute gangrenous cholecystitis and acute emphysematous cholecystitis.

Infection and inflammation are caused by the same luminal blockage that causes biliary colic but are also brought on by enough stasis, pressure, and bacterial inoculum to develop into acute cholecystitis.

In particular, the Murphy sign, which occurs when the examiner applies steady pressure to the right costal margin and causes a voluntary halt of breathing, indicates inflammation of the visceral and parietal peritoneal surfaces and can be an indication of conditions including acute cholecystitis and hepatitis.

Cholecystitis severity has been graded using several systems, most frequently the Tokyo criteria and the Emergency General Surgery (EGS) criteria of the American Association for the Surgery of Trauma (AAST).

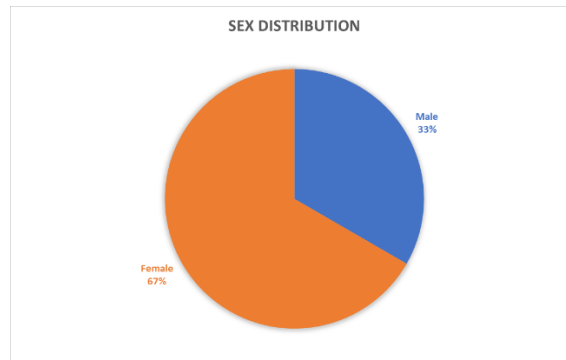
Validation of the AAST EGS acute cholecystitis grade and comparison with the Tokyo guidelines as given below [6].

- Grade 1 – Localized inflammation
- Grade 2 – Distended Gallbladder with purulence or hydrops, necrosis/gangrene of wall noted without iatrogenic perforation.
- Grade 3 – Noniatrogenic perforation with bile located in the right upper quadrant.
- Grade 4 – Bilioenteric fistula, periocholecystic abscess, gallstone ileus.
- Grade 5 – Grade 4 disease with generalised Peritonitis

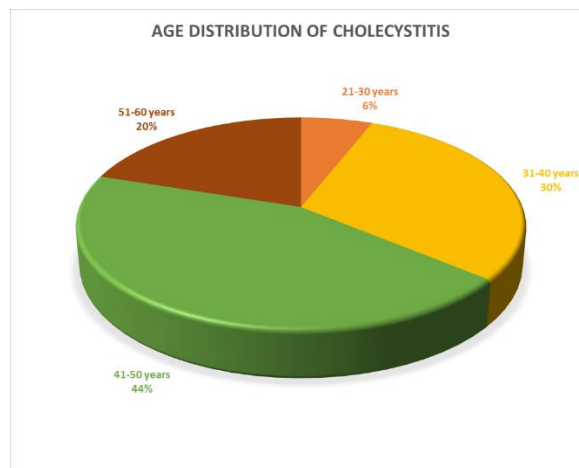
These grading systems are useful for grouping these patients' management and taking treatment alternatives into account according to the degree of their illness.

The diagnosis of acute cholecystitis is supported by mild elevations in alkaline phosphatase, bilirubin, and transaminase levels as well as leucocytosis.

Of the 30 patients in our research, 20 were female which accounts for 67% and 10 were male which accounts for 33%. The sex distribution is shown in Figure 1.

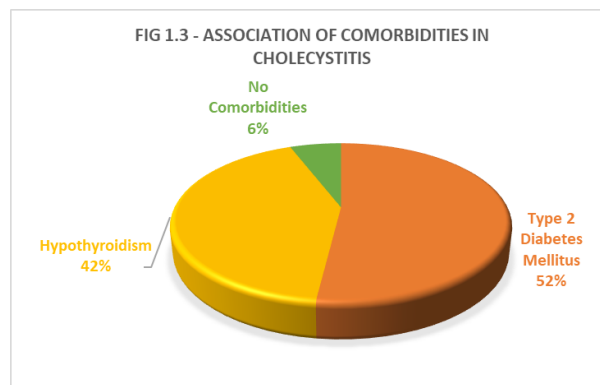


6% of the patients are between the ages of 25 and 30. About 30% of the population is in the 30-40 age bracket. 44% of people are in the age range of 40-50. 20% of people are in the 50-60 years age bracket. Most people in this age range are between 30 -50 years. The age distribution is shown in Figure 2.



