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Research Article

The Significance of Octreotide in the Treatment of Mild to Moderate Acute Pancreatitis.

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Abstract

Background

Acute pancreatitis is a potentially life-threatening inflammatory disease of the pancreas with clinical manifestations ranging from mild self-limiting disease to severe systemic illness with multiorgan failure.[1] Octreotide, a long-acting somatostatin analogue, inhibits pancreatic exocrine secretion and has been used as an adjunct in the management of acute pancreatitis.[2]

Aim

To evaluate the significance of octreotide in the treatment of mild to moderate acute pancreatitis.

Methods

A retrospective cohort study was conducted over a period of 12 months from April 2024 to March 2025 in the Department of General Surgery, SSIMS & RC, Davanagere. Twenty-eight patients diagnosed with acute pancreatitis were included and severity was assessed using the Ranson scoring system. Patients were divided into two groups based on octreotide dosage:

Group A (n=15): 300 micrograms octreotide

Group B (n=13): 100 micrograms octreotide

Results

The mean age in Group A was 39.24 ± 11.86 years, while Group B had a mean age of 36.32 ± 12.02 years. Male predominance was observed in both groups. Pain abdomen was present in all patients, whereas nausea and vomiting were more frequent in Group A (73.3%) compared to Group B (46.2%). Symptom resolution occurred earlier in Group A (5 ± 1 days) compared to Group B (7 ± 2 days). Unpaired t-test analysis showed a trend toward faster recovery with higher-dose octreotide, though the difference was not statistically significant ($t = -1.80$, $p = 0.093$).

Conclusion

Higher-dose octreotide demonstrated earlier symptom relief in mild to moderate acute pancreatitis compared to lower-dose therapy, although statistical significance was not achieved. Larger prospective studies are required to establish definitive clinical benefit.

Keywords: Acute pancreatitis, Octreotide, Somatostatin analogue, Mild pancreatitis, Moderate pancreatitis

Introduction

Acute pancreatitis is an inflammatory disorder of the pancreas characterized by varying degrees of local pancreatic inflammation and systemic involvement.[1] The disease spectrum ranges from mild self-limiting inflammation to severe pancreatitis associated with organ failure and high mortality.[3]

According to the Indian Council of Medical Research, the incidence of acute pancreatitis in India is approximately 40–60 cases per one lakh population. Mild and moderate acute pancreatitis involve pancreatic inflammation with minimal or transient organ involvement.[4]

Octreotide is a semisynthetic long-acting analogue of somatostatin. It inhibits pancreatic exocrine secretion and reduces gastrointestinal hormone secretion.[2] Additionally, it decreases splanchnic blood flow and portal venous pressure. Owing to these properties, octreotide has been used in the management of acute variceal bleeding, pancreatic fistula, pancreatic pseudocyst, pancreatic ascites, and as an adjunctive treatment in acute pancreatitis.[5]

Compared to natural somatostatin, which has a half-life of 2–3 minutes, octreotide has a prolonged half-life of 90–120 minutes and can be administered subcutaneously or as continuous infusion.

The present study was undertaken to evaluate the significance of octreotide in patients with mild to moderate acute pancreatitis.

Aim and Objectives

Aim

To evaluate the significance of octreotide in the treatment of mild and moderate acute pancreatitis.

Objectives

To compare clinical recovery between different doses of octreotide.

To assess symptom resolution in mild and moderate acute pancreatitis.

To evaluate demographic and clinical characteristics of study participants.

Materials and Methods

Study Design

Retrospective cohort study.

Study Period

April 2024 to March 2025.

Study Setting

Department of General Surgery, SSIMS & RC, Davanagere.

Sample Size

Twenty-eight patients diagnosed with acute pancreatitis were included in the study.

Inclusion Criteria

Patients aged more than 18 years.

Patients diagnosed with acute pancreatitis based on:

Clinical examination.

Imaging modalities (Ultrasound abdomen and pelvis or CECT abdomen and pelvis)

Elevated serum amylase and lipase levels.

Exclusion Criteria

Age less than 18 years

Severe pancreatitis based on Ranson's score
Patients presenting with shock
Postoperative pancreatitis
Patients with uncontrolled comorbidities and organ failure.

Study Groups

Group A (n=15): Treated with 300 micrograms octreotide
Group B (n=13): Treated with 100 micrograms octreotide.

