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Role of Early Cholecystectomy Versus Interval Cholecystectomy-In Biliary Pancreatitis

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A B S T R A C T

Introduction: Gallstone-related acute pancreatitis is one of the most frequent forms of the condition, accounting for around 40% of all cases. Approximately 3% to 8% of patients with symptomatic gallstones may experience acute pancreatitis, with a higher prevalence among females aged 50–70. Recurrent episodes are common, increasing the risks of complications and mortality.

Materials and Methods: A prospective observational study was conducted from June 1, 2021, to May 31, 2022, including 105 patients with mild to moderate biliary pancreatitis admitted to the Department of Surgery, GMCH. Patients were managed with either early cholecystectomy (<7 days from admission) or delayed cholecystectomy (>6 weeks), based on patient consent. Standard hematological and imaging assessments were performed.

Results: Among the 105 participants, 45 (43%) were male and 60 (57%) female, with the highest incidence (31.4%) in the 51–60 age group. Abdominal pain was universal, followed by vomiting (91%), jaundice (29%), and fever (17%). Early cholecystectomy was performed in 75 patients, and delayed surgery in 30. Hospital stay was significantly shorter and cost lower in the early group, with no readmissions, unlike the delayed group, where 12 readmissions occurred.

Conclusion: Laparoscopic cholecystectomy performed during the initial hospital stay for mild to moderate biliary pancreatitis is safe, effective, and prevents recurrence, making it the preferred approach.

Keywords: Biliary Pancreatitis, Laparoscopic Cholecystectomy, Early Surgery, Interval Surgery.

INTRODUCTION

The pancreas, a retroperitoneal organ, plays a critical role in digestion but is often referred to as both enigmatic and unforgiving due to its complex response to injury. Acute pancreatitis is characterized by sudden onset abdominal pain, elevated pancreatic enzyme levels (amylase or lipase) three times above normal, and inflammation evident on contrast-enhanced imaging. The pathology primarily stems from premature enzyme activation within the gland, resulting in autodigestion.

Globally, acute pancreatitis ranks among the most common gastrointestinal conditions requiring hospitalization, and its incidence continues to rise. Various etiological factors contribute to its development, including gallstones, alcohol consumption, trauma, infections, and genetic predisposition. Among these, gallstone-induced or biliary pancreatitis remains the leading cause.

In individuals with symptomatic gallstones, 3% to 8% may develop acute pancreatitis, with a greater incidence observed in women aged 50 to 70. Without timely surgical intervention, recurrent biliary pancreatitis is likely, with recurrence seen in nearly 30% of cases. Therefore, laparoscopic cholecystectomy is often recommended during the same hospital admission for patients with mild to moderate biliary pancreatitis to prevent recurrence.

Recent literature supports the safety and feasibility of performing laparoscopic cholecystectomy during the initial

hospitalization—a practice known as "same admission cholecystectomy." This approach has shown favorable outcomes and a significant reduction in disease recurrence.

AIMS AND OBJECTIVES

1) To analyze the results of Early versus Delayed Cholecystectomy in Biliary pancreatitis.
2) To study the advantages and disadvantages of Early versus Delayed Cholecystectomy in Biliary pancreatitis (Same Admission or Interval Cholecystectomy).

MATERIALS & METHODS

Study Design and Duration

A prospective comparative study was conducted at the Department of Surgery, Gauhati Medical College and Hospital over a period of 12 months, from June 1, 2021, to May 31, 2022.

Study Population

A total of 105 patients diagnosed with mild to moderate biliary pancreatitis were enrolled based on predefined inclusion and exclusion criteria.

Inclusion Criteria

- Patients with a confirmed diagnosis of mild to moderate biliary pancreatitis.

Exclusion Criteria

- Cases presenting with severe pancreatitis associated with systemic inflammatory response syndrome (SIRS) or multi-organ dysfunction syndrome (MODS).
- Patients with chronic or necrotizing pancreatitis.
- Pancreatitis from non-biliary causes.

