KAHBPS-PP-3-9

Clinical significance according to the precursor type of ampulla of vater cancer

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(Purpose) Although ampullary cancer are rare disease, it is considered to have a better prognosis than other periampullary cancer. According to a recent study, Intra-ampullary Papillary-Tubular Neoplasm (IAPN) is mass-forming preinvasive neoplasm that occur specifically within the ampulla. The aim of this study were to identify clinical outcome according to the precursor type (IAPN and flat dysplasia) of ampullary cancer. **(Methods)** Patients who underwent pancreatoduodenetomy for ampullary cancer between Dec. 1994 and Aug.2014. We retrospectively collected data on clinical records. 406 patients underwent curative resection. Among them, precursor type has been reported 77cases (IAPN 30 and flat dysplasia 47). **(Results)** The 3-, 5- and 10- year disease free survival rates of the 406 cases were 62.5%, 60.1% and 56.4%, respectively, and overall survival rates were 62.5%, 60.1% and 49.9%, respectively. Multivariate analysis showed that advanced T stage (P=0.052) and CA19-9 (37U/ml≤, P=0.005) were significantly increased the risk of recurrence. Flat dysplasia was higher recurrent rate than IAPN (P=0.025) in negative node metastasis (N0). **(Conclusion)** Advanced T stage and higher CA19-9 were found to be independent predictors of recurrence after curative resection ampullary cancer. Although negative node metastasis was good prognostic factor, it was be expectation that flat dysplasia of precursor type was bad prognostic factor. However, It is considered that furthermore study is needed.

KAHBPS-PP-4-1

Should we have interval between ERCP and laparoscopic cholecystectomy?

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(Purpose) The gold standard of care for gallbladder calculi and isolated common bile duct stones is represented by laparoscopic cholecystectomy and endoscopic retrograde cholangiopancreatography, respectively, while a debate still exists regarding how to treat the two diseases at the same time. The aim of this study is to investigate whether we should have time gap between ERCP and laparoscopic cholecystectomy. **(Methods)** The current retrospective study was conducted in 143 patients who underwent laparoscopic cholecystectomy following a preoperative ERCP at Hanyang University Kuri Hospital during a 3-year period from January of 2011 to December of 2013. Basic characteristics, BMI, interval between ERCP and operation, severity of cholangitis, previous major abdominal operation histories and histologic type of cholecystitis were collected. Complications of ERCP including bleeding, perforation and post-ERCP pancreatitis were investigated. We analyzed whether each factors was influenced to operation time, complications and additional increase of hospital stay due to post ERCP pancreatitis and bleeding. Multiple regression analysis was used for statistical study. **(Results)** Conversions to open surgery were done in three cases. Only two factors in-

cluding histologic type of cholecystitis and major operation history influenced to operation time (P value<0.00). Interval from ERCP to operation was not influenced to operation time and additional increase of hospital stay (P value=0.682, P value=0.646). Major complications of ERCP were perforation or injury of bile duct, pancreatic duct and duodenum. They were found out immediately after ERCP procedure. **(Conclusion)** There is no necessity to have time gap between ERCP and laparoscopic cholecystectomy in most cases of laparoscopic cholecystectomy following preoperative ERCP. Additionally, it is suggested that you should check post ERCP serum amylase and post operative tubogram via ENBD catheter.

KAHBPS-PP-4-2

Recurrence patterns after R0 resection of periampullary adenocarcinoma

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(Purpose) The survival rate after microscopically radical resection of pancreatic duct adenocarcinoma is still poor. Patients with ampulla of Vater and distal common bile duct adenocarcinoma indicate a much more favorable prognosis. Many patients who underwent macroscopically radical resection for periampullary adenocarcinomas have experienced tumor recurrences, and it is still not clear whether only the surgery can completely eliminate tumor cells. Controversy exists as to whether adjuvant therapy could improve the outcome in these patients after resection. The aim of the present study was to analyze the pattern of recurrence in patients with periampullary adenocarcinoma after pancreatoduodenectomy. **(Methods)** We retrospectively reviewed the clinicopathologic data of patients who underwent pancreaticoduodenectomy for periampullary adenocarcinoma from January 2002 to January 2013. All patients with an R0 resection were identified and used for this analysis. Tumors other than adenocarcinoma were excluded. All available postoperative imaging and clinical follow-up data were reviewed. **(Results)** Of the 292 patients who underwent surgery for periampullary cancer, there were 119 patients with tumor recurrence after pancreaticoduodenectomy. Tumor size, grade, positive lymph node status and perineural invasion were factors associated with tumor recurrence on multivariate analysis. The most common mode of tumor recurrence was hepatic metastases in all types of periampullary cancer except for ampulla of Vater cancer. Most recurrences (66.4%) occurred within 1 year. Pancreas head cancers recurred earlier than the other types of periampullary cancer ($p<0.05$). **(Conclusion)** Periampullary cancer has a tendency toward early recurrence after surgery, with hepatic metastasis, local recurrence and lymphadenopathy being the major modes of recurrence. Pancreas head cancer has a tendency to recur sooner than other periampullary cancers. Selected patients with periampullary malignancies should be considered for adjuvant treatment including local therapy (radiotherapy) according to the identified prognostic factors.

