Volume of Complex Cancer Operations near the Pancreas Favorably Influences Pancreaticoduodenectomy Outcomes at Low-Volume Pancreas Surgery Centers

Susanna W. L. de Geus, Krista Hachey, Jacob Nudel, Sing Chau Ng, David McAneny, Jennifer F. Tseng, Teviah E. Sachs
Department of Surgery, Boston Medical Center, Boston, MA

Background: It is well-established that regionalization benefits the outcomes after pancreaticoduodenectomy. However, due to geographic or financial constraints and personal choices, not all patients receive their care at high-volume pancreas surgery centers. This study assesses how the volume of pancreatic-adjacent operations (PAO) impacts the outcomes of pancreaticoduodenectomy.

Methods: The National Cancer Database (2004-2014) was queried for patients who underwent gastric, liver, biliary, pancreatic, duodenal, or ampullary cancer operations. Hospital volume was determined separately for all PAO and pancreaticoduodenectomies (PD). Centers were dichotomized as low- and high-volume centers based on the median. Three study cohort were created: low volume for PD and PAO (LV-LV), low volume for PD but high volume PAO (LV-HV), and all high-volume PD centers (HV).

Results: In total, 30,256 were identified, 46.6%, 5.2%, and 48.2% patients were treated at LV-LV, LV-HV, and HV, respectively. 30-day mortality was 4.6% in LV-LV, 2.4% in LV-HV, and 2.2% in HV (p<0.001). On multivariable analyses, patients treated at LV-HV demonstrated similar 30-day mortality compared to patients treated at HV. R1/2-resection rate was 25.5% in LV-LV, 18.5% in LV-HV, and 19.9% in HV (p<0.001). Median LOS was significantly (p<0.0001) lower at HV (8 days) compared to LV-HV (9 days) and LV-LV (10 days).

Conclusions: PD outcomes at low-volume centers that have extensive experience with complex cancer operations near the pancreas are similar to postoperative outcomes at hospitals with high PD volume. LV-HV hospitals provide a model for PD outcomes to improve quality and access for patients who cannot receive care at HV centers.