

## Assessment of Therapeutic Outcome after Curative Resection of Extremely Elderly Patients with Hepatobiliary-pancreatic Malignancy

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### ABSTRACT

**Background :** For an aging society, assessment of therapeutic outcome after curative resection of extremely elderly patients with hepatobiliary-pancreatic malignancy is important.

**Patients and Methods :** The subjects were 25 patients 80 years or older who underwent elective pancreatic or hepatic resection for hepatobiliary-pancreatic malignancies from 2005 through 2012 at The Jikei University Hospital. We retrospectively investigated the therapeutic outcome, including postoperative complications and hospital stay.

**Results :** Eleven patients (aged 80 to 86 years) underwent elective pancreatic resection, consisting of pancreaticoduodenectomy in 8 patients and distal pancreatectomy in 3 patients. Postoperative complications occurred in 3 patients and included chylous ascites, bile leakage, and rupture of a pseudoaneurysm related to pancreatic leakage in 1 patient each. All patients made satisfactory recoveries and were discharged on postoperative day (POD) 15 to 47 (median, POD 25). Fourteen patients (aged 80 to 90 years) underwent elective hepatic resection, consisting of right lobectomy in 2 patients, extended right lobectomy in 1 patient, central bisegmentectomy in 1 patient, subsegmentectomy in 3 patients, lateral segmentectomy in 3 patients, and partial resection in 4 patients. Postoperative complications occurred in 2 patients and included bile leakage in 1 patient and hepatic failure in 1 patient. All patients made satisfactory recoveries and were discharged on POD 9 to 62 (median, POD 14.5).

**Conclusion :** Pancreatic or hepatic resection can be safely performed for extremely elderly patients, provided that the patients' general physical condition is good and perioperative management is appropriate. (Jikeikai Med J 2013 ; 60 : 65-8)

**Key words :** hepatobiliary-pancreatic surgery, elderly patient, outcome

### INTRODUCTION

In Japan, the percentage of the population 65 years or older in 2009 was 23%, which was then the highest in the world<sup>1</sup>. By 2030, the percentage of the population older than 65 years is predicted to be 31%, and the percentage older than 75 years is predicted to be 20%. Aging may

lead to the development of various malignancies. For an aging society, assessing therapeutic outcomes after curative resection in extremely elderly patients with hepatobiliary-pancreatic malignancy is important<sup>2,3</sup>. For this reason, in the present study we retrospectively investigated therapeutic outcomes, including postoperative complications and hospital stay, in extremely elderly patients (80 years or old-

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er) who had undergone elective pancreatic or hepatic resection for hepatobiliary-pancreatic malignancies.

### PATIENTS AND METHODS

The subjects were 25 patients 80 years or older who underwent elective pancreatic or hepatic resection for hepatobiliary-pancreatic malignancies from January 2005 through July 2012 at the Department of Surgery, The Jikei University Hospital, Tokyo, Japan. The extent of hepatic resection was determined on the basis of the retention rate of indocyanine green at 15 minutes before surgery and in reference to the hepatic reserve described by Miyagawa et al.<sup>4</sup>. All patients received preoperative immunonutrition and underwent pulmonary rehabilitation. Patients stayed in the intensive care unit at least until postoperative day (POD) 1 and started to walk on POD 1 or 2, if possible. Postoperative complications, such as pancreatic leakage, bile leakage, and hepatic failure, were diagnosed and classified according to the Clavien-Dindo classification<sup>5</sup>.

Recurrence of cancer was defined as local or distant metastatic tumors newly detected with ultrasonography, computed tomography, or magnetic resonance imaging with or without increases in the serum level of carcinoembryonic antigen, carbohydrate antigen 19-9,  $\alpha$ -fetoprotein, or protein induced by vitamin K absence or antagonist-II.

This retrospective study was approved by the Ethics Committee of The Jikei University School of Medicine (#21-121).

### RESULTS

Table 1 shows characteristics and therapeutic outcomes of extremely elderly patients who underwent pancreatic resection. Eleven patients (aged 80 to 86 years) underwent elective pancreatic resection, consisting of pancreaticoduodenectomy in 8 patients and distal pancreatectomy with splenectomy in 3 patients. Postoperative complications occurred in 3 patients (27.3%) and included chylous ascites, bile leakage and rupture of pseudoaneurysm related to pancreatic leakage in 1 patient each. All patients made satisfactory recoveries and were discharged on POD 15 to 47 (median, POD 25). Four of the 11 patients had recurrence of the primary cancer with a median follow-up period of 13 months; 2 of these patients died of recurrence, and 1 patient died of aspiration pneumonitis at another hospital.

Table 2 shows characteristics and therapeutic outcomes of extremely elderly patients who underwent hepatic resection. Fourteen patients (aged 80 to 90 years) underwent elective hepatic resection, which consisted of right lobectomy in 2 patients, extended right lobectomy in 1 patient, central bisegmentectomy in 1 patient, subsegmentectomy in 3 patients, lateral segmentectomy in 3 patients, and partial resection in 4 patients. Postoperative complications occurred in 2 patients (14.3%) and included bile leakage and hepatic failure in 1 patient each. All patients made satisfactory recoveries and were discharged on POD 9 to 62 (median, POD 14.5). Nine of the 14 patients had

Table 1. Patient characteristics and therapeutic outcomes of extremely elder patients who underwent pancreatic resection