KAHBPS-PP-4-3

The characteristics of the patients who underwent ERCP after laparoscopic cholecystectomy

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(Purpose) Common bile duct stones are present in 10% to 20% of patients who undergo surgery for gallbladder stones. It is not necessary for the patients with low risk of CBD stones to undergo ERCP preoperatively. Some authors reported that the risk of migration of gallbladder in the biliary tree is greater the smaller or more numerous they are, rather than when there is a single stone or multiple large stones. **(Methods)** We retrospectively reviewed a database of every LC perfomed between July 2006 and September 2012 by 2 surgeons at our hospital. We defined 28 patients who underwent ERCP within 6 months after laparoscopic cholecystectomy for GB stones or sludge with or without acute cholecystitis as ERCP group. Control group consisted of 56 patients who did not undergo ERCP after laparoscopic cholecystectomy paired by age, sex and operation period. To evaluate whether there is a risk factor in patients who underwent ERCP within 6 months after laparoscopic cholecystectomy, we compared age, sex, admission route, preoperative biochemical LFT, number of stones, existence of acute cholecystitis between two groups. **(Results)** ERCP group were 28 cases and control groups were 56 cases.Male to woman ratio was 11:17 in ERCP group and 25:31 in control group (p=0.815). Mean age was 55.5 (23-83) years in ERCP group and 52.1 (18-85) years in control group (p=0.324). The patients admitted though ER were 13 out of 28 patients in ERCP group and 13 out of 56 patients in control group (p=0.030). The patients who underwent ERCP after LC are not likely to exposure to multiple GB stones compared to control group. (p=0.164) The patients with acute cholecystitis were 16 out of 28 in ERCP group and 12 out of 56 in control group. (p=0.002) Operative time were 62.41±21.87 in ERCP group and 53.81min±19.72 in control group (p=0.048). There is a significant difference in the route of admission between two groups (p=0.001) Multivariate analysis identified admission route (p=0.03), preoperative AST (p=0.06), ALT (p=0.08), ALP (p=0.001), operative time (p=0.009) and acute cholecystitis (p=0.001) as independent risk factor of postoperative ERCP. **(Conclusion)** It should be considered that the patients admitting though ER with acute cholecystitis and mildly elevated LFT are likely to experience ERCP after laparoscopic cholecystectomy compared to control group.

KAHBPS-PP-4-4

Compare of the Laparoscopic vs. Open pylorus preserving total pancreaticoduodenectomy in benign to borderline malignant pancreas tumor

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(Purpose) Laparoscopic pancreas surgery has been practiced with development of the surgical technique and the laparoscopic instrument. Also total pancreaticoduodenectomy has been applied for benign and borderline pancreatic disease. **(Methods)** From 2005 to 2014, 9 consecutive patients underwent laparoscopic pylorus preserving total pan-

creaticoduodenectomy (LPpTPD) and 13 patients underwent open pylorus preserving total pancreaticoduodenectomy (OPpTPD) in Yonsei University severance Hospital. We compare the perioperative outcomes between LPpTPD and OPpTPD. **(Results)** The median operation time of LPpTPD was 540 (410-652) min. and OPpTPD was 548 (232-988) min (P=0.845). And the median estimated blood loss of LPpTPD was 450 (49-1000) ml and OPpTPD was 1400 (350-3600) ml (P=0.004). And the median latent of hospital stay (LOH) of LPpTPD was 17 (7-46) daysand OPpTPD was 25 (13-46) days (P=0.096). And the transfusion of rate of LPpTPD was 33.3% (3/9) and OPpTPD was 69.2% (9/13). The pathological reports of the LPpTPD were metastatic renal cell carcinoma (RCC), 6 IPMN including invasive type, 1 autoimmune pancreatitis and CBD cancer combined IPMN. And the pathologic reports of OPpTPD were 1 metastatic RCC, 4 NET and 8 IPMN including invasive type. **(Conclusion)** LPpTPD is feasible and safe, even if case with metastatic renal cell carcinoma. LPpSpTPD procedure could be applied to benign and borderline pancreatic disease including metastatic cancer to pancreas.

