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ORIGINAL ARTICLE

Improved survival after palliative resection of unsuspected stage IV pancreatic ductal adenocarcinoma

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Abstract

Background: Palliative resection of stage IV pancreatic ductal adenocarcinoma (PDAC) has not shown its benefit until now. In our retrospective review, we compared the results of palliative resection to non-resection.

Methods: Between 2000 and 2009, metastasis of PDAC was confirmed in the operating room in 150 patients. 35 underwent palliative resection (resection group; R) and 115 did bypass or biopsy. 35 patients (biopsy or bypass group: NR) in the 115 patients were matched with the patients undergoing resection for tumor size and the metastasis of peritoneal seeding. Demographic, clinical, operative data and survival were analyzed.

Results: There was no significant difference of major complication (Clavien–Dindo classification 3–5) between two groups. There was no 30-day mortality in either group. More patients in R received postoperative chemotherapy (82.9% vs. 57.1%; $P = 0.019$). Multivariate analysis showed resection and postoperative chemotherapy as independent factor related to survival (hazard ratio, 0.44; 95% CI, 0.25–0.76; $P = 0.003$). Patients in R showed better survival rates compared to those in NR ($P < 0.001$).

Conclusion: Our study suggests resection for stage IV PDAC can be associated with increased survival. In patients of stage IV PDAC, palliative resection with chemotherapy could have some benefit in selected patients.

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Introduction

Pancreatic ductal adenocarcinoma (PDAC) has a very dismal prognosis with survival rate less than 5%.[1] This poor survival results from not only its aggressive biology but also presentation at an advanced stage. There are no definitive signs or symptoms associated with the early stage and no effective screening tests.[2] Currently, complete surgical resection is the only chance of cure.[3] However, only 10–20% of patients with PDAC are eligible for resection at diagnosis leaving little hope for the remaining majority of patients.[4–6]

As for stage IV PDAC, most of metastases can be detected with the advent of higher quality of imaging and it has been considered contraindication of resection.[7] If metastasis is equivocal, laparoscopic exploration can be chosen. When metastasis is confirmed, palliative chemotherapy and endoscopic stenting in case of biliary or duodenal stenosis are considered firstly in most institutions including our hospital. However, not a lot but, surgeons sometimes meet the metastasis unexpectedly after opening the abdomen in operating room (OR).

During the previous 10 years in our hospital, metastases of PDAC were confirmed in OR in 150 patients and pancreatic resection was done in 35. This study aimed to analyze the perioperative and survival data of these 35 compared to patients who didn't undergo resection in the same period.

Materials and methods

Patients

Data was retrospectively collected from our pancreas registry system and electronic medical records between January 2000 and December 2009. A total of 863 patients with PDAC underwent surgery at Asan Medical Center, Seoul, Korea. We excluded patients with intraductal papillary mucinous neoplasms, pancreatic neuroendocrine tumors, and metastatic pancreatic tumors originating from other primary neoplasms. Of 863 patients, 35 underwent palliative pancreatic resection and 115 did bypass or biopsy intraoperatively by open or laparoscopic method. Though they were all in stage IV and there's no difference of age and ASA score between 35 and 115 patients, we selected 35 tumor size- and peritoneal seeding-matched controls from the 115 patients. We used the frequency matching method to select NR group which is matched to R group with respect to particular characteristics. To be specific, there are confounding factors such as, tumor size and peritoneal seeding, between R and NR groups. Patients were classified into resection group (R) or non-resection group (NR) and postoperative chemotherapy group (C) or non-chemotherapy group (NC) (Fig. 1).

Operation and postoperative chemotherapy

Generally, we don't perform operation for stage IV PDAC if metastasis has been preoperatively confirmed. However, all metastases in R in our study were detected in the OR and finally confirmed by frozen section intraoperatively.

This was retrospective study and we couldn't identify the accurate reason why the surgeons decided pancreatic resection at that time. However, resection was done mainly in those who seemed to be able to undergo grossly curative intended surgery such as single liver metastasis or a couple of peritoneal seeding macroscopically. Tumor location in distal pancreas rather than head also is assumed to affect the decision. In that situation, surgeon's preference and will of patients and their family seemed to be important factors.

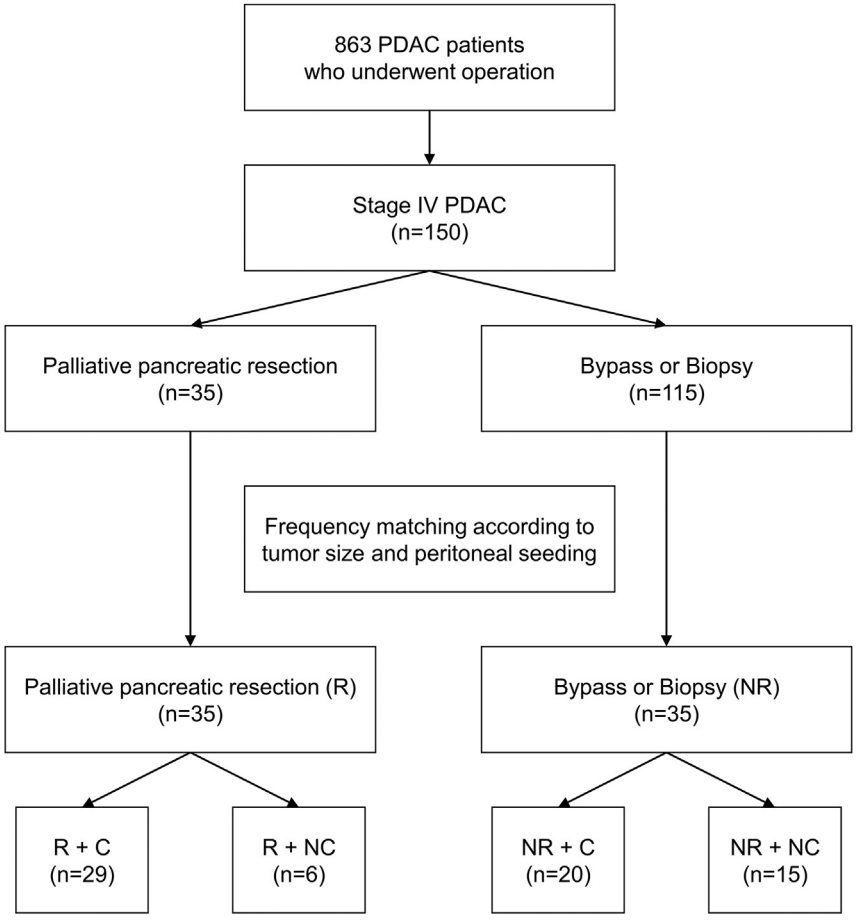

Figure 1 Study flow diagram shows 150 patients who were confirmed as stage IV pancreatic ductal adenocarcinoma in the operating room. 35 patients of them underwent palliative pancreatic resection (R), who were matched with 35 patients who didn't (NR) according to tumor size and peritoneal seeding. They were categorized according to chemotherapy (C)