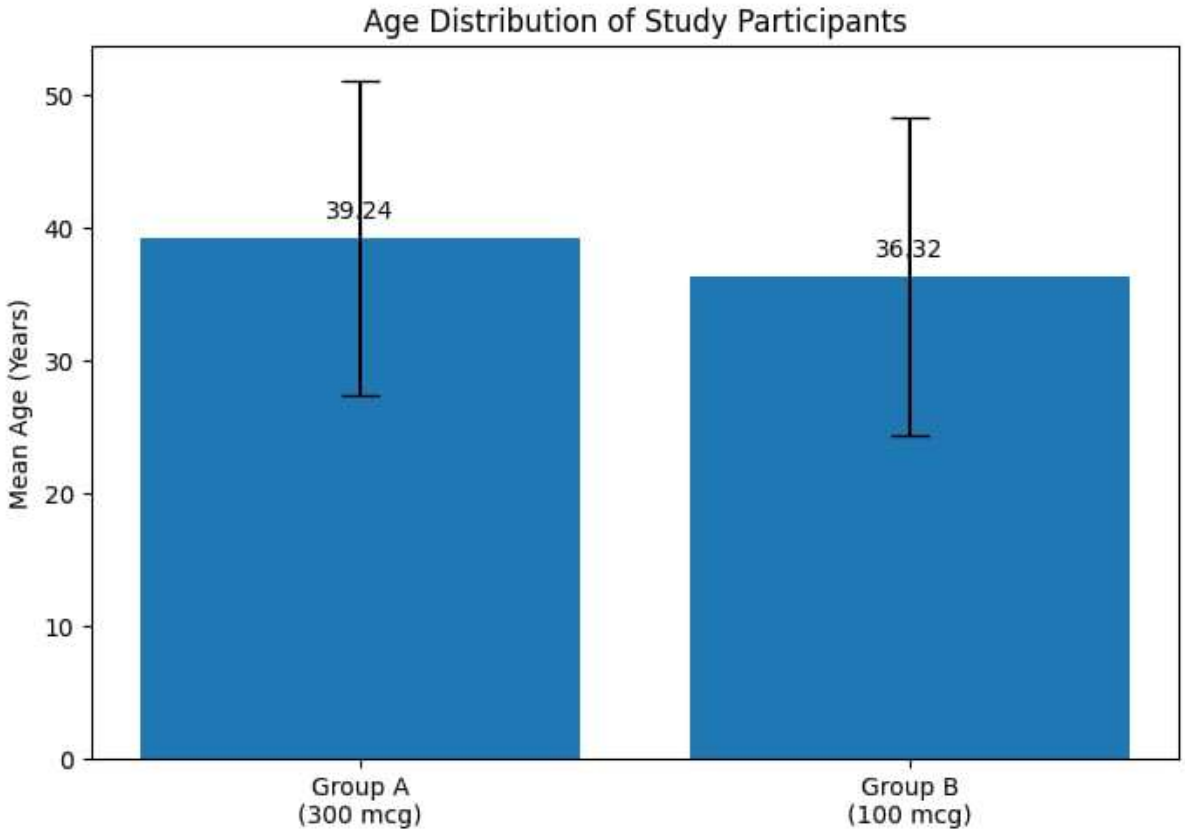
Statistical Analysis

Data were analysed using unpaired t-test for comparison of symptom resolution between groups. A p-value less than 0.05 was considered statistically significant.

