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The Value of Jejunal Tube in the Treatment of Severe Acute Pancreatitis

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Abstract

Background: Severe acute pancreatitis (SAP) is associated with high morbidity and mortality due to the development of pancreatic and an infection that follows extra-pancreatic necrosis, and multisystem organ failure (MOF). Objective: To determine the value of jejunal tube in the treatment of severe acute pancreatitis. Methods: A cross-sectional study was conducted at Saidu group of teaching hospitals, Saidu Sharif Swat, Pakistan, which was performed between July 2020 and March 2022. The total number of patients in our study was 112. The number of Male patients was 33 and females were 79. In 112 consecutive patients who underwent for blood tests and Procedures. We did CT scan for all patients to determine the grade of pancreatitis. Data was tabulated and analyzed by SPSS. Results: In a current study total of 112 patients were enrolled with mean±SD age of 52.61±5.54 years. The maximum age was 61 and minimum ages were 41. The mean±SD of serum lipase was 639.56±209.9. The maximum serium lipase was 1107 and minimum serium lipase was 299. The mean±SD of time of patients' recovery was 5.96±1.09. The maximum time of patient's recovery was 10 and minimum time of patient recovery was 5. The mean±SD of recovery days was 5.63±0.78. The maximum recovery days of patients were 9 and minimum recovery time was 5. Bar graph showing gender distribution in which female patients were 79 and male patients were 33. In this graph female patients were more as compared to male patients. The number of patients with abdominal pain was 109. The number of patients came to hospital with nausea was 86. The number of patients present with vomiting was 26. The patients who have gall stone were 51. The effectivenss of J-Tube in patients was 33. The complication was noted in 4 patients and the jejunal tubes were passed to 36 patients. Mild pancreatitis patients were 22%, moderate pancreatitis patients were 48% and severe pancreatitis patients were 30%. P- value effectiveness of J-Tube in age group was 0.477. P- value effectiveness of J-Tube in gender was 0.09. The P-value complication of the gender group were 0.18. Conclusion: The recovery time of patients from severe acute pancreatitis was 5 to 10 days. Jejunal tube is more effective in the patients who has more vomiting in severe acute pancreatitis. Jejunal tube is passed to the patient as soon as possible when patient is diagnosed with sever acute pancreatitis. In severe acute pancreatitis patients have more vomiting and abdominal pain. We can diagnose patient with sever acute pancreatitis on Serium lipase blood test. In our study females were more as compare to males.

Keywords: Severe Acute Pancreatitis (SAP), Multi Organ Failure (MOF), Acute Pancreatitis (AP), Enteral Nutrition (EN)

