Clinically relevant postoperative pancreatic fistula (cr-POPF) remains one of the most difficult challenges of pancreatic surgery and poses an increased risk of subsequent complications. Postpancreatectomy hemorrhage (PPH) following the development of postoperative pancreatic fistula is a major complication, often accompanied by dismal outcomes. While this relationship is well known to pancreatic surgeons, undoubtedly universally accentuated by their own anecdotal experiences, few studies have investigated the specific factors that might contribute to bleeding events. Accurate prediction of PPH is of critical importance to allow for appropriate risk stratification and mitigation, if possible.

The study by Birgin and colleagues reports the development of a predictive model, the hemorrhage risk score (HRS), for risk stratification of late PPH, defined as PPH occurring more than 24 hours postoperatively, in patients who experienced cr-POPF following pancreatoduodenectomy. This work was performed using a derivation cohort of retrospective data at a single high-volume German institution and validated using another retrospective cohort at a different high-volume German institution.

The HRS includes sentinel bleeding events (2 points), radiographic changes including rim-enhancing (1 point) or gas-containing (1 point) peripancreatic fluid collections on cross-sectional imaging, and fungal species within the surgical or percutaneous drain effluent (1 point). This model appears to perform well based on good discrimination between low-risk (0-1 points) and high-risk (2-5 points) groups, with PPH occurring in 1% and 12% of the low HRS patients and in 63% and 61% of the high HRS patients in the derivation and validation cohorts, respectively, and based on impressively high C statistics above 0.8 in both cohorts. The HRS was also associated with 90-day mortality in the total cohort regardless of PPH.

While a study of this type should not be interpreted as practice-changing, one cannot help but wonder what can be done to specifically mitigate the risk of PPH in patients with cr-POPF based on these findings. A few things come to mind.

The first is avoidance of POPF, which brings with it the age-old debate of whether any interventions reliably reduce this risk. However, for patients at high risk for cr-POPF, routine mitigation maneuvers, such as placement of perianastomotic drains, appropriate perianastomotic drain management, and placement of externalized pancreatic duct stents, should be emphasized.

The second point is appropriate and timely management of peripancreatic fluid collections and sentinel bleeding events with radiologic interventions as necessary. It is not clear whether prophylactic angiography, with or without arterial coiling or stenting, would be beneficial in patients with high HRS, and this is an issue that should be addressed through further investigation.

The third factor is early evaluation and treatment of Candida contamination. Evidence is somewhat variable regarding the clinical yield of intraoperative bile cultures as they relate to informing the management of subsequent organ-space infections. Furthermore, the detection of fungal species in intraoperative bile cultures or drain fluid cultures takes, at a minimum, many days, which delays its utility in guiding the early initiation of antifungal agents for patients at high risk for PPH. However, newer techniques may allow for more rapid characterization of intraoperative bile cultures, including fungal species. While the efficacy of early antifungal treatment, prompted by either intraoperative bile cultures or routine surgical or percutaneous drain cultures, in reducing the risk of PPH in patients with cr-POPF and concomitant candidal contamination is uncertain, this would be an interesting area for future study in patients with high HRS.
The authors\textsuperscript{1} should be commended for their rigorous contribution on a challenging topic that inevitably frustrates all pancreatic surgeons. This study sheds some necessary light on the navigation of postoperative pancreatic fistula-related complications following pancreatoduodenectomy and might prompt some to introduce specific mitigation strategies to avoid late PPH in high-risk patients.

ARTICLE INFORMATION

Published: December 6, 2023. doi:10.1001/jamanetworkopen.2023.46069

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Corresponding Author: Benjamin D. Ferguson, MD, PhD, Department of Surgery, University of Michigan Medical School, 1500 E Medical Center Dr, Ann Arbor, MI 48109 (benferg@med.umich.edu).

Author Affiliation: Department of Surgery, University of Michigan Medical School, Ann Arbor.

Conflict of Interest Disclosures: None reported.

REFERENCES


