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A comparison of minimal invasive versus open pancreaticoduodenectomy for pancreatic ductal adenocarcinoma in single institution : propensity score matching analysis

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Introduction : Because of concerns about adequate oncological outcomes and perioperative complications, minimally invasive pancreaticoduodenectomy (MIPD) still has limitation of generalizability, and open pancreaticoduodenectomy (OPD) is preferred for pancreatic ductal adenocarcinoma (PDAC). Data is lacking, and differences in indication, perioperative outcomes, and oncologic outcomes between MIPD and OPD must be identified.

Methods : We retrospectively reviewed 799 patients undergoing MIPD and OPD for PDAC from January 2011 to December 2017. We collected demographic, perioperative outcome, pathology, and overall and disease-free survival data and compared MIPD and OPD. After propensity score matching (PSM), we also analysis perioperative and oncologic outcomes.

Results : We compared 76 MIPD patients with 723 OPD patients. MIPD and OPD patients differed for increased CA19-9, proportion of mGPS and vessel resection (15.8% vs 37.3%, p<0.001). MIPD had shorter hospital stay than OPD (10 vs 13 days, p<0.001). MIPD and OPD had different T stage, tumor size (2.7cm vs 3.1cm, p=0.008), perineural invasion (69.7% vs 90.0%, p<0.001), number of harvested (18.6 vs 22.2, p=0.007) and positive lymph nodes (1.5 vs 2.1, p=0.018). After PSM, perioperative outcome and pathologic outcome were not different except perineural invasion (67.2% vs 85.9%, p=0.021) between MIPD and OPD. MIPD and OPD had the same overall survival after PSM.

Conclusions : A tendency to choose patients suitable for MIPD remains; however, indications are increasing. MIPD is feasible, can be performed safely and survival was also comparable to OPD in selected patients.

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