Results

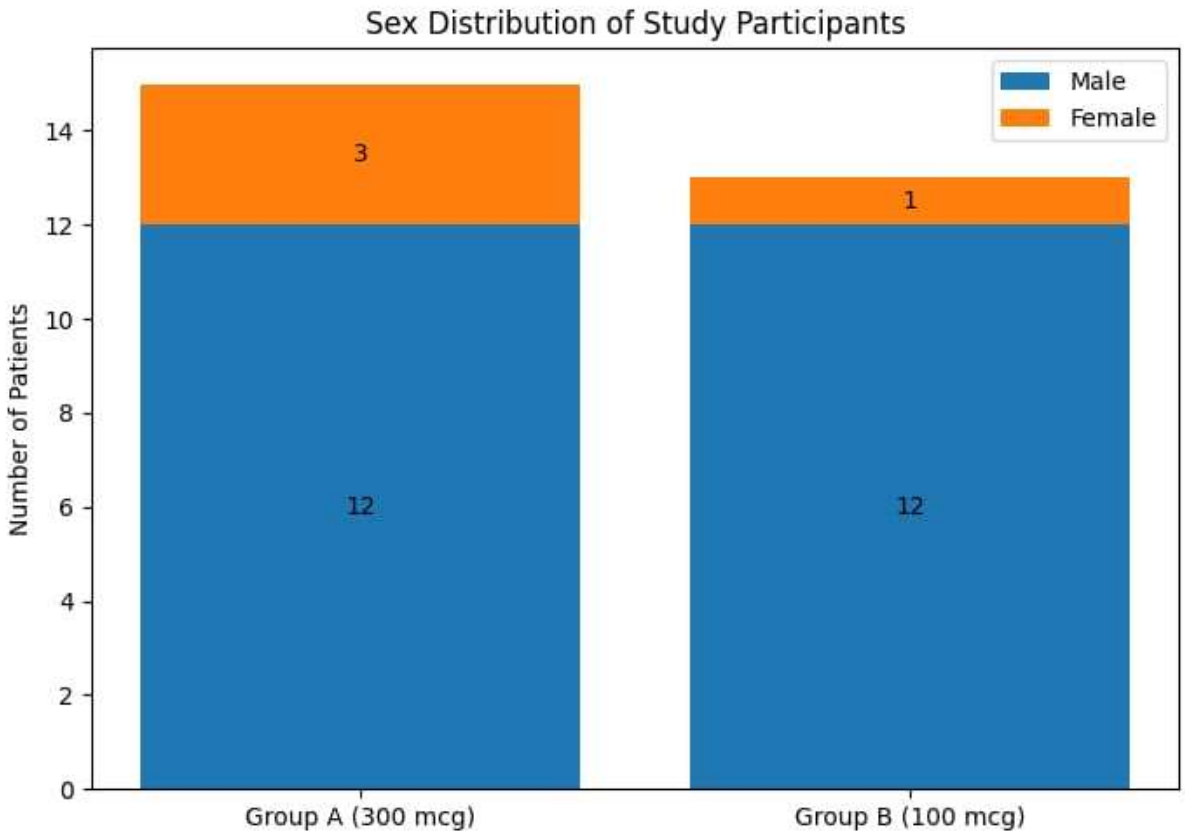
Age Distribution.

The mean age in Group A was 39.24 ± 11.86 years, whereas Group B had a mean age of 36.32 ± 12.02 years. Both groups were age matched with no statistically significant difference.



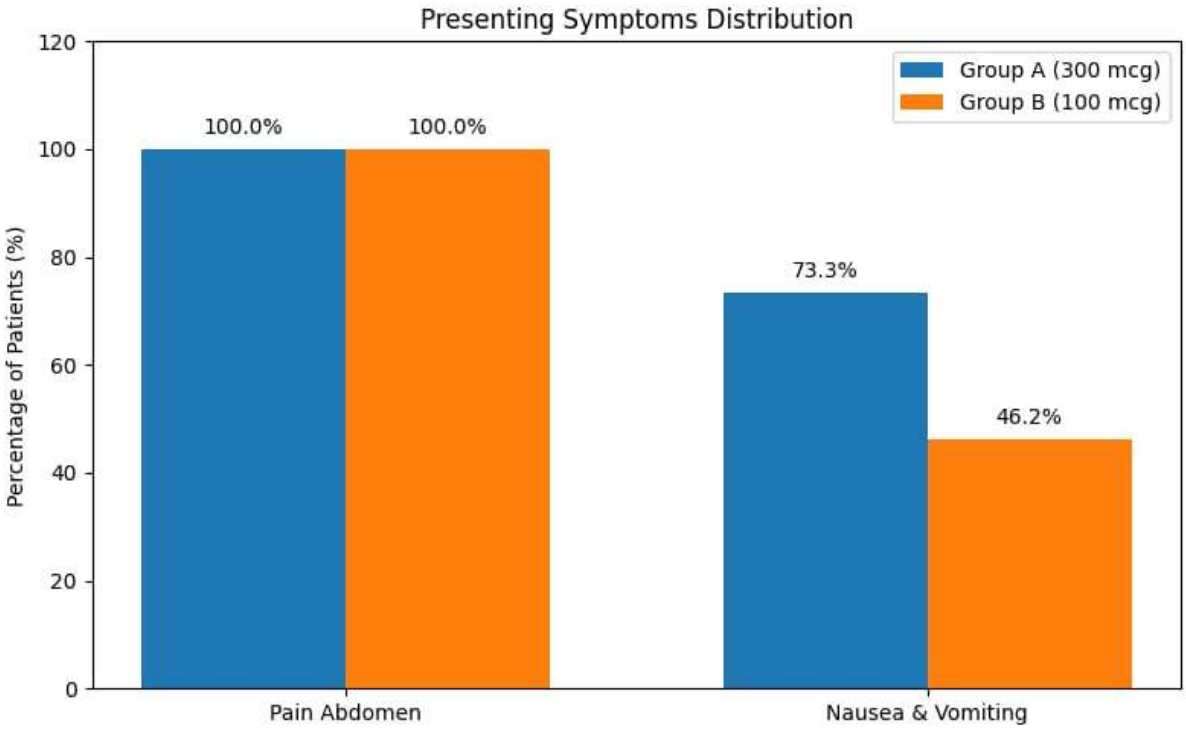
Sex Distribution.

