

Role of Probiotics in Management of Acute Pancreatitis: Treatment Experience in Rims, Ranchi

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Abstract:

Introduction: Effectiveness of probiotics along with other medicines in treatment of acute pancreatitis has been studied by many researchers. Use of probiotics can prevent bacterial translocation and infective complications.

Material and Methods: A double-blind, randomized placebo-controlled trial was conducted in RIMS, Ranchi. 60 patients of acute pancreatitis were randomly divided into 2 groups of 30 patients each. In group A patients of acute pancreatitis were given regular doses of probiotics along with other necessary medicines while in group B placebo was given along with other medications. Treatment outcomes were compared.

Results: In probiotics group, hospital stay was significantly lower than placebo group. No infective complication was seen in probiotics group while 1 patient in placebo group developed infected pancreatic necrosis.

Conclusions: Early results show favourable outcome with the use of probiotics in cases of acute pancreatitis.

Key Words: Acute pancreatitis (AP), Randomised trial, Placebo, Probiotics

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I. Introduction

Acute pancreatitis is a sudden inflammation in the pancreas along with variable involvement of nearby organs or other organ systems. Clinicians generally diagnose acute pancreatitis when at least two of the following three features are present (Banks PA)² -

1. Acute onset of a persistent, severe, epigastric pain, often radiating to the back.
2. Serum lipase activity (or amylase activity) at least three times greater than the upper limit of normal.
3. Characteristic findings of acute pancreatitis on contrast enhanced computed tomography (CECT) and less commonly magnetic resonance imaging (MRI) or transabdominal ultrasonography.

Most of the times acute pancreatitis can be treated conservatively but in 15%-20% cases local or systemic complication can develop. Local complications develop in form of peripancreatic fluid collection, pancreatic necrosis and pseudocyst all of which can get infected. Small bowel bacterial overgrowth and subsequent bacterial translocation is responsible for the majority of these infections.⁴⁻⁷

Various modalities have been used to alter the gut flora and to see whether this alteration can affect the treatment outcome in cases of acute pancreatitis. Use of probiotics has shown different results in treatment of AP in different studies.⁸⁻¹⁰ In this randomized trial we have tried to reach at a consensus opinion on the use of probiotics in cases of AP.

II. Material And Methods

This was a double blind randomized placebo-control trial conducted in department of General surgery, RIMS, Ranchi, over a period of 1 year (october 2017 to september 2018). 60 consecutive patients of AP who needed admission in the hospital were included in the study.

Exclusion criteria: A) acute pancreatitis with complications at the time of admission B) associated comorbidity like diabetes After explaining the patients about the treatment, written consent was taken from them for their participation in the study. 60 patients of acute pancreatitis were randomly divided into 2 groups of 30 patients each (Probiotics group and Placebo group). In **Probiotics group** patients of acute pancreatitis were given regular doses of probiotics (one Capsule of Bifilac BD) along with other necessary medicines while in

Placebo group; placebo was given along with other medications. Treatment outcomes were recorded and a comparison was drawn in terms of average duration of stay, development of complications and mortality rate.

III. Results

SEX DISTRIBUTION OF STUDY POPULATION

In this study 80% (48) patients were male while 20 % (12) patients were female. Out of 48 males 23 were put in Placebo group and 25 were included in Probiotic group. Out of 12 female patients, 7 were assigned Placebo group and 5 were put into Probiotic group.

Sex	No. of patients	Total
Male	Placebo Group : 23	48 (80%)
	Probiotic Group : 25	
female	Placebo Group : 7	12 (20%)
	Probiotic Group : 5	

AGE DISTRIBUTION OF STUDY POPULATION

Study population was divided in 5 age groups. While none were younger than 20 years, 11 patients were present in 20-30 years age group, 27 patients were there in 30-40 years age group, 17 were there in 40-50 years age group and only 5 patients were older than 50 years.

Age groups	No. of patients
<20 years	0
20-30 years	11
30-40 years	27
40-50 years	17
>50 years	5

COMPARISON BETWEEN THE TWO GROUPS

Average hospital stays in Probiotic group was 11.37 days with standard deviation of 2.14 days. Average hospital stay in Placebo group was 13.11 days with standard deviation of 3.17 days. This difference is statistically significant (p-value by student T test 0.0156).

While 1 out of 30 cases in Probiotic group showed complication in form of peripancreatic collection, in placebo group 2 cases got complicated during the treatment. Out of these 2 cases, 1 case developed peripancreatic collection which was managed conservatively and the other developed infected necrosis. Patient of infected pancreatic necrosis later died.

Parameters of comparison	Probiotic group	Placebo group
Average hospital stay in days	11.37 (SD 2.14)	13.11 (SD 3.17)
Complications	1	2
Mortality	0	1

IV. Discussion

The probiotics used in this study was Bifilac capsule (Clostridium Butyrcum: 2 million spores, Bacillus Mesentericus: 1 million spores, Strep Faecalis: 30 million spores and Lactobacillus Sporegens: 50 million spores) 1 capsule twice daily from the day of start of oral fluid intake. In many similar studies varying results are obtained and different types of probiotics are used. In study done by Cui LH et al they found that early enteral nutrition with addition of probiotics (bifidobacterium) resulted in significant lowering of the level of pro-inflammatory cytokines, earlier restoration of gastrointestinal function, decrease of complications such as infection, and shortening of hospital day in patients with severe acute pancreatitis.¹¹

Similar result was seen in study done by Plaudis H et al.¹² In our study we have found that average hospital stay is significantly lower in prebiotic group compared to placebo group. 2 patients developed peripancreatic collection during this study (1 patient in each group) and both were managed conservatively. 1 patient in placebo group developed infected pancreatic necrosis and we could not save him. Although complications and mortality are higher in placebo group; larger study population is required for better results.

V. Conclusion

Based on our study use of prebiotics in cases of acute pancreatitis can be recommended. Larger study needs to be done to get more accurate results.

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