Acute cholecystitis is inflammation of the gallbladder that occurs due to occlusion of the cystic duct or impaired emptying of the gallbladder. Often this impaired emptying is due to stones or biliary sludge [5]. Gallstones are the most frequent cause, followed by consuming a lot of fatty meals and a history of extended fasting. While a small number of patients had unexplained causes.

53% of individuals reported having Type 2 diabetes mellitus. Hypothyroidism affected 43% of the individuals. 4% had no conditions. This is shown in Figure 3.



Presenting Clinical Feature:

90% of patients had right hypochondrium and epigastric discomfort when they first arrived at the clinic. 5% of patients reported right lumbar discomfort. Only 5% of individuals have no symptoms. Fever, vomiting, infrequently burning micturition, and a small number of cases of jaundice and a positive Murphy's sign are additional symptoms.

Investigation:

Ultrasonography is a sensitive method of diagnosis. Ultrasound imaging can also show pericholecystic fluid, thickening of the gallbladder wall, and even a sonographic Murphy sign, which records discomfort specifically above the gallbladder. Though most of the gall stones are radio-opaque causing posterior acoustic shadowing, few stones are radiolucent, hence MRCP is the most preferred and specific diagnostic investigation in gallstone disease and cholecystitis.

Management:

The course of treatment for acute cholecystitis can range from rapid surgical intervention to conservative management, depending on the disease severity and the patient's physiologic condition. Although constriction of the cystic duct is the major pathophysiological event in acute cholecystitis, infection is a subsequent event that happens after stasis and inflammation. Superinfection of the inflamed gallbladder complicates the majority of acute cholecystitis cases. No oral medication is given to patients; instead, parenteral antibiotics and intravenous fluids are administered. Broad-spectrum antibiotics are necessary because gram-negative aerobes, followed by anaerobes and gram-positive aerobes, are the most prevalent microorganisms in acute cholecystitis. Pain control frequently requires parenteral necrosis.

The preferred method of treatment for acute cholecystitis is cholecystectomy, whether it be open or laparoscopic. The best time to perform surgery for acute cholecystitis has long been a topic of discussion, in our study surgery was preferred within 48 to 72 hours after occurrence of first symptoms.

Out of 30 patients, Laparoscopic cholecystectomy was done in 24 patients who presented within 48-72 hours. Open cholecystectomy was done in 6 patients, out of which 3 patients with indication of perforated gall bladder and the other 3 patients with indication of extensive inflammation. Laparoscopic cholecystectomy is converted to open cholecystectomy in 4 patients, of which 3 patients were given empyema gall bladder with sealed-off perforation and 1 patient due to uncontrolled bleeding. 4 patients in the follow-up were managed conservatively with Intravenous antibiotics following which interval cholecystectomy was done after 6 weeks

IV. Conclusion

Various management strategies based on the patient's health, time of presentation morbidities, and accompanying anomalies have been reviewed in this study. Patients presenting with cholecystitis can have an array of symptoms, the duration at which they present themselves to the hospital, the severity of the disease and their response to treatment play a vital role in strategizing the treatment plan for individual patients.

V. Results

Cholecystitis is most frequently seen in the age group between 30-50. According to statistics women account for 64% of instances of cholecystitis. The most common cause includes gallstones followed by eating a lot of fatty food and fasting for a long time. Many cases involve comorbid conditions like type 2 diabetes mellitus and hypothyroidism. In the majority of cases, right hypochondrium pain and epigastric pain were evident. Murphy sign is positive in 80% of patients and 40% of patients presented with obstructive jaundice with choledocholithiasis. 40% of patients presented with identical complaints in past which were treated conservatively but they still had the same complaints this time around. 10% of instances involved anomalies of the pancreas. The decision of conservative management or surgical management is subjective.

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