In Group A, 80% of patients were males and 20% were females. In Group B, 12 patients were males and 1 patient was female. Both groups showed male predominance.



Presenting Symptoms

Pain abdomen was present in 100% of patients in both groups. Nausea and vomiting were observed in 73.3% of patients in Group A and 46.2% in Group B.



Severity Distribution

In Group A:

Mild pancreatitis: 7 patients

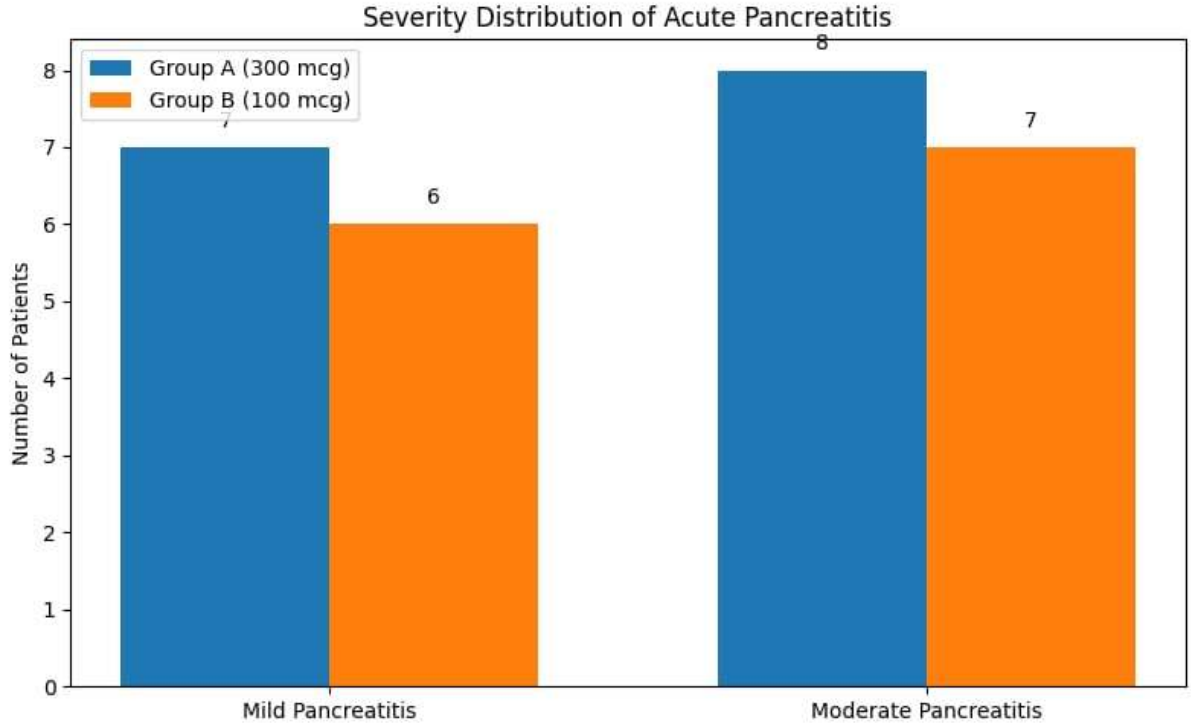
Moderate pancreatitis: 8 patients

In Group B:

Mild pancreatitis: 6 patients

Moderate pancreatitis: 7 patients

Both groups had comparable severity distribution.



Recovery Outcomes.

