

Early Versus Delayed Cholecystectomy- In Biliary Pancreatitis

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ABSTRACT

Introduction: Acute pancreatitis due to Gallstones (Biliary Pancreatitis) is most common which constitute 40% of cases. The overall incidence of Acute Pancreatitis in patients with symptomatic gallstone disease is 3% to 8%. It is seen more frequently in women between 50 and 70 years of age.¹ Most of the patients with Biliary Pancreatitis develop recurrent attacks which increases the mortality and morbidity.

Materials and Methods: During the period of study from 1st June 2021 to 31st May 2022, 105 patients with Mild to Moderate Biliary Pancreatitis admitted in Department of Surgery, GMCH were taken up for the purpose of the study. Appropriate hematological and radiological investigations were done as required. Early² (< 7days) and Delayed Cholecystectomy (> 6weeks) were done depending upon the consent of the patient.

Results and Observations: Our study population comprised 105 patients of Mild to Moderate Biliary Pancreatitis out of which 45 patients were Male (43%) and 60 patients were Female (57%). Majority of the patients (31.4%) were observed to be in the Age group of 51-60yrs. Clinical presentations were Pain Abdomen (100%), Vomiting (91%), Jaundice (29%) and Fever (17%). Out of 105 patients, 75 patients underwent Index Admission Early Cholecystectomy and 30 patients underwent Delayed/Interval Cholecystectomy.

Conclusion: Laparoscopic Cholecystectomy is the definitive treatment for all patients with Mild to Moderate Acute Biliary Pancreatitis. From the study, it has been found that Same Admission Cholecystectomy for all patients with Mild to Moderate Biliary Pancreatitis appears to be safe, feasible and recommended.

Keywords: Biliary Pancreatitis, Early Cholecystectomy, Delayed Cholecystectomy.

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I. INTRODUCTION

Pancreas is the mysterious and the most unforgiving organ of human body which is located in the retroperitoneum.

Acute pancreatitis is defined as an acute condition presenting with abdominal pain, a threefold or greater rise in the serum levels of the pancreatic enzymes amylase or lipase, and/ or characteristic findings of pancreatic inflammation on contrast enhanced CT.

The mechanism of injury in pancreatitis is due to the premature activation of pancreatic enzymes within the pancreas, leading to a process of autodigestion.³

Acute pancreatitis is the most common gastrointestinal disease for which patients are hospitalized and its incidence is rising.⁴

The etiology and pathogenesis of acute pancreatitis have been intensively investigated for centuries worldwide. It can be initiated by several factors including gallstone, alcohol, trauma, infection, hereditary factors, etc.

Biliary pancreatitis is the most common cause of Acute Pancreatitis. The overall incidence of Acute Pancreatitis in patients with symptomatic gallstone disease is 3% to 8%. It is seen more frequently in women between 50 and 70 years of age.¹

Most of the patients with Biliary Pancreatitis develop recurrent attacks which increases the mortality and morbidity. Acute Recurrent Biliary Pancreatitis is seen in 30% of patients if definitive treatment is not done, hence laparoscopic cholecystectomy is indicated for all patients with mild to moderate Acute Biliary Pancreatitis during the Index Admission to hospital.

Studies have shown that Same Admission Cholecystectomy, defined as laparoscopic cholecystectomy during the initial admission to the hospital, is a safe procedure that decreases the recurrence of the disease.⁵

II. 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).

III. MATERIALS& METHODS

It is a prospective comparative study conducted in Gauhati Medical College and Hospital in the period of 1 year from 1st June 2021 to 31st May 2022, wherein, 105 patients with Mild to Moderate Biliary pancreatitis admitted in Department of Surgery were taken up for the purpose of study.

