Short- term outcomes from Arterial Divestment in Pancreatic cancer: A Systematic Review and Single Arm Meta-analysis of observational studies

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BACKGROUND

- Pancreatic cancer with arterial involvement are explored to be managed by arterial resection and anastomosis or arterial divestment in selected cases.
- Collective reports on this novel approach are lacking.
- The present study aimed to undertake a systematic review and meta-analysis of the impact of arterial divestment during pancreatic surgery on short- and long-term outcomes,.

METHODS

- This systematic review was conducted according to the PRISMA 2020 guidelines. PubMed, Embase, Web of Science, and the Cochrane Library were searched .
- Outcomes of interest included perioperative parameters, resection margins, morbidity, and mortality.
- Meta-analysis was performed using the meta package in R.

RESULTS

- A total of 5 observational studies comprising 554 patients were included.
- 212 patients had upfront surgery, and 342 patients had neoadjuvant chemotherapy followed by surgery
- Operative time varied considerably (median 185–537 minutes), and intraoperative blood loss ranged between 300 to 900 mL.
- The pooled prevalence of blood transfusion was 37.6% (95% CI: 32.5–43.1%; I^2 = 97.7%).
- Median post-operative stay ranged from 7 to 25 days.
- R0 resection was achieved in 49.4% (95% CI: 44.9–53.8%).
- Complications included post-operative pancreatic fistula (9.2%), delayed gastric emptying (11.2%), post-operative pancreatic haemorrhage (5 .8%), chyle leakage (13.9%), reoperation (6.1%), 90-day mortality (3.1%), intra-abdominal infection (11–15%), bile leakage (≤2.8%), ischemia (≤4.2%), intractable diarrhoea (8–13%), and liver abscess (<1%).

Arterial divestment entails identifying and entering a non–tumour-infiltrated plane using blunt or sharp dissection, followed by circumferential and longitudinal dissection along the vessel wall to carefully separate areas of tumour–vessel contact without compromising the arterial structure.

Though technically challenging, divestment is a feasible alternative for arterial resection with decreased morbidity and mortality.

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LIMITATIONS

- All included studies are observational and nonrandomized, introducing potential confounding and selection bias
- Limited number of studies restrict the generalizability and strength of pooled estimates.
- Substantial heterogeneity existed across studies in treatment protocols, surgical techniques and tumor classifications.

CONCLUSION

- Arterial divestment during pancreatic surgery appears to have acceptable morbidity and mortality. However, there is a lack of a unified agreed definition.
- Unified reporting, standardisation of terminology and relative role compared to arterial resection should be explored in prospective studies.

FIGURE 1

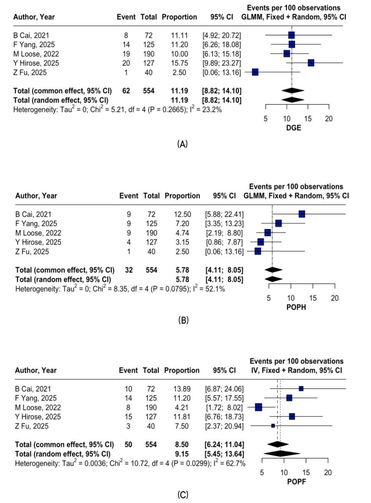

Figure 1. Forest plots showing pooled estimates for (A) Delayed Gastric emptying(DGE), (B) Post operative pancreatic Haemorrhage(POPH), and (C) Post operative pancreatic fistula(POPF) following arterial divestment in pancreatic cancer. Pooled proportions with 95% confidence intervals were calculated using a random-effects model.

FIGURE 2

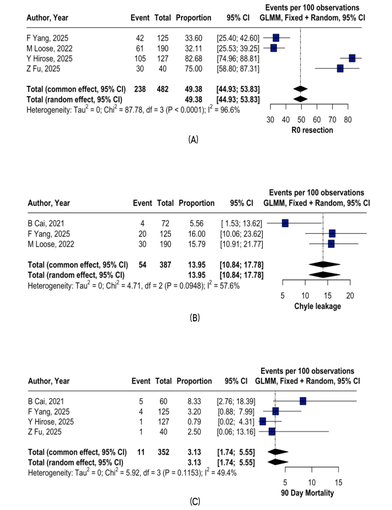

Figure 2. Forest plots showing pooled estimates for (A) R0 resection rate, (B) Chyle leakage, and (C) 90-day mortality following arterial divestment in pancreatic cancer. Pooled proportions with 95% confidence intervals were calculated using a random-effects model.

AFFILLIATIONS

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