1. Introduction

Severe acute pancreatitis (SAP) is associated with high morbidity and mortality due to the development of pancreatic and an infection that follows extra-pancreatic necrosis, and multisystem organ failure (MOF) (Zerem 2014). The most frequent specific gastrointestinal diagnosis for inpatient hospitalization is acute pancreatitis (AP), with annual inpatient expenditures estimated to be $2.6 billion (Krishna et al., 2017). Even with the greatest standards of care being reached in the modern period, acute pancreatitis secondary to gallstones still poses a challenge to clinicians. Gallstones are the etiological cause in 30–50% of cases (Sangrasi et al., 2014). About 25% of patients with acute pancreatitis (AP) progress to severe acute pancreatitis (SAP) (Beger et al., 2007). Persistent alcohol misuse and gallstones continue to be the main causes of AP (Yang et al., 2020). The three most typical causes of AP are idiopathic, alcohol-associated, gallstone and biliary-related. The bulk of AP instances are caused by these three factors (Chatila et al., 2019). In our nation, the prevalence of pancreatitis is rising daily, and gallstone disease is one of the main causes of this condition (Ahmad et al., 2018). A patient presented with abrupt onset vomiting and nausea along with epigastric pain radiating to the back (Shah et al., 2018). Particular dietary difficulties arise from severe acute pancreatitis (Lodewijkx et al., 2016). Since it causes fewer infections, major problems, and fatalities than intravenous feeding, feeding liquid nutrition into the stomach or small bowel through a tube is the preferred method. Nonetheless, the best time to begin tube feeding is during the first 48 hours in order to maximize its effectiveness (Dutta et al., 2020). For the majority of patients, early enteral nutrition (EN) beginning within 24 to 48 hours is ideal. Due to its ability to reduce gastrointestinal dysmotility brought on by pancreatic inflammation, EN preserves the integrity of the gut barrier (Jabłońska et al., 2021). Two of the following three criteria form the basis of the diagnosis: (1) Serum lipase or amylase levels more than three times the upper normal range; (2) abdominal pain suggestive with pancreatitis; and (3) distinctive findings from abdominal imaging. The two most common causes of AP are alcohol (25–35%) and gallstones (40–70%) (Lakananurak et al., 2020). Therefore, early dietary management is crucial for Severe acute pancreatitis (SAP) patients. It has been discovered that enteral nutrition (EN) is superior at preserving the integrity and structure of the gut mucos (Song et al., 2018). Increased intestinal permeability combined with metabolic disturbances raises the risk of infections and multiorgan failure, which in turn leads to a worse prognosis and worse survival rates for SAP patients in the absence of early therapies (Ramanathan et al., 2019). The following criteria can be used to diagnose acute pancreatitis: (1) abdominal pain that is consistent with the illness (such as epigastric abdominal pain with potential radiation to the back); (2) lipase or amylase levels that are greater than three times the upper limit of normal; and (3) distinctive imaging features on CT, MRI, or ultrasound that indicate acute pancreatitis (Garber et al., 2018). Compared to USG, computed tomography (CT) is more sensitive and accurate at both diagnosing and demonstrating the extent of the condition. For the majority of patients, CT is an essential diagnostic technique for determining the etiology of endocrine and exocrine pancreatic insufficiency. Of all the gastrointestinal illnesses, pancreatitis is one of the most complicated and clinically difficult (Raghuwanshi et al., 2016). However, guidelines from the pancreatic and gastroenterology societies state that when patients cannot tolerate an oral diet for up to seven days, tube feeding is required, regardless of the severity of the diseas (Bakker et al., 2014). It is acknowledged that jejunal feeding is effective in treating severe acute pancreatitis (AP). Early oral feeding (EOF) is thought to be harmful during the initial stages of AP (Pupelis et al., 2006). When administered early, enteral feeding has the potential to shorten hospital stays in individuals suffering from acute pancreatitis (Vaughn et al., 2017). Maintaining the functional and anatomical integrity of the intestinal mucosal barrier appears to be just as crucial in the management of individuals with severe acute pancreatitis as obtaining "pancreatic rest." The largest immune system organ in the human body is the gastrointestinal tract. It makes up 80% of the tissue that produces immunoglobulins and 65% of the entire immune tissue (Ioannidis et al., 2008). Nutritional care is necessary for all Severe acute pancreatitis (SAP) patients, as they are at risk for malnutrition. One of the debilitating conditions that cause admission to the intensive care unit (ICU) is severe acute pancreatitis (SAP). For patients with SAP or pSAP, enteral feeding within 48 hours of admission is a safe and effective treatment option (Song et al., 2018). In patients with SAP, early enteral feeding via NG was not less effective than NJ (Singh et al., 2012). For patients with anticipated severe acute pancreatitis, enteral feeding reduces the incidence of infectious complications, pancreatic infections, and mortality in a statistically significant and clinically meaningful way. Ten percent or so of individuals with acute pancreatitis experience infectious complications (Petrov et al., 2008).

2. Materials and Methods

A cross-sectional study was conducted at Saidu group of teaching hospitals, Saidu Sharif Swat, Pakistan, which was performed between July 2020 and March 2022. The total number of patients in our study was 112. The number of Male patients was 33 and females were 79. In 112 consecutive patients who underwent for blood tests and Procedures. We did CT scan for all patients to determine the grade of pancreatitis. Data was tabulated and analyzed by SPSS.

3. Results

Table 1: Mean age, Serum lipase, Time of patient's admission and Recovery days of all the enrolled patients (*n=112*)

Variables	Minimum	Maximum	Mean±SD
Age (Years)	41	61.00	52.61±5.54
Serum lipase	299	1107.00	639.56±209.9
Time of patient's admission	5	10	5.96±1.09
Recovery days	5	9	5.63±0.78

