

E63

Risk factors of major complication after pancreaticoduodenectomy

Jangho Park¹, Sung-Sik Han¹, Sang-Jae Park¹

¹National Cancer Center (*Center for Liver Cancer, Korea*)

**khumedicaljang@hanmail.net*

***spark@ncc.re.kr*

Purpose:

Complication of pancreaticoduodenectomy has been regarded as a remarkable concern. The incidence rate of morbidity is relatively high as ever. The aim of this study is to analyze short-term surgical outcomes of pancreaticoduodenectomy performed in a single institution and to investigate risk factors of complication following pancreaticoduodenectomy.

Methods:

Medical records of 222 patients who underwent pancreatic resection in between 2013 and 2017 were reviewed retrospectively and clinical data were collected prospectively. We divided the patients into two groups: (1) 159 patients with no complication or complication which scale of Clavien-Dindo was I or II and (2) 63 patients with complication which scale ranged from III to V. We analyzed risk factors for major complication with statistics.

Results:

One hundred twelve patients (50.5 %) had at least one complication after pancreaticoduodenectomy and 63 patients (28.4 %) had a major complication. Two patients (0.9 %) died of sepsis after the operation. Old age, male sex, intraoperative blood loss, and soft pancreas were significantly associated with incidence of major complication.

Conclusion:

Old age, male sex, intraoperative blood loss, and soft pancreas were risks factors for major complication following pancreaticoduodenectomy. It can be prevented by minimizing blood loss during the operation.

Tables

Table 1. Histopathologic findings after pancreaticoduodenectomy

Histopathology	Patients (%)
Adenocarcinoma	
Pancreas	80 (36.0 %)
Distal common bile duct	46 (20.7 %)
Ampulla of Vater	48 (21.6 %)
Duodenum	4 (1.8 %)
Chronic pancreatitis	2 (0.9 %)
Metastasis	1 (0.5 %)
Pancreatic neuroendocrine tumor	2 (0.9 %)
Pancreatic IPMN	18 (8.1 %)
Cystic pancreatic neoplasm	3 (1.4 %)
Gastrointestinal stromal tumor	1 (0.5 %)
Miscellaneous	17 (7.6 %)

IPMN: Intraductal papillary mucinous neoplasm

Table 2. The lists of postoperative complications after pancreaticoduodenectomy

Complication	Patients (%)
Pancreatic fistula	44 (19.8 %)
Wound problem	28 (12.6 %)
Delayed gastric emptying	24 (10.8 %)
Bleeding	20 (9.0 %)
Ileus	7 (3.2 %)
Biliary fistula	7 (3.2 %)
Ascites	7 (3.2 %)
Intraabdominal abscess	6 (2.7 %)
Delirium	6 (2.7 %)
Sepsis	2 (0.9 %)
Pneumonia	2 (0.9 %)
Acute kidney injury	1 (0.5 %)
Stroke	1 (0.5 %)
Miscellaneous	10 (4.5 %)

Table 3. Grade distribution of complications

Clavien-Dindo scale	Patients (%)
I	38 (28.6 %)
II	11 (9.8 %)
IIIa	52 (46.4 %)
IIIb	6 (5.4 %)
IV	3 (2.7 %)
V	2 (1.8 %)

Table 4. Risk factors for a major complication following pancreaticoduodenectomy

	No or minor complication (n = 159)	Major complication (n = 63)	Univariable analysis	Multivariable analysis		
			<i>p-value</i>	Odds ratio	CI (95 %)	<i>p-value</i>
Age	64.1 ± 10.1	67.2 ± 7.4	0.011	1.05	1.01-1.09	0.015
Sex			<0.0001			<0.0001
Male	90	53				
Female	69	10				
BMI (kg/m ²)	22.9 ± 3.3	23.4 ± 2.9	0.292			
ASA score			0.109			
1	32	6				
2	113	48				
3	14	9				
Operative time (Mins.)	330 (210 ~ 615)	335 (225 ~ 845)	0.074			
Estimated blood loss (mL)	400 (0 ~ 2000)	500 (100 ~ 5100)	0.007	1.001	1.000-1.002	0.011
Transfusion			0.003	2.21	0.53-9.24	0.279
Yes	8	11				
No	151	52				
Malignancy			0.931			
Yes	137	54				
No	22	9				
Pylorus preserving			0.372			
Yes	106	38				
No	53	25				
Vessel resection			0.039	0.29	0.08-1.06	0.062
Yes	27	4				
No	132	59				
P-duct diameter			0.749			
> 3 mm	76	32				
≤ 3 mm	81	31				
Stent insertion			0.024	1.56	0.55-4.46	0.404
Yes	123	57				
No	36	6				
Pancreatic texture			0.016	2.52	1.22-5.21	0.012
Hard	68	16				
Soft	89	46				

BMI: Body mass index, ASA: American Society of Anesthesiologists