KAHBPS-PP-4-5

A cadaveric study for inflow and outflow vascular system of the caudate lobe

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(Purpose) The purpose of the present investigation is to describe the anatomical structure of the caudate lobe and retrohepatic inferior vena cava and to determine its relevance to hepatobiliary surgery **(Methods)** We dissected 41 cadaveric liver specimens in 2014 to study the fundamental structure of the caudate lobe, describe the arterial and portal blood supply, venous drainage and its bile duct, study the anatomical structure of the retrohepatic inferior vena cava and analyse the data. **(Results)** We found the portal veins of the paracaval portion mainly from the right pedicle in 14 cases (34.15%), mainly from the left pedicle in 22 cases (53.66%), equally from the left and right pedicle in 5 cases (12.19%). **(Conclusion)** The caudate lobe is a independent lobe with irregular shape, special anatomical location and complicated structure. Its characteristic piping system is highly variable, so it is difficult and dangerous if you are unfamiliar with its anatomical structure and common variation types.

KAHBPS-PP-4-6

Successful consecutive pancreatectomies in Jehovah's Witness patients

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(Purpose) Even though the surgical techniques and perioperative cares have been improved, blood transfusions are still often required to the patients undergoing pancreatectomies. But complications from blood transfusions, poor prognosis of blood transfused patients, cost and availability of blood products demand transfusion free surgery in the patients who have pacreatectomies. The purpose of this study is to verify feasibility of transfusion free pancreatectomies for Jehovah's Witness patients. **(Methods)** We had investigated the possibility of transfusion free pancreatectomies for the Jehovah's

Witness patients underwent pancreatectomies from January 2007 to Februay 2014. There were 4 cases of Whipple's operation, 4 cases of pylorus preserving pancreaticoduodenectomy, 2 cases of radical antegrade modular pancreaticosplenectomies and 1 case of laparoscopic distal pancreatectomy performed by one surgeon for the Jehovah's Witness patients. **(Results)** 8 of the 11 patients (72.72%) received preoperative blood augmentation and 9 of the 11 patinets (81.81%) received intraoperative acute normovolemic hemodilution (ANH). 7 of the 11 patients (72.72%) received postoperative blood augmentation. The results of showed that tolerable intraoperative data and postoperative outcomes. There were no major complications except grade A pancreatic fistula, postoperative ileus, wound infection. Any transfusions were not done for these patients. **(Conclusion)** To our best knowledge, this is the first successful consecutive pancreatectomy program in Jehovah's Witness patients without blood transfusion. Transfusion free pancreatectomy can be done successfully in selected Jehovah's Witness patients patients without severe complications.

KAHBPS-PP-4-7

Analysis of clinicopathologic characteristics in intraductal papillary neoplasm of bile duct