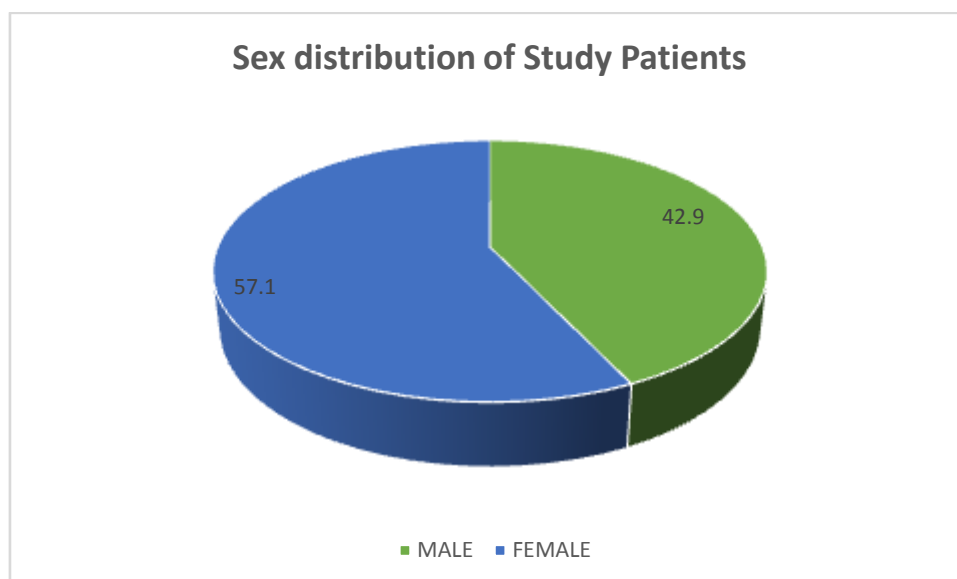
Patient selection: Patients selected for this study are those diagnosed with Mild to Moderate Biliary Pancreatitis.

Exclusion criteria: Severe pancreatitis with SIRS and MODS, Chronic pancreatitis/necrotising pancreatitis, Pancreatitis other than Biliary etiology are excluded.

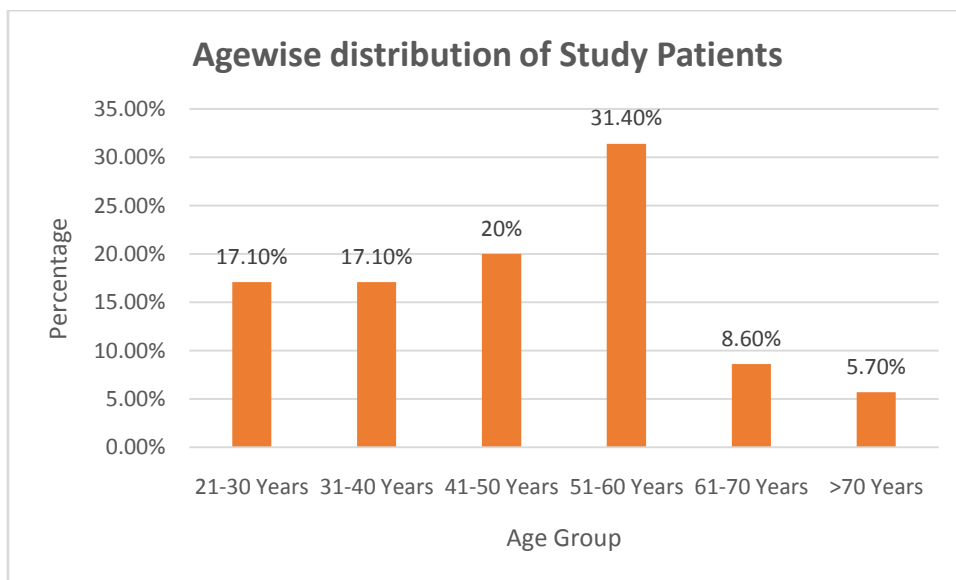
Methods of data collection: Appropriate hematological and radiological investigations were done as required in those cases of Mild to Moderate Biliary Pancreatitis. The patients were evaluated and given option for same admission and interval cholecystectomy after explaining advantages and disadvantages of both procedure. A proforma was used to collect relevant information (patient data, clinical findings, lab investigations, operative findings) from all the selected patients.