Time to disappearance of pain and vomiting:

Group A: 5 ± 1 days

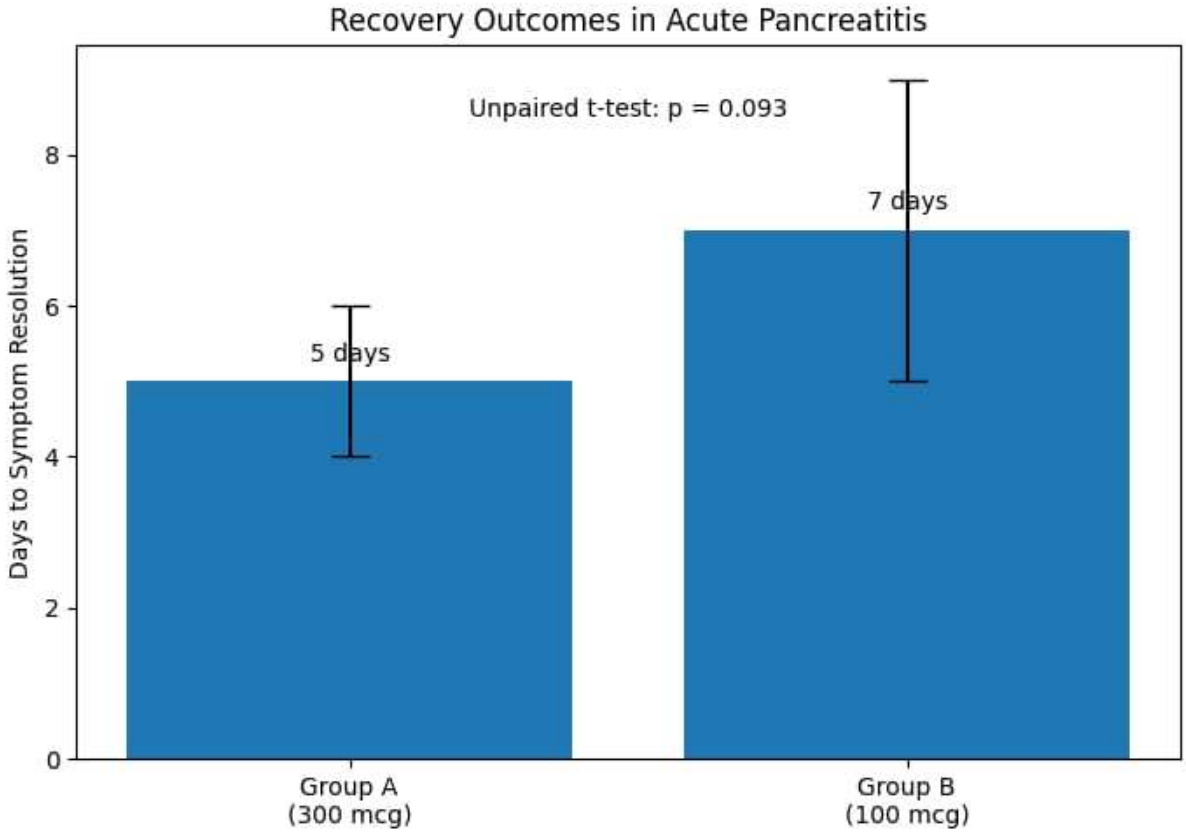
Group B: 7 ± 2 days

Unpaired t-test analysis:

t = -1.80

p = 0.093

Although symptom resolution was faster in Group A, the difference was not statistically significant.



Discussion

Acute pancreatitis continues to pose a therapeutic challenge despite advances in supportive management.[1] Suppression of pancreatic exocrine secretion has been proposed as a potential strategy to reduce pancreatic inflammation and facilitate recovery.[2]

Octreotide, owing to its inhibitory effect on pancreatic secretions, has been evaluated in various studies as an adjunctive therapy in acute pancreatitis.[5] In the present study, both groups were comparable with respect to age, gender distribution, and disease severity, minimizing selection bias.

Male predominance observed in this study is consistent with the epidemiological trend of acute pancreatitis, particularly alcohol-related pancreatitis.[3] Pain abdomen was the universal presenting complaint, correlating with the classical presentation of acute pancreatitis.[1]

Patients receiving higher-dose octreotide (300 micrograms) demonstrated earlier symptom resolution compared to those receiving lower-dose therapy (100 micrograms).

Although the difference did not achieve statistical significance, the observed trend suggests possible clinical benefit with higher-dose octreotide.

The lack of statistical significance may be attributed to the small sample size and retrospective design. Larger multicentric prospective studies are necessary to determine whether higher-dose octreotide significantly improves outcomes in mild to moderate acute pancreatitis.

Conclusion

Octreotide may play a beneficial adjunctive role in the management of mild to moderate acute pancreatitis. Patients receiving 300 micrograms octreotide demonstrated earlier symptom relief compared to those receiving 100 micrograms, although the difference was not statistically significant.

Further studies with larger sample sizes and prospective randomized designs are recommended to validate these findings and establish standardized treatment protocols.

Limitations.

Small sample size

Retrospective study design

Single-centre study

Lack of long-term follow-up

Limited assessment of biochemical and radiological outcomes

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