Total of 112 patients were enrolled with mean±SD age of 52.61±5.54 years. The maximum age was 61 and minimum age was 41. The mean±SD of serum lipase was 639.56±209.9. The maximum serium lipase was 1107 and minimum serium lipase was 299. The mean±SD of time of patient's recovery was 5.96±1.09. The maximum time of patient's recovery was 10 and minimum time of patient's recovery was 5. The mean±SD of recovery days was 5.63±0.78. The maximum recovery days of patients were 9 and minimum recovery time was 5.
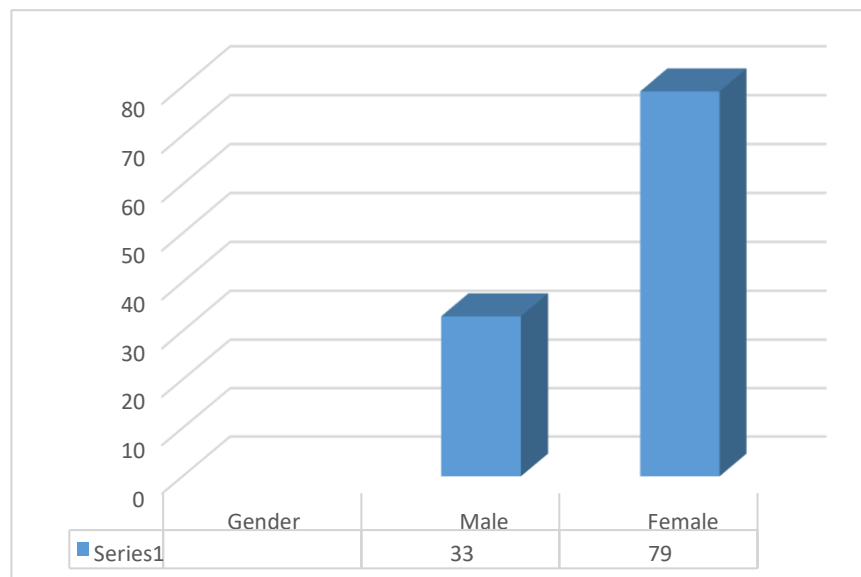
Bar graph showing gender distribution in which female patients were 79 and male patients were 33. In this graph female patients were more as compared to male patients.

Table 2: Patient characteristics of enrolled patients (n=112)

Gender	Frequency	Percentage
Male	33	29.5
Female	79	70.5
Abdominal Pain	109	97.3
Nausea	86	76.8
Vomiting	26	23.2
Pancreatitis Grade		
Mild	25	22.3
Moderate	54	48.2
Severe	33	29.5
Gall Stone		
YES	51	45.5
NO	61	54.5
Effectiveness of J-Tube	33	29.5
Complication	4	3.6
Jejunal Tube	36	32.1

Patient characteristics of enrolled patients in table 2 were (n=112). The frequency of male patients was 33 and its percentage was 29.5. The frequency of female patients was 79 and its percentage was 70.5. The frequency of abdominal pain in patients was 109 and its percentage was 97.3. The frequency of nausea in patients was 86 and its percentage was 76.8. The frequency of vomiting in patients was 26 and its percentage was 23.2. The frequency of mild pancreatitis was 25 and its percentage was 22.3. The frequency of moderate pancreatitis was 54 and its percentage was 48.2. The frequency of sever pancreatitis was 33 and its percentage was 29.5. The frequency of gall stone was present in 51 patients and its percentage was 45.5. The frequency of gall stone was not present in 61 patients and its percentage was 54.5. The effectiveness of J-Tube frequency was 33 and its percentage was 29.5. The frequency of complications in patients was 4 and its percentage was 3.6. The frequency of jejunal tube was 36 and its percentage was 32.1.
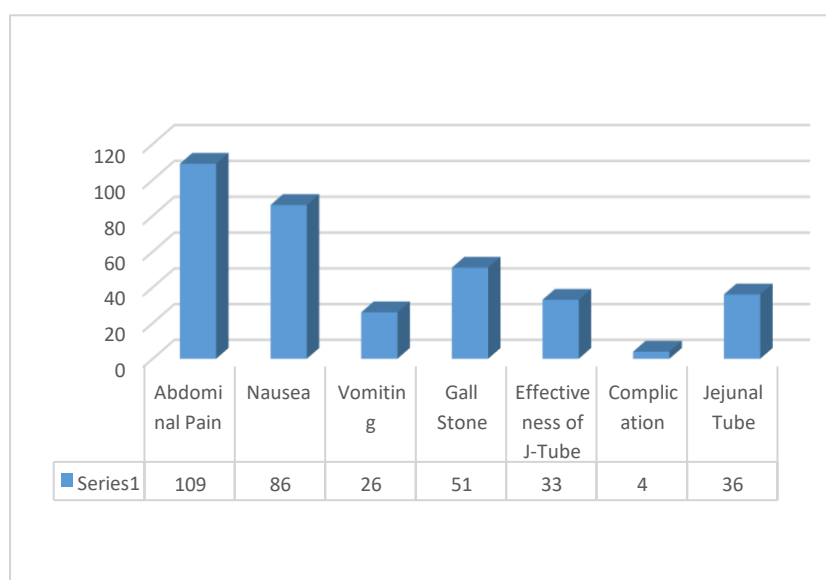

Figure 2: showing different characteristics of all patients

In figure 2 we can clearly see different characteristics. The number of patients with abdominal pain was 109. The number of patients came to hospital with nausea was 86. The number of patients present with vomiting was 26. The patients who have gall stone were 51. The effectiveness of J-Tube in patients was 33. The complication was noted in 4 patients and the jejunal Tube were passed to 36 patients.