IV. RESULTS AND OBSERVATIONS

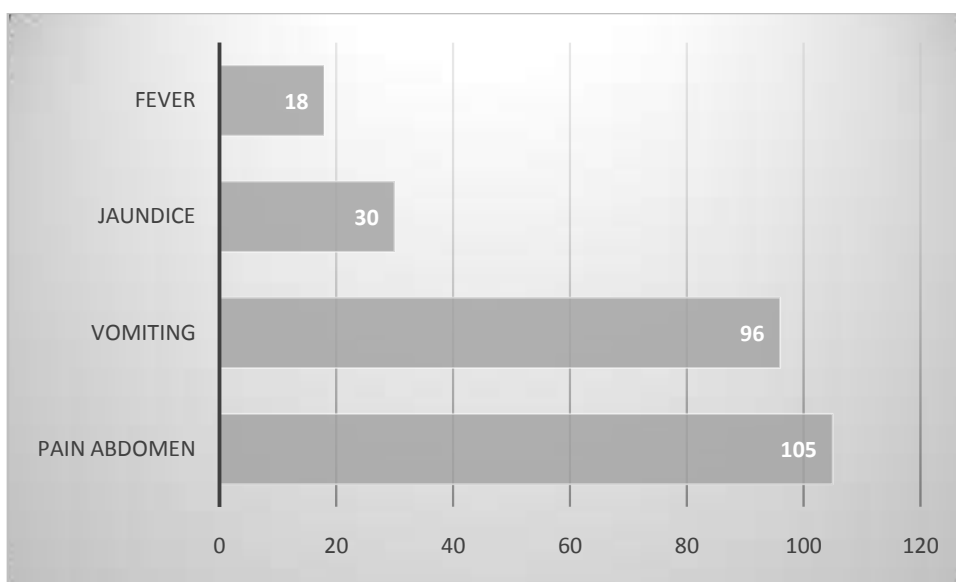
Our study population comprised 105 patients of Mild to Moderate Biliary Pancreatitis, out of which 45 patients(43%) were Male and 60 patients(57%) were Female.



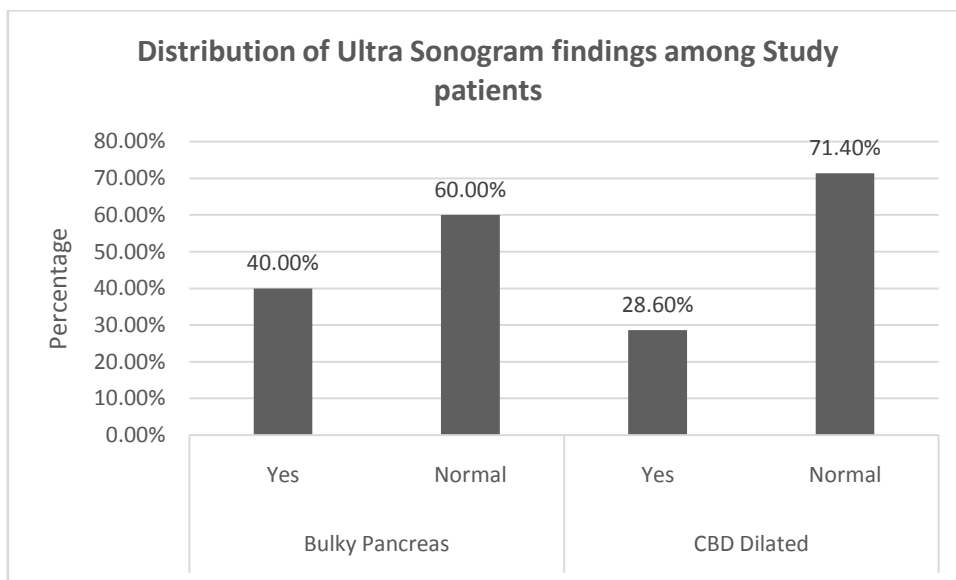
Majority of the patients(31.4%) were observed to be in the Age group of 51-60yrs.