Data Collection

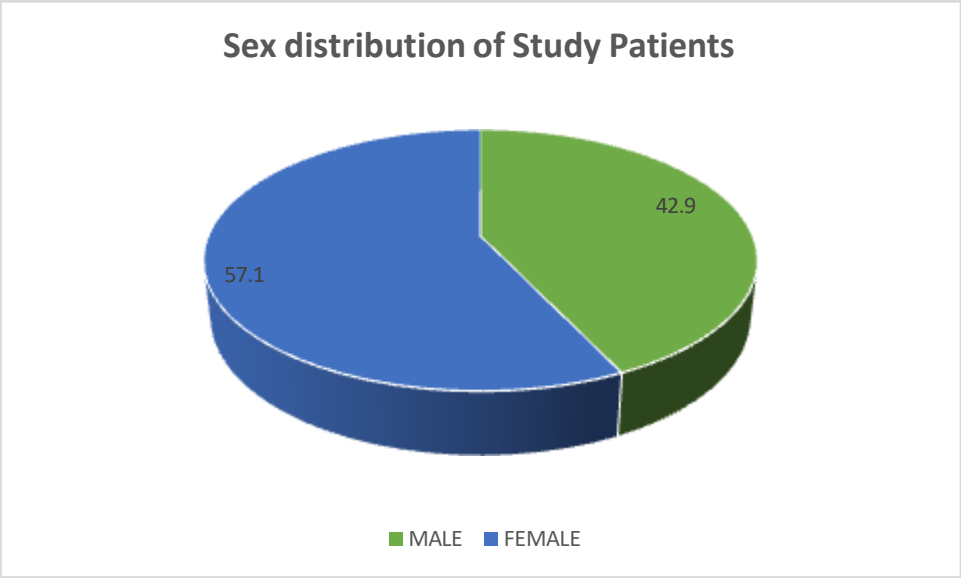
All participants underwent relevant hematological and radiological evaluations. Based on clinical findings and informed consent, patients were categorized into two groups:

- **Early Cholecystectomy Group**: Underwent laparoscopic cholecystectomy within 7 days of admission.
- **Delayed Cholecystectomy Group**: Underwent surgery more than 6 weeks post-discharge.

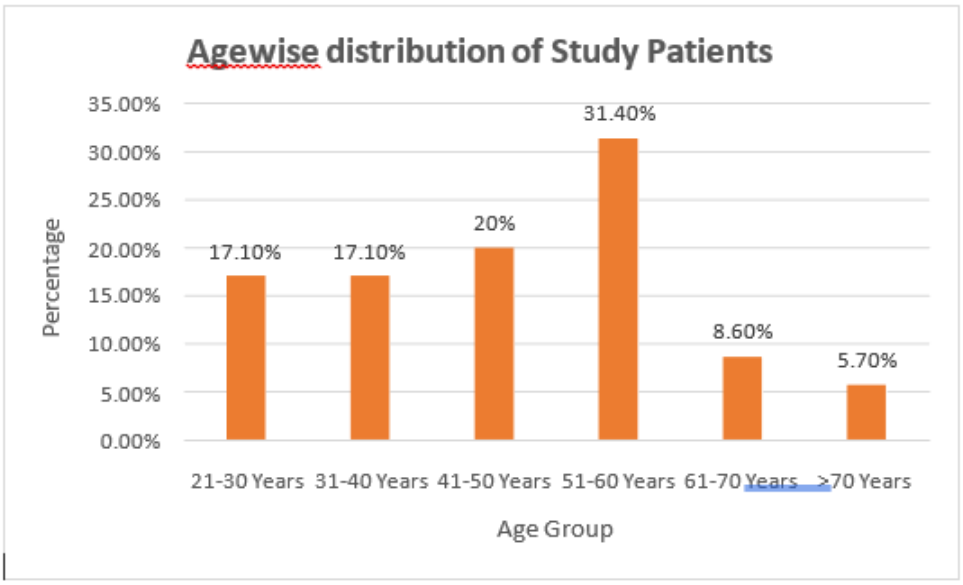
A structured proforma was used to gather patient demographics, clinical presentations, lab reports, imaging results, and intraoperative findings. All surgeries were conducted by experienced surgeons following standard laparoscopic techniques.