Table 3: Effectiveness of J-Tube and its complications

Age groups	Effectiveness of J-Tube	p-value
41-50 years	11(33.3%)	
51-61 years	22(66.7%)	0.477
	Complication	
41-50 years	1(25.0%)	0.57
51-61 years	3(75.0%)	
	Effectiveness of J-Tube	
Male	6(18.2%)	0.09
Female	27(81.8%)	
	Complication	
Male	0(0.0%)	0.18
Female	100(100.0%)	

In table 3 the Effectiveness of J-Tube in age group of 41-50 years was 11(33%) and Effectiveness of J-Tube in age group of 51-61 years was 22(66.7%). Complication of J-Tube in age group of 41-50 years was 1(25%) and Complication of J-Tube in age group of 51-61 years were 3(75 %). P- value effectiveness of J-Tube in age group was 0.477.

Effectiveness of J-Tube in male patients was 6 (18.2 %) and Effectiveness of J-Tube in female patients was 27 (81.8 %). Complication of J-Tube in male patients were 0 (0.0%) and Complication of J-Tube in female patients were 100 (100.0%). P- value effectiveness of J-Tube in gender was 0.09. P-value complication of the gender group was 0.18.
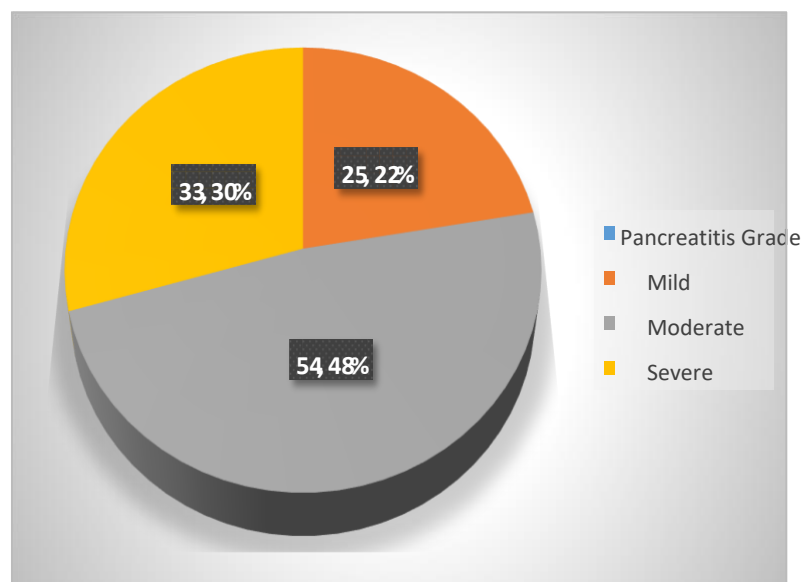

Figure 3: showing distribution of patients on the basis of pancreatitis Grade

In figure 3 distribution of patients on the basis of pancreatitis Grade, Mild pancreatitis patients were 22%, moderate pancreatitis patients were 48% and severe pancreatitis patients were 30%.

4. Discussion

When compared to parenteral nutrition, enteral feeding has been shown to reduce mortality and infection complications. Although it's unclear when enteral nourishment should be started, it seems safe and well-tolerated to start 48 hours early. Although nasogastric or even oral refeeding may be tolerated by certain individuals, the majority of trials have used nasojejunal feeding tubes. Healthcare professionals who treat patients with pancreatitis need to understand how important diet is in avoiding complications from the disease (Krishnan et al., 2017). With an increasing incidence, acute pancreatitis is one of the most prevalent GI diseases requiring immediate hospitalization. Numerous randomized controlled trials have yielded significant insights into the therapy of acute pancreatitis in recent years. Based on this evidence, the management of acute pancreatitis has evolved over time into a customized, interdisciplinary endeavor in which radiologists, surgeons, and gastroenterologists all play unique roles. This review highlights the data from randomized controlled trials when summarising the methods for diagnosing, categorizing, and treating individuals with acute pancreatitis (Van Dijk et al., 2017). The most common causes of acute pancreatitis are gallstones and binge alcohol consumption. There has been an increase in the incidence of acute pancreatitis reported worldwide. Despite improvements in access to care, imaging and interventional techniques, acute pancreatitis continues to be associated with significant morbidity and mortality (Greenberg et al., 2016).

5. Conclusion

The recovery time of patients from severe acute pancreatitis was 5 to 10 days. Jejunal tube is more effective in the patients who have more vomiting in severe acute pancreatitis. Jejunal tube is pass to the patient as soon as possible when patient is diagnose with sever acute pancreatitis. In severe acute pancreatitis patients have more vomiting and abdominal pain. We can diagnose patient of sever acute pancreatitis on Serium lipase blood test. In our study females were more as compare to males.

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