Failure to recue after Pancreaticoduodenectomy: Predictors of Mortality following major postoperative complications, Complication trajectories and Rescue strategies.

Momina Mustafa, Prof. Muhammad Zarin

Department of Surgery, Khyber Teaching Hospital, Peshawar, Pakistan.

BACKGROUND

- Mortality after Pancreatoduodenectomy (PD) is influenced not only by the occurrence of complications but also by the **ability to recognize, escalate, and successfully manage** these complications.
- Failure to rescue (FTR)—death following a major postoperative complication—has therefore emerged as an important measure of surgical quality.
- **Timing and trajectory of complications**, together with **timely escalation** to intensive care and intervention strategies, represent important opportunities for rescue.

OBJECTIVE

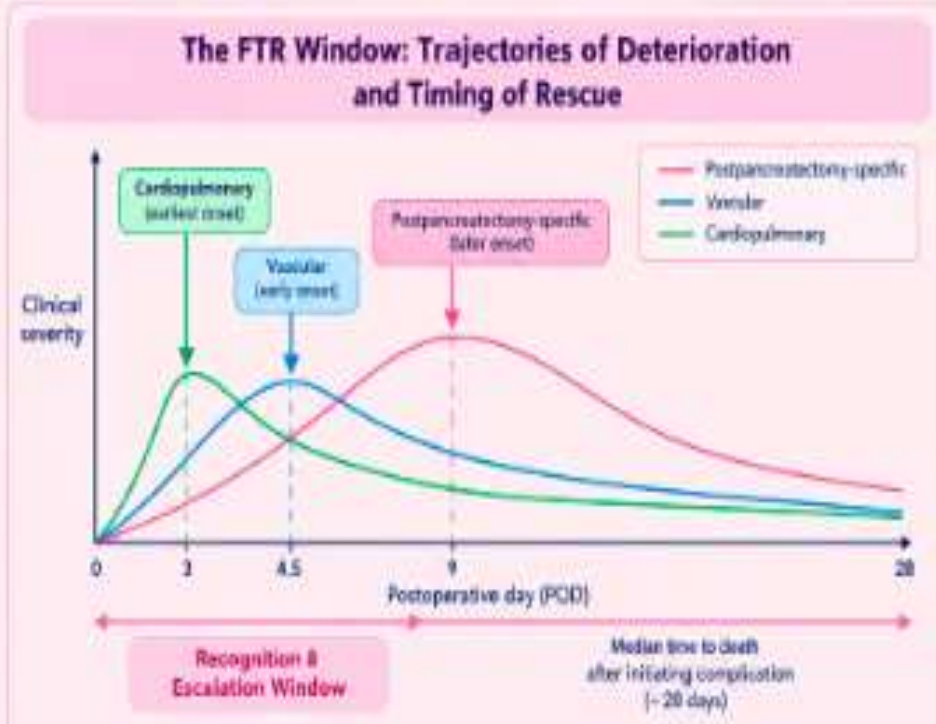
- To determine the incidence and predictors of FTR following PD.
- To characterize complication trajectories leading to mortality and the rescue strategies employed in patients with major complications.

METHODOLOGY

- Retrospective observational cohort
- **Study population:** 27 consecutive patients undergoing PD at Khyber Teaching Hospital between **January 2020- June 2025.**
- **Major postoperative complications** = Clavien–Dindo grade ≥III
- **Clinically relevant pancreatic complications** = ISGPS criteria
- **Failure to rescue** = Death within 90 days following PD
- **Complication trajectories** sequence and timing of major complications
- **Rescue strategies:** ICU escalation, interventional radiology, percutaneous or endoscopic intervention, and reoperation

FAILURE-TO-RESCUE PATHWAY AFTER PD







RESULTS & ANALYSIS

- **Major postoperative complications: ~27.8%** after pancreaticoduodenectomy
- **FTR ~13%** among patients developing major complications.
- **Overall mortality: 11.2%**
- **Predictors of FTR:** Older age, higher ASA class, hypoalbuminemia, organ failure, shock, renal failure, and reintubation were consistently associated with FTR.
- **Fatal trajectories:** 52% postpancreatectomy-specific, 26% vascular, and 18% cardiopulmonary pathways.
- **Timing of deterioration:** Median onset was POD 9 for postpancreatectomy-specific complications, POD 4.5 for vascular complications, and POD 3 for cardiopulmonary complications.
- **Rescue window:** Median interval from the initiating complication to death was 28 days.
- **Rescue strategies:** Among patients requiring early re-intervention,

1. 84% were managed with interventional radiology
2. Image-guided drainage was used in 67.3% of CR-POPF
3. Embolization in 61.5% of PPH
4. Re-exploration in 30.6% of CR-POPF

KEY TAKEAWAYS

✓ Complications are common; failure to rescue is not inevitable.

✓Organ failure and complication accumulation signal high-risk deterioration.

✓The trajectory matters—not just the complication itself.

✓Early escalation creates an opportunity for rescue.

momina.mustafa@kth.edu.pk