

Early Versus Delayed Minimally Invasive Intervention for Infected Pancreatic Necrosis – A Systematic Review and Meta-Analysis

Ghazaleh S^{1*}, Stanley S¹, Renno A¹, Karrick M¹, Ramadugu A¹, Aziz M¹, Alastal Y¹, Nawras A¹

¹Division of Gastroenterology and Hepatology, Department of Medicine, The University of Toledo, Toledo, OH 43614

*Corresponding author: Sami.Ghazaleh@utoledo.edu

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Introduction: Pancreatic necrosis complicates 20% of acute pancreatitis cases, and 30-40% of those become infected. Current guidelines recommend that invasive intervention for pancreatic necrosis should be delayed to 4 or more weeks from disease onset. However, recent studies have challenged the optimal timing of intervention.

Methods: We conducted a systematic review and meta-analysis. We performed a comprehensive search in the databases of PubMed/MEDLINE, Embase, and the Cochrane from inception through April 11, 2022. We collected the number of patients who underwent early and late interventions for infected pancreatic necrosis. Outcomes were mortality, gastrointestinal fistula or perforation, bleeding, and length of hospital stay. The random-effects model was used. A p value <0.05 was considered statistically significant. Heterogeneity was assessed using the Higgins I² index.

Results: Seven studies involving 742 patients were included in the meta-analysis. Timing of intervention had no statistically significant effect on mortality (RR 1.49, 95% CI 0.87 – 2.55, p = 0.15, I² = 15%) or bleeding (RR 1.54, 95% CI 0.74 – 3.21, p = 0.24, I² = 67%). However, early intervention was associated with a statistically significant higher risk of gastrointestinal fistula or perforation (RR 1.52, 95% CI 1.04 – 2.21, p = 0.03, I² = 0%) and a longer hospital length of stay (MD 10.25 days, 95% CI 0.41 – 20.10, p = 0.04, I² = 52%).

Discussion: Our meta-analysis demonstrated that the timing of intervention had no effect on mortality or bleeding. Early intervention resulted in higher risk of gastrointestinal fistula or perforation and longer length of stay.