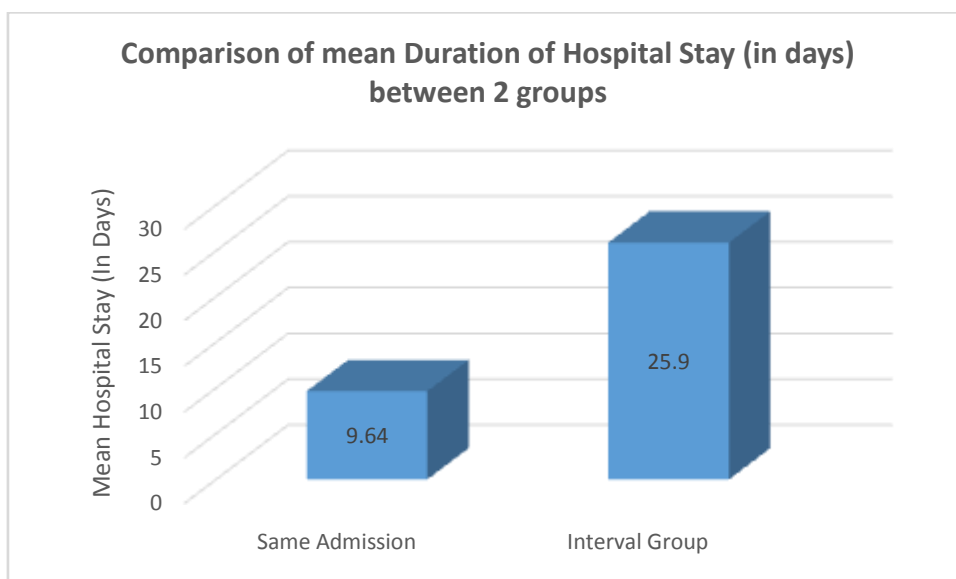
Clinical presentations were Pain Abdomen in all 105 patients(100%), Vomiting in 96 patients(91%), Jaundice in 30 patients(29%) and Fever in 18 patients(17%).



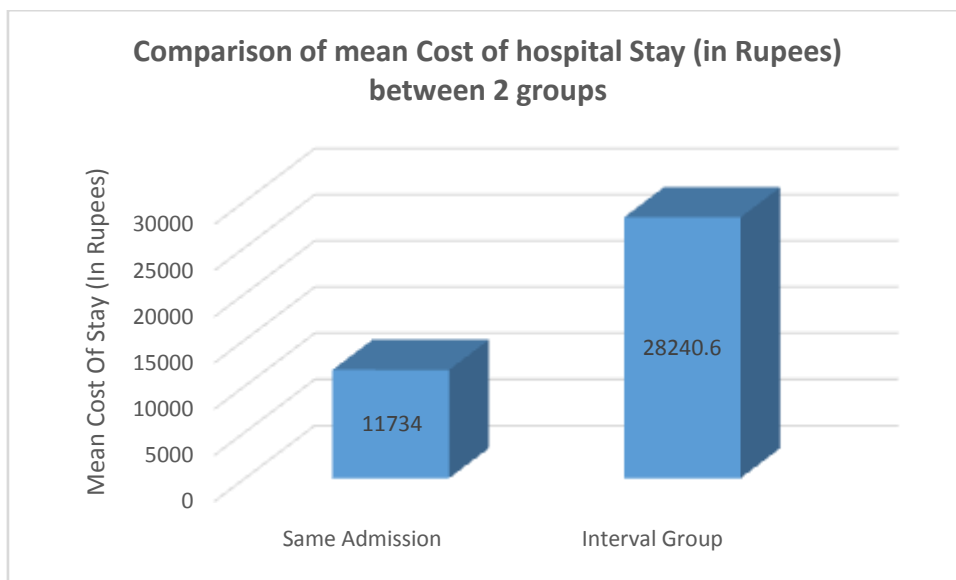
On Ultrasonogram, 42 patients(40%) had Bulky pancreas and 30 patients(28.6%) had Dilated CBD. 30 patients with Dilated CBD on USG, underwent MRCP. Out of which 9 patients had passed out calculi, remaining 21 patients underwent ERCP. CECT is done in 15 patients.



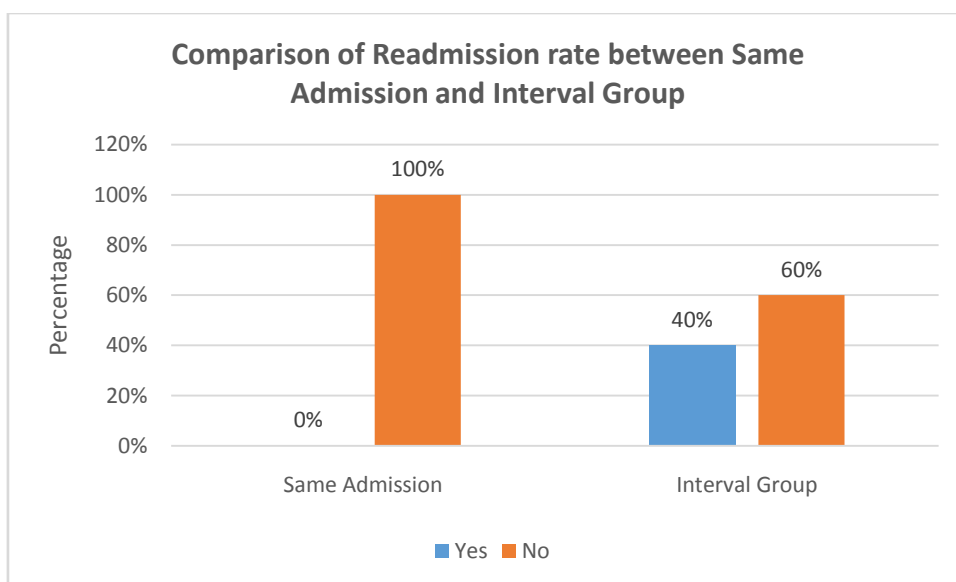
Mean duration of hospital stay in same admission group is 9.64 days compared with interval group of 25.9 days.



