

Trends in Pre-Operative Risk Stratification and Length of Hospital Stay in Pancreatic Resections Over Time

Background:

Pancreatic resections are complex abdominal operations for pancreatic cancer that have high rates of complications. Appropriately-resourced rural hospitals can produce pancreatic surgical outcomes comparable to national standards, but little is known about how the risk profiles and post-operative complications of pancreatic surgery patients has changed over time.

Methods:

A retrospective cohort was assembled of adults who received pancreatic resections at Marshfield Medical Center between January 2008 and December 2021. We used the American College of Surgeons National Surgery Quality Improvement Program (NSQIP) Risk Calculator, the McGill Brisbane Symptom Score (MBSS), patient demographics and post-operative complications from health records including wound infection, renal failure, length of stay, and others. Comparisons were made to assess differences in patients who received pancreatic resection in 2008-14 vs. 2015-21.

Results:

There were 215 patients in the analytical cohort. Relative to the earlier 2008-14 timeframe, patients who received pancreatic resection in 2015-21 had an increased risk profile, including significantly higher proportions with unintentional pre-operative weight loss ($p \leq 0.01$) and diabetes ($p = 0.05$). Based on the NSQIP and MBSS calculators, the latter cohort also had significantly greater pre-operative predicted risk for any post-operative complications ($p = 0.03$), including specific complications like pneumonia ($p = 0.04$), hospital readmission ($p = 0.04$), sepsis ($p = 0.02$), discharge to rehabilitation facility ($p = 0.04$), and death ($p = 0.02$). Post-operatively, there were no significant changes in actual complications. Additionally, actual length of stay in 2015-21 was significantly decreased ($p = 0.04$).

Conclusions:

The pre-operative risk profile of patients who received pancreatic resection has significantly increased since 2008-14. It is encouraging that, despite the greater complexity of such patients, many post-operative outcomes have remained stable over time and length of stay has shortened. This suggests that post-operative medical management has improved and pancreatic resection may benefit a broader range of patients suffering from pancreatic cancer.