RESULTS AND OBSERVATIONS

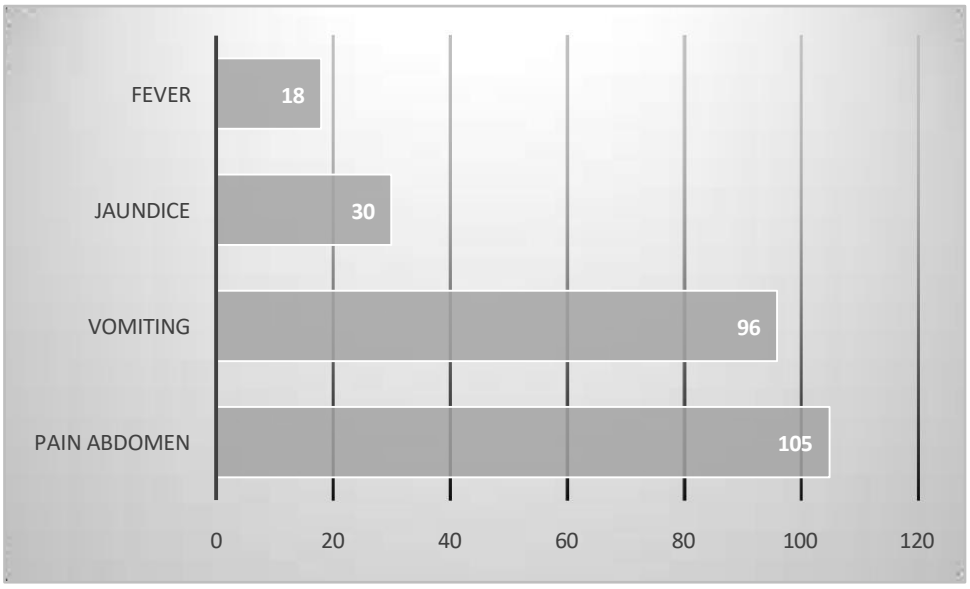
Our study population comprised 105 patients of Mild to Moderate Biliary Pancreatitis, out of which 45 patients(43%) were Male and 60 patients(57%) were Female.



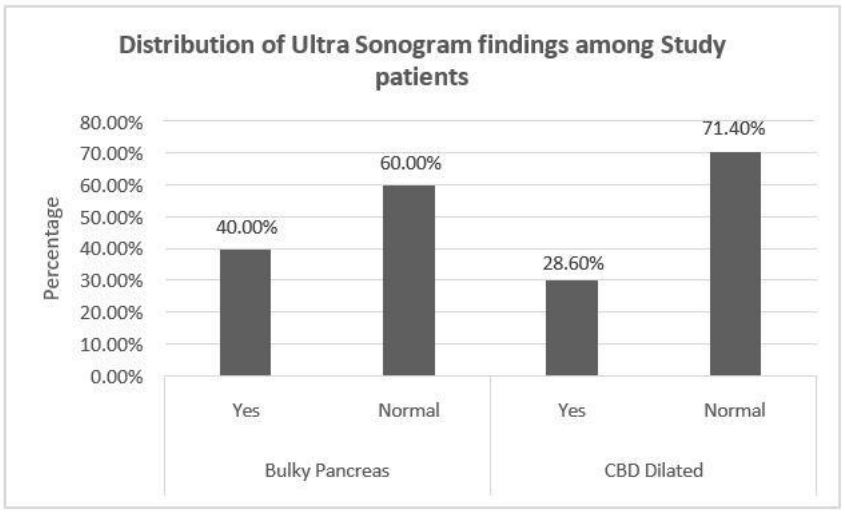
Majority of the patients (31.4%) were observed to be in the Age group of 51-60yrs.



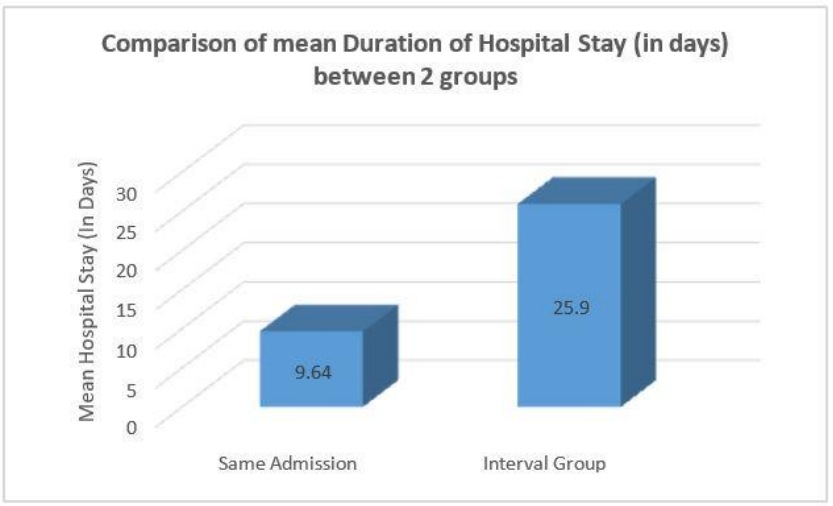
Clinical presentations were Pain Abdomen in all 105 patients(100%), Vomiting in 96 patients(91%), Jaundice in 30 patients(29%) and Fever in 18 patients(17%).