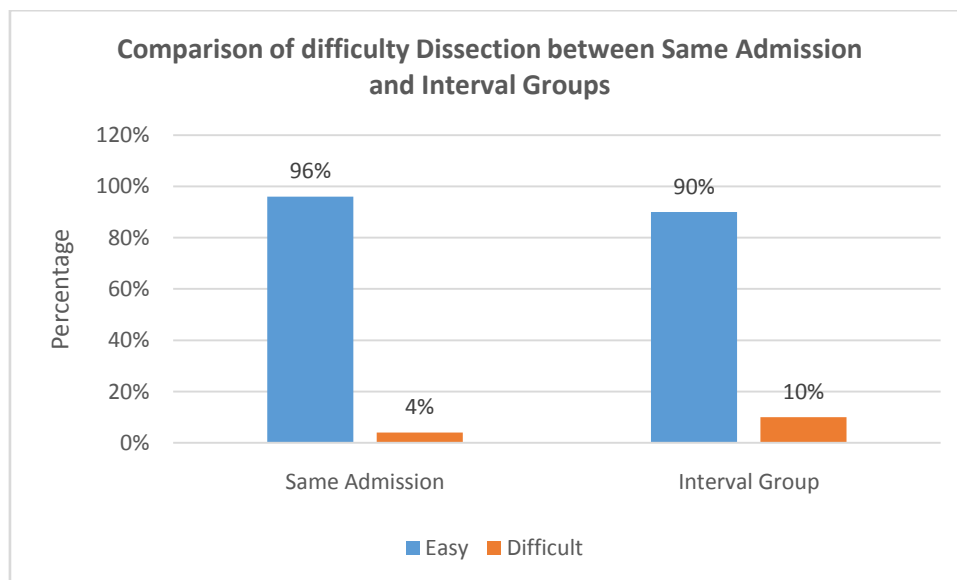
In same admission group, cost of hospital stay is Rs 11734 compared with Rs 28240.60 in interval group with cost difference of Rs 16506.60.



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 groups during surgery.



V. DISCUSSION

Biliary pancreatitis is the most common cause of Acute Pancreatitis and Acute Recurrent Biliary Pancreatitis is seen in 30% of patients if definitive treatment is not done, hence laparoscopic cholecystectomy is the definitive treatment for all patients with mild to moderate Acute Biliary Pancreatitis.

However, the optimal timing of Cholecystectomy for Biliary pancreatitis is still controversial, since long time. In the past, surgeons used to perform Interval Cholecystectomy (>6 weeks) rather than Same Admission (<7 days) laparoscopic cholecystectomy after Biliary pancreatitis, due to the fact that, same admission cholecystectomy may have three potential drawbacks:

1. A technically more difficult and demanding procedure potentially resulting in more complications;
2. Poorer patient condition in early phase; and
3. Logistical obstacles.⁶

The other reason against an early intervention is the belief that, in the period immediately following the acute attack, the anatomy in the Calot's triangle is difficult to assess and dissection is both dangerous and difficult. Most of the patients in the Early group had fibrinous omental adhesions where dissection was very easy. In addition the edema in and around the CBD and cystic duct in the initial stages, which persists up to seven days makes dissection easier rather than difficult. It is only later when the edema is replaced by dense adhesions that dissection may become difficult.⁶

Surgeons who recommend cholecystectomy during the same admission argue that recurrent biliary pancreatitis may be severe and potentially fatal.⁷

Several studies have shown that same admission cholecystectomy for mild-moderate biliary pancreatitis appears to be safe and recommended, after pancreatitis resolves.^{8,9,10} International guidelines suggest that same admission cholecystectomy, prior to discharge, appears safe and can almost always be accomplished laparoscopically.¹¹

Currently, the majority of surgeons advocate and perform cholecystectomy urgently, when symptoms have subsided and laboratory values have normalized, usually during the same hospital admission for mild-moderate and self-limited Biliary pancreatitis.¹²⁻²⁰

In our study, demographic profile and clinical presentation remains same and also female (57%) are affected more than male (43%) as quoted in the literature.

