

NUTRITIONAL SUPPORT IN ACUTE SEVERE PANCREATITIS- NASOJEJUNAL VS. NASOGASTRIC FEEDVikas Garg¹, Tejinderpal Singh², P. S. Nain³, Anju Bhagtana⁴, Jyoti Jindal⁵¹Associate Professor, Department of General Medicine, DMC and H, Ludhiana.²Senior Resident, Department of General Surgery, Fortis, Ludhiana.³Professor, Department of General Surgery, DMC and H, Ludhiana.⁴Senior Resident, Department of General Surgery, DMC and H, Ludhiana.⁵Senior Resident, Department of General Medicine, DMC and H, Ludhiana.**ABSTRACT****BACKGROUND**

Nutritional support is an important aspect in the management of acute pancreatitis. Enteral feeding can be given either through nasogastric or nasojejunal route. Studies have shown that nasojejunal tube placement is cumbersome and that nasogastric feeding is an effective means of providing enteral nutrition. However, the concern that nasogastric feeding increases the chance of aspiration and exacerbates acute pancreatitis by stimulating pancreatic secretion has prevented it as the standard of care.

The primary objective of this study was to compare nasogastric feeding and nasojejunal feeding routes of enteral nutrition in acute severe pancreatitis with regards to safety and effectiveness.

MATERIALS AND METHODS

This is a Prospective Descriptive study. This study was done to compare nasogastric vs. nasojejunal feeding in acute severe pancreatitis. The total number of patients in the study were sixty, (n= 60). Thirty patients were in nasogastric feeding group, while thirty patients were in the nasojejunal group (NG group= 30; NJ group= 30).

CONCLUSION

The nasogastric route of enteral nutrition appears to be an effective route of enteral nutrition in predicted severe acute pancreatitis. Nasogastric feeding is safe and well tolerated, and is simple and easy to establish. The nasogastric route of enteral nutrition appears too comparable to the nasojejunal route in terms of safety, tolerance and efficacy. So both the routes can be used for enteral nutrition in acute severe pancreatitis.

RESULTS

Serum albumin as measured in biochemical tests was also similar. Serum albumin was measured in all patients at the end of one week and then at the end of 7 weeks after receiving enteral nutrition. Serum albumin had decreased from the baseline. However, the decrease was comparable in both NG and NJ groups and there was no statistically significant difference in both the groups.

KEYWORDS

Pancreatitis, Nasogastric, Nasojejunal, Feed.

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BACKGROUND

Acute pancreatitis is a common clinical condition of variable severity in which some patients experience mild, self-limited attacks, while others manifest a severe and frequently lethal attack.¹ Acute pancreatitis is an inflammatory process of the pancreas that involve per pancreatic tissues and remote organ systems.² The incidence of acute pancreatitis has been increasing over recent years.³

In cases of acute severe pancreatitis, about 50% of deaths occur within the first week. They develop an exaggerated systemic inflammatory response syndrome with the development of multiple organ dysfunction syndrome and death. Patients who survive beyond this period often go on to develop extensive retroperitoneal pancreatic necrosis.

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Infection in necrotic tissue leads to sepsis, a persisting systemic inflammatory response and multiple organ dysfunction syndrome and accounts for patient's death.⁴

The pathophysiology of the disease process involves a catabolic stress state, elevated caloric requirement. Reduction in pancreatic stimulation or "pancreatic rest" appeared to be needed to allow resolution of inflammation within the gland. For this reason, acute pancreatitis has been traditionally managed with initial fasting on purpose.⁵ The "pancreatic rest concept" assumes that the pancreatic rest promotes healing, decreases pain and reduces secretion and leakage of the pancreatic juices in pancreatic parenchyma and pancreatic tissue.⁶

Nutritional support is an important aspect in the management of acute pancreatitis. Up to the mid 1990's, total parenteral nutrition had been comprehensively recommended in the acute phase of pancreatitis.⁷ Presently, enteral nutrition has replaced parenteral nutrition.^{8,9}

Enteral nutrition is effective, maintains the intestinal mucosal integrity and reduces infectious and other complications, such as multiple organ deficiency syndrome.^{10,11,12} Nasojejunal was the established route of enteral nutrition, initially as jejunal feeding does not stimulate pancreatic exocrine secretion.¹³ Recently,

nasogastric enteral nutrition has been considered in the management of acute pancreatitis, especially severe acute pancreatitis. The Nasogastric route is simple, easy to establish and cost effective. However, this is potentially against to the requirement of pancreatic rest in the acute inflammation phase. Studies indicate nasogastric nutrition to be effective and safe.^{14,15,16,17} Before recommendation of nasogastric enteral nutrition to clinical practice, further trials are needed.¹⁸ Hence, the present study was carried out to check the benefit of one route vs. the other.

