

Background

Postoperative pancreatic fistulas (POPF) are a major concern following pancreatectomies and pancreaticoduodenectomies.

Leakage of pancreatic fluid can lead to numerous secondary complications including sepsis and hemorrhage.

Due to these secondary complications, POPF is associated with mortality rates as high as 40%, extended length of stay, and a substantial economic burden.

This review of the existing literature aims to examine the clinical and economic impact of POPF.



Methods

We conducted a non-systematic review of the existing literature to summarize the reported sequelae of POPF.

Our review summarized the morbidity and mortality rates, rates of secondary complications, reoperation rates, ICU admissions, length of hospital stay, and hospitalization costs associated with POPF.

Prospective and retrospective cohort studies, systematic reviews, and meta-analyses were included.

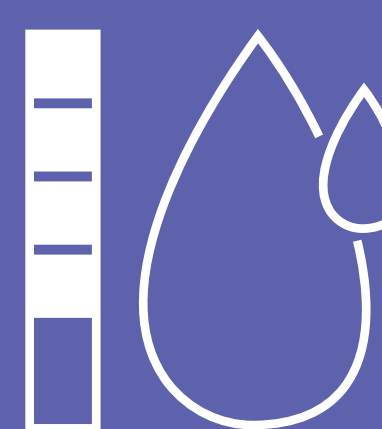


RESULTS: Clinical Consequences of Postoperative Pancreatic Fistula



Morbidity & Mortality

- The morbidity rate associated with postoperative pancreatic fistula (POPF) ranged from 13% to 41%.
- The mortality rate for grade C postoperative pancreatic fistula (POPF) after pancreaticoduodenectomy was reported to be 25.7%.
- Mortality from Whipple procedures is between 3%-5% at high-volume centers with a postoperative morbidity of between 30%-50%. POPF is reported as the most significant cause of morbidity.



Postoperative Pancreatic Hemorrhage (PPH) & Intraabdominal Sepsis (IAS)

- POPF was associated with morbid sequelae including IAS and hemorrhage, which accounted for 1% mortality risk for all patients with POPF and 25% mortality risk for patients with Grade C POPF.
- Presence of pancreatic fistula was a significant predictor of PPH (24% vs 8% p = 0.028).
- 16% of 196 pancreatic resection patients developed postoperative IAS. POPF was found to be a significant risk factor for IAS development (p = 0.02).



Reoperation Rate

- Reoperation was required in 6.7% of patients that developed POPF vs. 2.2% in non-POPF patients (p = 0.04).
- Reoperation was required in 13% of patients with clinically relevant POPF (Grade B or Grade C) vs 3% in an uncomplicated non-POPF group.



ICU Admission

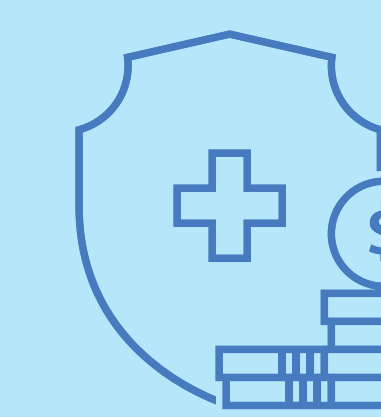
- ICU stay in POPF patients was reported at 20 days (SD 26.7) in comparison to 17 days (SD 3.4) in non-POPF patients.
- 2% of non-POPF or Grade A POPF patients, 4% of Grade B POPF patients and 59% of patients with Grade C POPF were admitted to the ICU.

RESULTS: Economic Consequences



Length of Stay (LOS)

- LOS for POPF patients was 23.6-26 days in comparison to non-POPF patients who had a LOS of 8.7-14 days (p < 0.001).
- Median LOS was 7 days for non-POPF or Grade A POPF patients, 9 days for Grade B POPF and 29 days for Grade C POPF.



Cost of Hospitalization

- Mean cost for POPF patients was 1.3-fold higher than patients without POPF.
- Mean cost for POPF patients was \$54,727 compared to \$23,024 in non-POPF patients (p < 0.001). The cost was significantly associated with the Grade of the POPF, with Grade A POPF costing \$32,883, Grade B POPF costing \$50,263 and Grade C POPF costing \$107,484 (p < 0.001).

Conclusion

POPF remains a significant postoperative complication in the setting of pancreatic surgeries, with a high potential for life-threatening secondary complications.

Not only does POPF present a significant burden at the patient and healthcare provider level, but also at the level of medical systems more broadly.

Timely detection of POPF is of utmost importance and serves as an important area for future research, innovation, and development.

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