In terms of duration of hospital stay, it was significantly shorter in same admission group (9.64 days) compared to interval group (25.9 days) comparable with Alimoglu et al study²¹ (15.29 days versus 36.6 days), Uygardamir et al study²² (6.8 versus 9.4 days), Shir le jee et al study²³ (8 days versus 9 days).

Overall cost of hospital stay in same admission group is Rs 11734, which is statistically less than interval group of Rs 28240.60 with a difference of Rs 16506.60, which is comparable with Da costa et al study.²⁴

In our study interval group has readmission rate of 40% with no readmission rate in same admission group, comparable with Shir li jee et al²³ (44%), Ito et al²⁵ (33%) and Uygardamir et al²² (55%) hence same admission cholecystectomy for mild to moderate Biliary pancreatitis has significant advantage of reducing recurrent Biliary pancreatitis.

The mean intra operative time in same admission group is 83.04 min versus 85.6 min in interval group is comparable with Shir le jee et al.²³

There was no conversion to open cholecystectomy and intraoperative complication in both group and comparable with Aboulianet al.²⁶

From the above result it is supported that same admission cholecystectomy for mild to moderate Biliary pancreatitis is preferred over interval cholecystectomy in term of duration of hospital stay, cost of hospital stay and readmission rate, but no significant difference in term of conversion rate, mean intra operative time and intra operative complication, this emphasize safety and feasibility of same admission cholecystectomy in patient with mild to moderate Biliary pancreatitis.

Limitations of the study:

1. Due to small sample size uniform comparison between two group was not possible.
2. Shorter study period.
3. Selection Bias due to non randomization of sample.

VI. CONCLUSION

From the prospective study on 105 patients of mild to moderate Biliary pancreatitis carried out over a period of 12 months, the following conclusions can be drawn:

1. Same admission cholecystectomy for mild to moderate Biliary pancreatitis after regression of first attack can significantly reduces the recurrent pancreatitis with no significant morbidity.
2. Same admission cholecystectomy has advantage over interval cholecystectomy in reducing duration of hospital stay, cost of hospital stay and readmission rate.
3. In terms of conversion to open, intra operative time, difficult during surgery and intra operative complications, no significant difference is noted in both group.
4. The optimal timing of cholecystectomy for mild to moderate Biliary pancreatitis is same admission cholecystectomy after regression of pancreatitis.

Hence, from the above results, it can be concluded that Index Admission Laparoscopic Cholecystectomy in cases of Mild to Moderate Biliary Pancreatitis is a safe, feasible, acceptable and recommended procedure.