Aims and Objectives

The primary objective of this study was to compare Nasogastric feeding and Nasojejunal feeding routes of enteral nutrition in acute severe pancreatitis with regards to safety and effectiveness.

MATERIALS AND METHODS

This is a Prospective, Descriptive study. A total of 60 consecutive patients admitted to DMC and H, Ludhiana from Sep 2016 to 2017 with objectively graded as acute severe pancreatitis were entered into the study. Randomisation was done by computerised random number generation and the sequence was implemented using numbered containers. Randomised to receive either NG or NJ feeding. This study was done to compare nasogastric vs. nasojejunal feeding in acute severe pancreatitis. Thirty patients were in nasogastric feeding group, while thirty patients were in the nasojejunal group (NG group= 30; NJ group= 30).

Source of Data

1. Patients admitted in emergency at Dayanand Medical College and Hospital, Ludhiana in the Department of General Surgery during the one year period from Sep 2016 to 2017.
2. A total of 60 patients were admitted in the emergency with the diagnosis of acute severe pancreatitis. 30 patients were included in each group for comparison study.

Statistical Analysis

The Microsoft version SPSS 17 and chi-square test was used to analyse the data.

RESULTS

In the present study, the patients taken were 16 years to 65 years of age. The mean age taken in NG group was 37.8 yrs. and in NJ group was 40.67 years. The difference in the mean ages taken in the two study groups was statistically not significant.

For this study as mentioned above, 30 patients were taken from NJFT group comprising of 33.3% females and 66.7% males, whereas for the NG group same number of patients were selected with 26.67% females and 73.3% males. The APACHE II and presence or absence of organ failure was used to assess the severity of acute pancreatitis. The severity was similar in both the NG and NJ groups. At Day 0 RT mean score was at 10.6 and NJFT was 11.40. On Day 7, the mean score of APACHE II came down with NG at 9 and NJFT at 10.

As per study, organ failure was seen in 8 (53.33%) patients in NG group and 7 (46.67%) patients in NJFT group with p value of 0.046 which is statistically significant.

Serum albumin as measured in biochemical tests was also similar. Serum albumin was measured in all patients at the end of one week and then at the end of 7 weeks after receiving enteral nutrition. Serum albumin had decreased from the baseline. However, the decrease was comparable in both NG and NJ groups and there was no statistically significant difference in both groups.

Length of Hospital Stay (LOS)

Ranged from 8 days to 58 days with a mean of 22.37 days. NG group- range: 2 to 58 days; mean= 22.67 days. NJ group - range: 3 to 29 days; mean= 22.37 days. There was no significant statistical difference between the two study groups for the length of hospital stay.

ICU Stay

Ranged from 11 days to 58 days with a mean of 13.60 days. NG group- range: 11 to 58 days; mean= 12.67 days. NJ group- range: 11 to 29 days; mean= 14.53 days. There was no statistical significant difference between the two study groups in total ICU stay.

On comparing the tolerance and side effects, distention and pain/ discomfort during the first 48 hours of initiating feeds were commonly reported. Pain/ discomfort was reported by 33.33% of patients in the NG group as compared to 26.67% in the NJ group.

Distension was seen in 33.33% in NJ and 33.33% in NG feed patients after the start of feed, totalling an average of 33.33% of the total patients taken for this study as shown in the table.

High RT Aspirate

The high RT Aspirate was present in 33.3% patients in NJ feed group and in no patient with NG feed group. The p value was 0.014.

Feed Tolerance

Feed intolerance in the two study groups were statistically not significant.

Ventilator Support

In the study taken up the total 60 patients, 10 patients were on ventilator support, i.e. 20% (6 patients within the group of 30) in the NG group and 13.33% (4 patients within the group of 30) in the NJ feed group.

Mortality was found to be at 13.33%, specifically in NG feed patients and 26.67% of the NJFT patients.

On comparison of outcomes between the NG and NJ groups there was no statistical difference in the total length of hospital stay, need for ventilator support, organ failure, and ICU stay between the two groups.

DISCUSSION

Feeding and Nutritional support form an important aspect in the management of acute pancreatitis. Acute pancreatitis has been traditionally managed with initial fasting on purpose.⁷ The present study was to compare Nasogastric feeding and Nasojejunal feeding routes of enteral nutrition in acute severe

pancreatitis and to study the effectiveness and safety of these routes of enteral nutrition in acute severe pancreatitis.

