be multifocality and vascular invasion, like portal vein (PVTT). Sorafenib can be usually treatment of choice for advanced HCC because several trials confirmed the safety and efficacy. But Sorafenib is less effective in patients with advanced HCC, like PVTT or extrahepatic disease. These advanced HCC patients are excluded for liver transplantation (LT), according to Milan criteria. Traditionally radiotherapy (RT) was believed not effective for HCC but after developed conformer RT, there are several trial about RT as bridge to LT. Purpose of our study is to compare the efficacy of LDLT following RT in advanced HCC with PVTT with that of RT alone and identify the overall survival rates after LDLT in patients with advanced HCC underwent radiation. **(Methods)** Hepatocellular carcinoma (HCC) tends to be multifocality and vascular invasion, like portal vein (PVTT). Sorafenib can be usually treatment of choice for advanced HCC because several trials confirmed the safety and efficacy. But Sorafenib is less effective in patients with advanced HCC, like PVTT or extrahepatic disease. These advanced HCC patients are excluded for liver transplantation (LT), according to Milan criteria. Traditionally radiotherapy (RT) was believed not effective for HCC but after developed conformer RT, there are several trial about RT as bridge to LT. Purpose of our study is to compare the efficacy of LDLT following RT in advanced HCC with PVTT with that of RT alone and identify the overall survival rates after LDLT in patients with advanced HCC underwent radiation. **(Results)** Table 1 is shown clinical characteristics of both groups and there is no statistically difference between both groups. In these 5 LDLT following RT group, the interval periods between RT and LT was about 180 days and mean value of MELD score was 18. All LT was done by LDLT and mean operation times are 588 minutes. During operation, mean amount of transfusion are 3.4 pints and all cases are done by duct to duct anastomosis. During follow-up periods, in LDLT following RT group, 2 recipients shown disease progression, but in RT alone group, all patients are shown tumor ingrowths or intra-, extra-hepatic metastasis. LDLT following RT group`s OS was 1055 days and that of RT alone group`s was 367 days and there was significant statistically difference (Table 4 and Figure 1). **(Conclusion)** LDLT following RT can be treatment of choice for PVTT in selective patients like low AFP level, branched type of PVTT, and good tumor response, and we suggest that this warrants further testing in a randomized, controlled, multi-centre trial. And when bile duct anastomosis in RT recipients, hepaticojejunostomy was recommended to prevent biliary complication.

KAHBPS-O-4-1

Expression of bile acid receptor TGR 5 in gallbladder cancer

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(Purpose) TGR 5 is a plasma membrane bound, G-protein coupled receptor for bile acids. It has been detected in a various tissues, especially in biliary tree. There have been some reports that TGR 5 expression is related with the development of cancer, however, almost all of it was for knockout mice. In this study, we determined the relationship between the strength of TGR 5 expression and gallbladder cancer. **(Methods)** We retrospectively reviewed the medical records and immunohistochemistry assessment for cancer tissue of 30 patients who underwent radical cholecystectomy for gallbladder cancer at our hospital between July 2004 and April 2013. And then, we compared it to the patients who underwent cholecystectomy for benign gallbladder disease, such as a gallbladder stone or benign polyps. We analyzed the staining pattern and strength for TGR 5 as intensity and ex-

tent, then we categorized it as three groups: weak, moderate and strong staining. We also evaluated the relationship between the strength of TGR5 staining and cancer stage with patient survival. **(Results)** The overall strength of TGR 5 staining was significantly higher in the gallbladder cancer group than the benign gallbladder disease group (p=0.001). In gallbladder cancer group, the strong TGR 5 staining was present in 50% and the weak staining was observed only in 6.7%. However, in the benign gallbladder disease group, the weak TGR 5 staining was observed in 25.9% and the strong staining was only in 18.5% (p=0.002). However, no significant different was not observed between the strength of TGR 5 expression and cancer cell differentiation or TNM stage (p=0.309 and p=0.605). Furthermore, in this study, we could not revealed any relationship between the strength of TGR 5 expression and the patient survival (p=0.594). **(Conclusion)** We concluded that TGR 5 is much more expressed in the gallbladder cancer than normal gallbladder mucosa. However, we did not found any significant association between TGR 5 expression and cancer stage or patient survival in this study.