REFERENCES

- [1]. Courteny M Townsend, Jr, R. Daniel Beauchamp B. markevers, Kenneth L. Mattox et al., Exocrine pancreas. "Sabiston textbook of surgery" 20th ed. Elsevier 2016; 55:1524-1525, 1520-21, 152
- [2]. Norrby S, Herlin P, Holmin T, Sjö Dahl R, Tagesson C. Early or delayed cholecystectomy in acute cholecystitis? A clinical trial. *Journal of British Surgery*. 1983 Mar; 70(3):163-5.
- [3]. Norman S, William S P, Ronan o connell andrew W, McCaskie et al., The pancreas. "Bailey and love's short practice of surgery" 27th ed. CRC Press, Taylor and Francis group 2018; 68:1221-1213
- [4]. Peery AF, Dellon ES, Lund J, et al. Burden of gastrointestinal disease in the United States: 2012 update. *Gastroenterology*. 2012; 143:1179-1187. e1-e3.
- [5]. Larson SD, Nealon WH, Evers BM: Management of gallstone pancreatitis. *Adv Surg* 40:265-284, 2006.
- [6]. Sinha R. Early laparoscopic cholecystectomy in acute biliary pancreatitis: the optimal choice? *HPB (Oxford)*. 2008; 10: 332-335.
- [7]. Gullo L, Migliori M, Pezzilli R, Oláh A, Farkas G, Levy P, et al. An update on recurrent acute pancreatitis: data from five European countries. *Am J Gastroenterol*. 2002; 97: 1959-1962.
- [8]. Van Baal MC, Besselink MG, Bakker OJ, et al. Timing of cholecystectomy after mild biliary pancreatitis: a systematic review. *Ann Surg*. 2012; 255(5):860-866
- [9]. Rosing DK, de Virgilio C, Yaghoobian A, et al. Early cholecystectomy for mild to moderate gallstone pancreatitis shortens hospital stay. *J Am Coll Surg*. 2007; 205(6):762-766.
- [10]. Bakker OJ, van Santvoort HC, Hagenaars JC, et al. Timing of cholecystectomy after mild biliary pancreatitis. *Br J Surg*. 2011; 98(10):1446-1454.
- [11]. Working Group IAP/APA Acute Pancreatitis Guidelines: IAP/APA evidence based guidelines for the management of acute pancreatitis, *Pancreatol* 13:e1-e15, 2013.
- [12]. Campbell EJ, Montgomery DA, Mackay CJ. A national survey of current surgical treatment of acute gallstone disease. *Surg Laparosc Endosc Percutan Tech* 2008; 18:2427.
- [13]. Kimura Y, Takada T, Kawarada Y, et al. JPN Guidelines for the management of acute pancreatitis: treatment of gallstone-induced acute pancreatitis. *J Hepatobiliary Pancreat Surg* 2006; 13:56-60.
- [14]. UK guidelines for the management of acute pancreatitis. *Gut* 2005; 54 Suppl 3:iii1-9.
- [15]. Nebiker CA, Frey DM, Hamel CT, Oertli D, Kettelhack C. Early versus delayed cholecystectomy in patients with biliary acute pancreatitis. *Surgery* 2009; 145:260-4.
- [16]. Sinha R. Early laparoscopic cholecystectomy in acute biliary pancreatitis: the optimal choice? *HPB (Oxford)* 2008; 10:332-5.
- [17]. Chiang DT, Thompson G. Management of acute gallstone pancreatitis: so the story continues. *ANZ J Surg* 2008; 78:52-4.
- [18]. Singhal T, Balakrishnan S, Grandy-Smith S, Hunt J, Asante M, El-Hasani S. Gallstones: best served hot. *JLS* 2006; 10:332-5.
- [19]. Taylor E, Wong C. The optimal timing of laparoscopic cholecystectomy in mild gallstone pancreatitis. *Am Surg* 2004; 70:971-5.
- [20]. Cameron DR, Goodman AJ. Delayed cholecystectomy for gallstone pancreatitis: re-admissions and outcomes. *Ann R Coll Surg Engl* 2004; 86:358-62.
- [21]. Alimoglu O et al., Timing of cholecystectomy for acute biliary pancreatitis: outcomes of cholecystectomy on first admission and after recurrent biliary pancreatitis. *World J Surg* 27(3): 256-259, 2003.)
- [22]. Uygur Demir et al., " Timing of cholecystectomy in biliary pancreatitis treatment" . *Turkey journal of surgery*. 2014; 30(1):10-13

- [23]. Shir li jee et al, ramzanjarmin et al., "Outcomes of early versus delayedcholecystectomy in patients with mild to moderate acute biliary pancreatitis: A randomized prospective study". Asian Journal of Surgery .2018;41: 47-54
- [24]. da costa DW et al, "Cost-effectiveness of same-admission versus intervalcholecystectomy after mild gallstone pancreatitis in the PONCHO trial".Br JSurg. 2016 Nov;103(12):1695-1703.
- [25]. Ito K, Ito H and Whang EE. Timing of cholecystectomy for biliarypancreatitis: do the data support current guidelines? J Gastrointest.Surg12(12):2164-2170, 2008. PMID: 18636298.
- [26]. Aboulian A, Chan T, Yaghoubian A, Kaji AH, Putnam B, Neville A, et al.Early cholecystectomy safely decreases hospital stay in patients with mildgallstone pancreatitis: a randomized prospective study. Ann Surg. 2010; 251:615-619.

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