



General Surgery

PROSPECTIVE AND COMPARATIVE STUDY FOR THE ROLE OF ANTIBIOTICS IN PROGNOSIS OF ACUTE PANCREATITIS

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ABSTRACT **Background:** The use of antibiotics in acute pancreatitis (AP), especially prophylactically, remains controversial due to inconsistent benefits and risks of resistance. **Materials and Methods:** A prospective, comparative study was conducted on 100 patients with AP at Shridevi Institute of Medical Sciences, Tumkur. Patients were divided into Group A (antibiotics given) and Group B (no antibiotics unless infection confirmed). Outcomes compared included infected necrosis, mortality, hospital stay, and interventions. **Results:** Infected necrosis occurred in 24% (Group A) vs. 18% (Group B) ($p=0.463$). Mortality was 2% in Group A and 4% in Group B. Hospital stay was significantly shorter in Group A (5 ± 2 vs. 6 ± 2 days; $p=0.014$). Secondary infections were more in Group B. **Conclusion:** Routine use of antibiotics in AP does not reduce infection or mortality but may shorten hospital stay in severe cases. Antibiotics should be reserved for confirmed or highly suspected infections.

KEYWORDS : Acute Pancreatitis (AP), Severe Acute Pancreatitis (SAP)

INTRODUCTION

Acute pancreatitis (AP) is a sudden and intense inflammation of the pancreas, often triggered by gallstones, excessive alcohol consumption, or high lipid levels in the blood. While milder cases tend to resolve naturally, severe acute pancreatitis (SAP) can result in both local and systemic complications, including the infection of pancreatic necrosis, which significantly contributes to patient morbidity and mortality. The role of antibiotics in treating acute pancreatitis remains a subject of contention. Some guidelines advocate for their use in cases of infected necrosis, whereas others warn against prophylactic administration due to fears of antibiotic resistance and the absence of clear benefits. This study seeks to prospectively and comparatively evaluate the impact of antibiotics on the management of acute pancreatitis, particularly concerning clinical outcomes such as infection rates, mortality, and duration of hospital stays.

AIMS AND OBJECTIVES

To prospectively and comparatively evaluate the role of antibiotics in acute pancreatitis, focusing on their impact on infection, mortality, and hospital stay, particularly in severe cases.

MATERIALS AND METHODS

This prospective, comparative study involved patients diagnosed with acute pancreatitis in Shridevi Institute of medical sciences and research hospital Tumkur. Participants were divided into two groups: one receiving antibiotics (either prophylactic or therapeutic) and the other managed without antibiotics unless infections were confirmed. The selection, dosage and duration of antibiotics were standardized. Outcome measured included the rate of infected pancreatic necrosis, length of hospitalization, necessity for surgical interventions, and mortality rates. Statistical analysis was conducted to compare clinical outcomes between the two groups.

RESULTS

A total of 100 patients were enrolled and randomly assigned into two groups: 50 patients in the Antibiotic Group (Group A) and 50 in the Control Group (Group B). Baseline demographic and clinical characteristics were well-matched between both groups, with no statistically significant differences observed.

Characteristics	Group A	Group B	p-value
Age	46.5 $\pm$ 10.3	45.9 $\pm$ 11.2	0.70
Male(%)	57%	59%	0.75
BMI	26.9 $\pm$ 4.2	27.1 $\pm$ 4.4	0.68
Gallstone induced AP	55%	54%	0.78
Alcohol induced AP	29%	31%	0.76

Primary Outcome: Incidence of Infected Pancreatic Necrosis

Infected pancreatic necrosis was observed in 12 patients (24%) in Group A and 9 patients (18%) in Group B, which was not statistically significant ($p=0.463$).

However, in patients with severe acute pancreatitis (SAP), the incidence of infected necrosis was slightly lower in Group A (24%) compared to Group B (32%), though this difference also did not reach statistical significance ($p=0.47$).

Outcome	Group A	Group B	p-value
Infected pancreatic necrosis(%)	24%	18%	0.463
Infected necrosis in SAP(%)	24%	32%	0.47

Secondary Outcomes:

1. Mortality: Overall mortality was lower in Group A (2%) compared to Group B (4%), though this difference was not statistically significant ($p=0.56$).
2. Length of Hospital Stay: Patients in Group A experienced a significantly shorter hospital stay (5 ± 2 days) compared to Group B (6 ± 2 days), with a p-value of 0.014, suggesting a faster recovery for those receiving antibiotics.
3. Need for Surgical or Percutaneous Intervention: Fewer patients in Group A (10%) required surgical or percutaneous intervention compared to Group B (14%), though this difference was not statistically significant ($p=0.538$).
4. Secondary Infections: Secondary infections, such as pneumonia and urinary tract infections, were more frequent in Group A (2%) compared to Group B (6%) ($p=0.64$).

Outcome	Group A	Group B	p-value
Mortality(%)	2%	4%	0.40
Length of hospital stay(days)	3 $\pm$ 2 days	6 $\pm$ 2 days	0.03
Surgical/Percutaneous intervention(%)	10%	14%	0.538
Secondary infections(%)	2%	6%	0.64

CONCLUSION

This study suggests that routine prophylactic antibiotics in acute pancreatitis neither reduce infected necrosis nor lower mortality. However, in severe cases, antibiotics shortened hospital stays, hinting at a role in faster recovery.

In mild to moderate cases, antibiotics offer limited benefits. For severe cases, a judicious approach reserving antibiotics for confirmed or highly suspected infections may be more effective. Further research is needed to define the best use of antibiotics in severe acute pancreatitis.

balancing recovery benefits against secondary infections.

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