Age (years)	Gender	Diagnosis	Procedure	Postoperative complications (C-D)	Postoperative hospital stay (days)	Recurrence (years)	Status (years)	Coexistence disease
81	M	BC	PD	None	47	LN (3.0)	Alive (4.5)	OMI, HT
82	F	PC	PD	None	28	None (6.0)	Alive (6.0)	HT
80	M	PC	PD	None	26	None (3.7)	Alive (3.7)	DM
80	F	PC	PD	None	16	LN, Liver (0.7)	Dead (0.9)	HT
83	F	PC	PD	Chylous ascites (IIIa)	40	LR, Liver (0.6)	Dead (0.8)	HT, DM
82	M	PC	PD	None	25	None (0.7)	Dead (0.7)*	HT, CI
80	M	PC	PD	Bile leakage (I)	15	None (1.1)	Alive (1.1)	None
82	M	BC	PD	Rupture of Pseudoaneurysm (IIIa)	45	None (1.1)	Alive (1.1)	HT, DM
86	M	PC	DP	None	15	None (6.5)	Alive (6.5)	HT
81	M	PC	DP	None	15	None (3.0)	Alive (3.0)	None
80	M	PC	DP	None	16	Liver (0.8)	Alive (1.1)	HT

BC, bile duct cancer; PC, pancreatic cancer; PD, pancreaticoduodenectomy; DP, distal pancreatectomy; C-D, Clavien-Dindo classification; LN, lymph node; LR, local recurrence; OMI, old myocardial infarction; HT, hypertension; DM, diabetes mellitus; CI, cerebral infarction; \*died due to aspiration pneumonitis

Table 2. Patient characteristics and therapeutic outcomes of extremely elder patients who underwent hepatic resection

Age (years)	Gender	Diagnosis	Procedure	Postoperative complications (C-D)	Postoperative hospital stay (days)	Recurrence (years)	Status (years)	Coexistence disease
80	M	HCC (HCV)	RL	Bile leakage (IIIa)	62	Liver (1.1)	Dead (2.6)	None
82	F	HCC (NBNC)	RL	None	18	Liver (1.6)	Alive (3.7)	HT, DM
80	M	HC	ERL	Hepatic failure (II)	44	LR, PC (0.4)	Dead (0.6)	HT
80	M	HCC (HCV)	PR	None	10	None (3.6)	Alive (3.6)	None
80	M	HCC (HCV)	PR	None	16	Liver (0.8)	Alive (2.4)	None
80	F	CRLM	CBS	None	12	Lung (0.3)	Alive (3.0)	HT
81	M	HCC (NBNC)	PR	None	12	Liver (0.8)	Dead (2.4)	DM
80	M	CRLM	LS	None	12	None (3.3)	Alive (3.3)	None
84	F	CRLM	LS	None	18	Liver (0.1)	Dead (1.1)	HT, DM, COPD
83	M	CRLM	SS	None	12	Lung (0.3)	Dead (0.5)	Hypothyroidism
81	F	CRLM	SS	None	16	None (2.9)	Alive (2.9)	BP
85	M	CRLM	PR	None	9	None (1.5)	Alive (1.5)	HT, DM
83	M	HCC (NBNC)	SS	None	13	None (1.0)	Alive (1.0)	HT, DM, CI
90	M	HCC (NBNC)	LS	None	19	Liver (0.4)	Alive (1.0)	HT

HCC, hepatocellular carcinoma ; HC, hilar cholangiocarcinoma ; CRLM, colorectal cancer liver metastasis ; HCV, hepatitis virus C ; NBNC, non-B non-C hepatitis ; RL, right lobectomy ; PR, partial resection ; CBS, central bisegmentectomy ; LS, lateral segmentectomy ; SS, subsegmentectomy ; C-D, Clavien-Dindo classification ; LR, local recurrence ; PC, peritoneal carcinomatosis ; HT, hypertension ; DM, diabetes mellitus ; COPD, Chronic Obstructive Pulmonary Disease ; BP, bullous pemphigoid, CI, cerebral infarction

recurrence of primary cancer, with a median follow-up period of 29 months ; 5 of these patients died of recurrent disease.

## DISCUSSION

For extremely elderly patients, medical intervention remains controversial. Recent improvements in surgical techniques, instruments, and postoperative care have improved short-term therapeutic outcomes, including decreased rates of mortality and morbidity<sup>6</sup>, but hepatobiliary-pancreatic surgery is still associated with a risk of death. However, surgical resection is the most effective and potentially curative treatment for hepatobiliary-pancreatic malignancies<sup>7,8</sup>. In elderly patients, assessment of patients' physical condition, coexisting diseases, and nutritional status and appropriate perioperative management are more important than in younger patients.

In the present series of patients 80 years or older who underwent pancreatic or hepatic resection for hepatobiliary-pancreatic malignancies, the mortality rate was 0%, and the morbidity rates were 27.3% for pancreatic resection and 14.3% for hepatic resection. The morbidity rates for this series trended to be lower than those of both younger patients and elderly patients (aged 27 to 84 years) at our department, which were 50.0% for pancreatic resection<sup>9</sup> and

of 29.2% to 33.3% for hepatic resection<sup>10,11</sup>.

In the present series, 4 of 7 patients with hepatocellular carcinoma (HCC) did not have hepatitis B or C virus infection. In patients with hepatitis virus-negative HCC, remnant liver function may be better and the recurrence rate may be lower than those in patients with hepatitis B or C virus infection<sup>12</sup>. In addition, the percentage of elderly patient is greater among patients with hepatitis virus-negative HCC than among patients with hepatitis C virus-associated HCC<sup>12</sup>. Therefore, elderly patients with HCC may benefit from surgical resection, especially if they are free of hepatitis virus infection.

## CONCLUSION

Although hepatobiliary-pancreatic surgery is associated with a risk of death, pancreatic or hepatic resection is possible for extremely elderly patients, provided that the patients' general physical condition is good and perioperative management is appropriate.

Authors have no conflict of interest.

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