In the present study, severe acute pancreatitis was defined in accordance with the APACHE II score and presence or absence of organ failure was used to assess severity. This study was to compare nasogastric and nasojejunal feed in acute severe pancreatitis. Total number of patients in the study were 60 patients. Thirty patients were in the nasogastric feeding group, while thirty patients were in the nasojejunal group. The mean age was 39.27 years with the age range from 16 to 65 years. This was similar to study done by Eatock et al.¹⁹ The mean age was less compared to the study conducted by Petrov²⁰ et al. Most of the patients in this study were 21 males and 9 females, i.e. 70% males and 30% females. There was slight male preponderance, which was similar to study done by Eatock et al and Kumar et al.

The aetiology was alcohol in about 46.67% and biliary in 36.67%, thus the most common aetiology was alcohol induced which was different from study done by Eatock et al in which gallstone was the most common cause i.e. 65.3%. However, the percentage of alcohol in the nasogastric and nasojejunal groups were 33.33% and 60% respectively, which was statistically not significant. In the present study, severe acute pancreatitis was defined in accordance with the APACHE II score at admission and presence or absence of organ failure were used to assess severity. The two groups NG and NJ were similar in these characteristics at the time of admission, which gradually decreased during the first week of illness which was similar to studies done by Eatock et al.

In our study, organ failure was seen in 26.67% in NG group and 13.3% in NJFT group which was similar to that of Kumar et al of 18.8%. However, most studies reported a higher percentage of patients requiring ventilator support, but in our study, requirement was statistically not significant in both the NG group and the NJ group.

There was no significant difference in the nutritional parameters in the two groups at baseline and during hospital stay. There was a decline in the nutritional parameters in both groups, as shown by biochemical levels at the end of the first week. This is similar to study done by Petrov et al.

The total length of hospital stay in NJ group ranged from 3 to 29 days and in NG group ranged from 2 to 58 days. The total mean of hospital in the two groups was 13.6 days, which was similar to studies done by Eatock et al in 2000 and 2005.

The ICU stay was more in the NG group. However, this was not statistically significant. In the nasogastric fed patients, overall length of stay in previous studies reported ranging from 7 to 82 days with mean values between 9 to 24 days. This was comparable to the patients receiving nasojejunal feeds (14.53). In the present study, the mean length of stay was 12.67 days in the nasogastric group. In the present study on comparison of outcomes between the NG and NJ groups, there was no statistically significant difference in the total length of hospital stay and ICU stay. Organ failure in the present study was 20%, which was similar to that of Kumar et al of 18.8%.

A total of 4 patients required surgical intervention in the form of necrosectomy, 8 (26.67%) in the NG group and 4 (13.33%) in the NJ group. The percentage of patients undergoing surgery was double in the NG group. The need for surgery in the nasogastric group in the present study was different from reports of Kumar et al and Eckerwall et al.

Regarding the side effects and tolerance to feeds, both NG and NJ groups tolerated feeds. On comparing the tolerance and side effects, distension and pain/ discomfort during the first 48 hours of initiating feeds were commonly reported. 33.33% of patients in NG group and 26.67% of patients in NJ group had pain abdomen on start of feed. However, this was not statistically significant. This is similar to the findings of Eatock et al in 2005 and Kumar et al in 2006.

Abdominal distension was seen in 33.33% and 13.33% patients in NG and NJ group respectively, which was statistically insignificant. This was similar to the study done by Eatock et al in 2005. High RT aspirate was found in around 33.3% of patients in NG group.

Mortality was 13.33% in NG group, while in NJ there was 26.67%. This difference was insignificant statistically. The cause of higher mortality in NJ was probably due to more sick condition of patients at the time of presentation. Overall, mortality was less as compared to most of studies, but was similar to study done by Eckerwall et al in 2006.

Both NG and NJ appeared to tolerate feeds in similar fashion. The target diet was reached in both groups within 3 days in both groups in about 50% of the patients. Overall, in about 33.3% of patients in either group the feed had to be stopped due to intolerance. This is similar to previous studies.

CONCLUSION

The nasogastric route of enteral nutrition appears to be an effective route of enteral nutrition in predicted severe acute pancreatitis. Nasogastric feeding is safe and well tolerated and is simple and easy to establish. The nasogastric route of enteral nutrition appears too comparable to the nasojejunal route in terms of safety, tolerance and efficacy. So both the routes can be used for enteral nutrition in acute severe pancreatitis.

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