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(Purpose) Since World Health Organization established a pathologic definition of intraductal papillary neoplasm of bile duct (IPN-B) in 2010, it has been recognized as a distinct premalignant disease entity and can often times be associated with invasive carcinoma. However, similarity and ambiguity in clinical presentation with cholangiocarcinoma causes a significant confusion, which requires further clarification of disease characteristics and treatment outcome. **(Methods)** From January 2009 to August 2014, 21 patients underwent surgery and were pathologically confirmed as IPN-B in our center. We reviewed clinicopathologic characteristics of them and compared treatment outcome with those who underwent surgery during similar period for cholangiocarcinoma without evidence of IPN-B. SPSS 20.0 was used for statistical analysis. **(Results)** Twelve patients (12/21) were male. Median age was 70 (range: 52~82). Five patients had intrahepatic, 11 patients had perihilar, and 5 patients had extrahepatic lesions. For intrahepatic and perihilar lesions, 69% (11/16) was located on the left side of liver, whereas only 40% of cholangiocarcinoma without IPN-B was located on the left side. The most common symptom at presentation was jaundice (47.6%) followed by abdominal pain (38.1%). Four patients had no symptom and was diagnosed on routine health check-up. CA 19-9 was elevated in 10/21 patients. Endoscopic or percutaneous biliary procedure was performed in 15/21 patients either for therapeutic or diagnostic purpose. Fifteen patients (71.4%) were found to have associated invasive carcinomas. Among them, R0 resection of invasive component was performed in 13 (87%) patients whereas R1 and R2 resection was performed in one case, respectively. However, in terms of IPN-B, only 52.4% (11/21) could underwent R0 resection. During follow-up, only one patient who had an associated invasive carcinoma developed recurrence and expired. On the other hand, one patient with initially benign disease and underwent R1 resection developed recurrence in more than 5 years. Comparison of recurrence-free survival with patients with cholangiocarcinoma without evidence of IPN-B showed a significant difference ($p<0.001$), whereas significance was not observed in overall survival most likely due to relatively short follow-up period. **(Conclusion)** IPN-B seems to

have a different clinicopathologic characteristics compared to conventional cholangiocarcinoma. Because of its nature involving large longitudinal extent of biliary tree, often times complete removal becomes difficult. However, aggressive surgical approach enabling complete removal of involved area seems to improve outcome. More case collection and longer follow-up data is necessary to define its characteristics more precisely.

KAHBPS-PP-4-8

Prognostic factors of intrahepatic cholangiocarcinoma

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(Purpose) The aim of this study was analyzing prognostic factors of intrahepatic cholangiocarcinoma after surgical resection. **(Methods)** Between January 2001 and February 2013, 78 patients underwent curative surgical resection for intrahepatic cholangiocarcinoma. Demographics and patient disposition, perioperative results, histopahological results, long term survival were analyzed retrospectively. **(Results)** There was male dominant and mean age was 60.5 years old. In 65 patients (89.4%), tumor was single and mean tumor size was 5.9cm. Mass forming type was most common (75.6%). After surgical resection, 5-year overall and disease-free survival rate was 50% and 21.8% respectively. On univariate analysis, presence of portal vein tumor thrombus, poor differentiation, presence of microvascular invasion, presence of lymph node metastasis, high CEA level and advanced AJCC stage were poor prognostic factor for overal survival. On multivariate analysis, presence of portal vein tumor thrombus, microvascular invasion and high CEA level were poor prognostic factors. **(Conclusion)** Surgical resection for intrahepatic cholangiocarcinoma offers the best opportunity for long-term survival. Presence of portal vein tumor thrombus, microvascular invasion and high CEA level were poor prognostic factors.

KAHBPS-PP-4-9

Changing incidence and survival for biliary tract cancers in Korea, 1999-2011

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(Purpose) It has been reported that the incidence of biliary tract cancers (BTC) changed in the western countries. The aim of this report is to investigate the incidence, relative survival rates and their trends on biliary tract cancers in Korea. **(Methods)** The incidence of gallbladder cancer (GBC), intrahepatic bile duct cancer (IBC), and extrahepatic bile duct cancer (EBC) was estimated from cases diagnosed between 1999 and 2011 using the National Cancer Incidence Database in Korea. Age-standardized rates (ASR), annual percent change (APC) and male-to-female rate ratios were calculated. Five-year relative survival rates were estimated. **(Results)** Between 1999 and 2011, 70,584 patients were diagnosed with BTC in Korea (male/female=54.7/45.3%; mean age, 68 years). The absolute incidence cases of the three cancers increased: 3,556 in 1999 to 7,299 in 2011. The most common site was the IBC (39.3%), followed by GBC (33.7%) and EBC (27.0%). BTC occurred in males more often than in females (male to female, 1.64:1). In IBC, the

ASR increased from 2.4 per 100,000 person-years in 1999 to 4.5 in 2011, and the APC was 6.6% (P<0.001), while in EBC and GBC, the incidence rates remained stable over time. The 5-year relative survival rate improved by year of diagnosis (1999-2004 to 2005-2009: GBC, 20.6% to 24.9%; IBC, 9.4% to 10.1%; EBC, 17.6% to 21.81%). **(Conclusion)** This study provides the first population-based analysis of biliary tract cancers in Korea. Our study showed incidence of IBC is increasing and the 5-year relative survival rate of BTC improved.