A Prospective Study on Perioperative Factors Influencing the Outcome of Pancreatic Resection Surgeries in a Tertiary Care Centre in Eastern India

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INTRODUCTION

- Pancreatic adenocarcinoma is among the **deadliest malignancies**, with a **5-year survival rate of 2-9%**.[1]
- Despite advances in surgical techniques, pancreaticoduodenectomy (Whipple's procedure) remains **high-risk**, with **morbidity rates of 30-60%**.[2]
- There is **limited data from Eastern India** on perioperative factors affecting outcomes.
- This study evaluates **preoperative, intraoperative, and postoperative factors** influencing patient outcomes.

AIMS AND OBJECTIVES

Aim

- To determine perioperative risk factors influencing the outcomes of pancreatic resection in a tertiary care setup in India.

Primary Objective

- To assess **demographic characteristics, preoperative, intraoperative, and postoperative factors** impacting outcomes within **1 month** post-surgery using **Clavien-Dindo classification**.

Secondary Objective

- To identify **common complications** encountered after pancreatic surgeries.

METHADOLOGY

- **Study Type**: **Longitudinal study** (Jan 2023 – Jan 2024)
- **Participants**: Patients undergoing **open standard Whipple's procedure** for **resectable pancreatic tumors** at AIIMS Patna
- **Inclusion Criteria**: All patients undergoing surgery for resectable pancreatic carcinoma
- **Exclusion Criteria**: Patients **≤16 years**
- **Data Collection**:
  - Preoperative Variables: Age, comorbidities, serum CA 19-9, sarcopenia (psoas muscle area on CECT)
  - Intraoperative Variables: Blood loss, pancreatic duct diameter, gland texture
  - Postoperative Variables: Drain fluid and serum amylase (POD 3, 5), duration of drain in situ, postoperative complications

CONCLUSION

- **Higher intraoperative blood loss, prolonged drain duration, and raised serum amylase on POD 3** increase the risk of **postoperative pancreatic fistula**.
- **Drain amylase on POD 3** can be used as a **novel marker for predicting the severity of POPF**.
- Optimizing **preoperative risk assessment** and **perioperative care** is critical for **reducing morbidity** in pancreatic resections.

RESULTS

Table 1: Patient Demographics

Mean Age	51.48 ± 12.79 years
Gender	Males: 65% (n=39) Females: 35% (n=21)

Table 2 : Preoperative Factors

Variable	Result
Most Common Symptoms	Abdominal Pain (53.3%) Jaundice (43.3%)
Median Duration of Symptoms	60 days (IQR: 30-90 days, range: 7-720 days)
Raised CA 19-9	58.3% of patients
Raised CEA	35.0% of patients
Sarcopenia (CECT findings)	1.7% (Z-score < -2 SD)

Table 3 : Intraoperative Factors

Factor	Value
Pancreatic Duct Size	Small (<3 mm): 66.7% Intermediate (3-6 mm): 20% Large (>6 mm): 13.3%
Pancreatic Texture	Soft: 8.3% Intermediate: 83.3% Hard: 8.3%
Intraoperative Blood Loss	<500 mL: 61.7% 500-1000 mL: 25% >1000 mL: 13.3%

Table 4 : Postoperative Outcomes

Variable	Result
Overall Complication Rate	46.7%
Mortality Rate	11.7%
Common Postoperative Complications	POPF (28.3%) DGE (11.6%) Surgical Site Infection (5%)

Table 5 : Postoperative Biochemical Markers

Marker	Median (IQR)	Range
Drain Fluid Amylase (POD 3)	176 (74.17–497.87)	15.19 – 29997.6
Drain Fluid Amylase (POD 5)	50.04 (22.7–122.25)	5.94–26612.1
Serum Amylase (POD 3)	51.05 (32.11-97.9)	7.28–1039.99
Serum Amylase (POD 5)	39 (18.9-54)	7-874

Table 6 : Key Statistical Findings

Factor	Association	p-value
Higher intraoperative blood loss (>500 mL)	↑ Risk of POPF	0.024
Longer duration of drain in situ	↑ Severity of complications	0.046
Serum Amylase on POD 3	↑ POPF Predictor	<0.001

1. McGuigan A, Kelly P, Turkington RC, Jones C, Coleman HG, McCain RS. Pancreatic cancer: A review of clinical diagnosis, epidemiology, treatment and outcomes. World J Gastroenterol. 2018 Nov 21;24(43):4846–61.

2. Martin AN, Narayanan S, Turrentine FE, Bauer TW, Adams RB, Zaydfudim VM. Pancreatic duct size and gland texture are associated with pancreatic fistula after pancreaticoduodenectomy but not after distal pancreatectomy. PLoS One. 2018 Sep 13;13(9):e0203841.