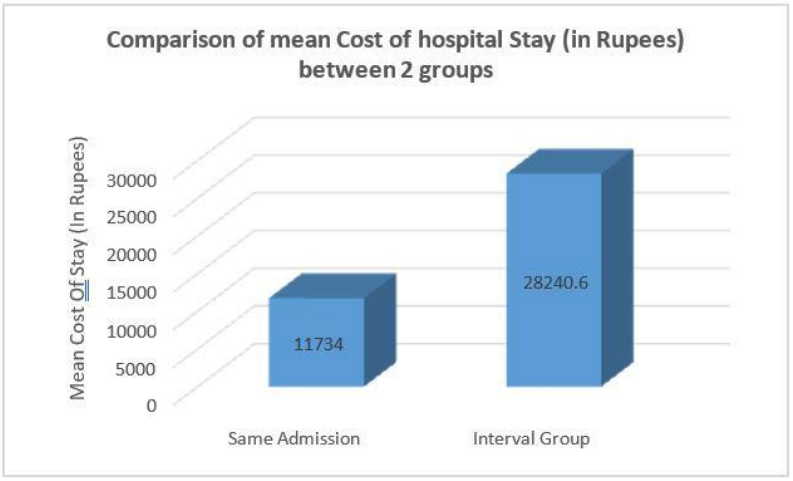
On Ultrasonogram, 42 patients(40%) had Bulky pancreas and30 patients(28.6%) had Dilated CBD.
30 patients with Dilated CBD on USG, underwent MRCP. Out of which 9 patients had passed out calculi, remaining 21 patients underwent ERCP.
CECT is done in 15patients.



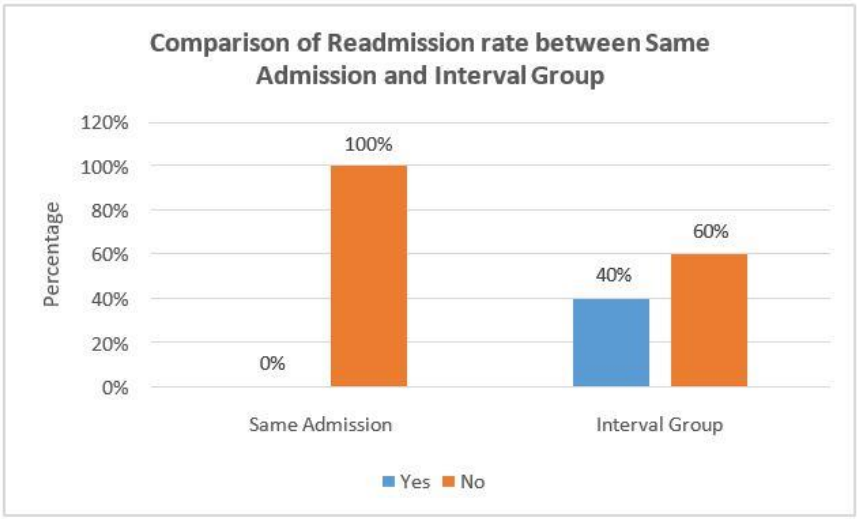
Mean duration of hospital stay in same admission group is 9.64 days compared with interval group of 25.9 days.



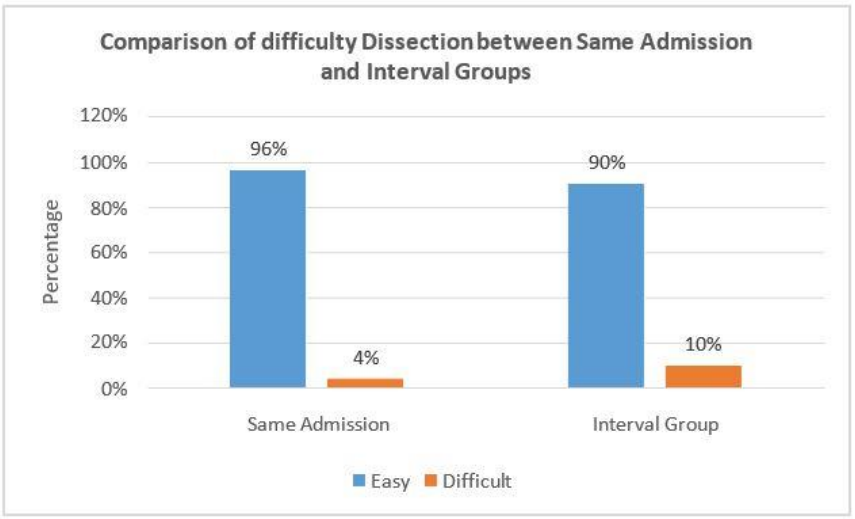
In same admission group, cost of hospital stay is Rs 11734 compared with Rs 28240.60 ininterval group with cost difference of Rs 16506.60.



In interval group, 12 patients had recurrent pancreatitis with readmission to the hospital but in same admission group there was no readmission to the hospital.



In Same Admission group, 3 patients had difficulty in dissection due to short cystic duct but in Interval Group also 3 patients had difficulty in dissection due to severe adhesions around the gallbladder. But there was no significant difference in dissection noted between both group during surgery.



DISCUSSION

Biliary pancreatitis remains the leading cause of acute pancreatitis worldwide. Without timely surgical intervention, approximately 30% of affected patients may develop recurrent episodes, which can increase both morbidity and mortality. Laparoscopic cholecystectomy is regarded as the definitive treatment for patients with mild to moderate disease.

Despite widespread agreement on the need for cholecystectomy, the **timing of the procedure**—whether to operate during the same admission or delay surgery—continues to generate debate. Traditionally, many surgeons favored interval cholecystectomy, performed 6 weeks or more after resolution of symptoms. This preference was primarily due to concerns that early surgery might:

1. Be technically more demanding,
2. Be poorly tolerated by acutely ill patients,
3. Be limited by institutional or logistical challenges.

However, emerging evidence and recent clinical studies suggest that these assumptions may be outdated. Some surgeons initially avoided early surgery believing that inflammation and edema around the Calot's triangle would obscure anatomy and complicate dissection. In contrast, our experience aligns with recent reports that **early-stage edema can facilitate a cleaner dissection**, while delayed intervention often encounters **dense fibrotic adhesions**, making surgery more complex.

Studies have emphasized that **same admission laparoscopic cholecystectomy** is both feasible and beneficial, reducing

the risk of recurrence without increasing operative risk. Our findings are consistent with those of Van Baal et al., Rosing et al., and Bakker et al., who all observed lower recurrence rates and no significant difference in surgical complications with early intervention.

Demographically, the patient profile in our study reflects trends reported in the literature, with a higher prevalence among females (57%) and common presentation in the fifth to sixth decade of life. The incidence of abdominal pain, vomiting, jaundice, and fever closely mirrored patterns seen in prior studies.

Hospital stay and cost were significantly lower in the early group. This supports findings from authors like Alimoglu, Demir, and Da Costa, who also reported shorter hospitalization and reduced healthcare expenditure with early surgery. Importantly, the **readmission rate** in the delayed group (40%) mirrors prior findings by Shir Li Jee, Ito, and Uygardamir, who also reported recurrence rates ranging from 33% to 55% in interval surgery groups.

Intraoperative factors such as operative time, need for conversion to open surgery, and complications showed no significant difference between the early and delayed groups in our study, further validating the **safety and reliability of early cholecystectomy**.

CONCLUSION

This prospective study, conducted over a one-year period and involving 105 patients diagnosed with mild to moderate biliary pancreatitis, offers clear evidence in support of early surgical intervention.
Key conclusions from the study include:

- **Same admission laparoscopic cholecystectomy**, performed after the resolution of acute symptoms, significantly reduces the risk of recurrent biliary pancreatitis without adding surgical morbidity.
- Early surgery is associated with a **shorter hospital stay**, **lower treatment costs**, and **reduced readmission rates**, offering both clinical and economic advantages.
- No significant differences were observed between the early and delayed groups in terms of intraoperative challenges, conversion to open surgery, or complication rates.

Overall, **index admission cholecystectomy** in cases of mild to moderate biliary pancreatitis is a **safe, feasible, and preferred approach**, and should be recommended as the standard of care in suitable patients.

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