KAHBPS-O-4-2

Long-term outcomes and clinicopathological features of intraductal papillary neoplasms of the intrahepatic bile duct

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(Purpose) This study intended to investigate the long-term outcomes and clinicopathological features of the intraductal papillary neoplasms of the intrahepatic bile duct (IPNB), especially focused on malignant features. **(Methods)** From our institutional database of liver resection cases, 27 cases who met the definition of IPNB were selected. They underwent liver resection between February 2002 and May 2011. Their medical records were reviewed retrospectively. **(Results)** Of 27 patients, 14 patients were males. Their mean age was 61.3±6.7 years. Abdominal pain was the most common symptom leading to diagnostic work-up. The common radiologic findings were intraductal growing mass in 19 patients (70.3%), bile duct dilatation in 13 patients (48%), and duct stricture in 2 patients (11%). Left and right hepatectomies were performed in 19 and 8 respectively. Of them, 6 patients showed benign and bortherline lesions of IPNB and 21 patients revealed malignant lesions of IPNB. All 6 patients with benign and borderline lesions survived for a mean period of 104 months without recurrence. In 21 patients with malignant lesions, 1-year, 3-year and 5-year survival rates were 100%, 84.6% and 59.2%, respectively. Pathological analysis revealed that presence of hepatic parenchymal invasion was significantly higher in the malignant group than in the borderline/benign group (43% vs. 0%, p=0.000). Presence of mucin production was significantly associated with malignant changes (29% vs. 16%, p=0.01). There were no differences between non-malignant and malignant lesions in comparison of CEA levels (5.6±2.7 vs.12.6±31.1 ng/mL, p=0.44) and CA19-9 levels (29.2±34.7 vs. 31.9±30.2 ng/mL, p=0.87). **(Conclusion)** Intrahepatic IPNB is a rare type of biliary neoplasm which includes a wide histological spectrum ranging from benign disease to invasive malignancy. Favorable long-term survival is anticipated after curative resection of these lesions.

KAHBPS-O-4-3

Portal vein defect repair by using polytetrafluoroethylene (PTFE) patchy angioplasty in the surgery for perihilar cholangiocarcinoma

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(Purpose) Tumor invasion of contralateral portal vein can be encountered during resection of peri-hilar cholangiocarcinoma. When the portal vein resected in this circumstance we have been experienced variable complications; stenosis, thrombosis, angulation, and obstruction. From 2010, we were using a polytetrafluoroethylene (PTFE) patch angioplasty to avoid these complications, we report the results. **(Methods)** From September 2009 to September 2014, 16 PTFE patch angioplasty were perforemed during surgery for peri-hilar cholangiocarcinoma in division of Hepatobiliary and Pancreatic Surgery, Asan Medical Center, Seoul, Korea. We analyzed method, conduits, short and long term patency and survivals. **(Results)** The operation method is patch angioplasty by using PTFE. Anastomosis site stricture occurred in 4 patients. However, in all cases, portal vein patency was maintained, and there was only one post-hepatectomy liver dysfunction. This patient expired as a post hepatectomy liver failure. Bile leakage occurred in 3 patients, and 2 patients occurred portal vein stenosis. With mean follow-up of 15.3 months, the 6- and 12- month survival rates were 74% and 65%. **(Conclusion)** Advanced peri-hilar cholangiocarcinoma requires extended liver resection and often vascular resection. Many of the involved portal vein were repaired primarily. When tension-free anastomosis is impossible or anastomosis stricture after primary closure occurred. PTFE patch angioplasty are good option to overcome these situation.

KAHBPS-O-4-4

Clinical significance of pancreatic intraepithelial neoplasia (PanIN) after resection of pancreatic cancer

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(Purpose) Distinct noninvasive precursor lesions for pancreatic adenocarcinoma include pancreatic intraepithelial neoplasia (PanIN), intraductal papillary mucinous neoplasm (IPMN), and mucinous cystic neoplasm. Pancreatic intraepithelial neoplasia (PanIN), thought to represent the dominant precursor of pancreatic adenocarcinoma (PDAC), is often found synchronously adjacent to resected PDAC tumors. However, its prognostic significance on outcome after PDAC resection is unknown. The purpose of the current study was to determine if the presence of PanIN has a prognostic or predictive effect on survival after resection for PDAC with curative intent. **(Methods)** We retrospectively reviewed the clinicopathologic data of patients who underwent pancreatectomy for PDAC from January 2002 to January 2013. Intraductal papillary mucinous lesions and mucinous cystic neoplasms were

excluded. All available postoperative imaging and clinical follow-up data were reviewed. **(Results)** There were 95 patients who underwent pancreatectomy. The average age was 64.4 years. The tumor was most commonly located in the pancreas head and as such pancreaticoduodenectomy was the most commonly performed operation. The median tumor size was 3.2cm. An absence of PanIN lesions was identified in 39 patients (41%). Of the patients with PanIN lesions, high grade PanIN (grade 3) was the most common type (64.3%) followed by grade2 (28.6%). Median survival was 14 months for the non-PanIN group and 16 months for the PanIN group. There was no significant difference in overall survival or disease free survival between the non-PanIN group and PanIN group. **(Conclusion)** The presence or absence of PanIN lesions did not affect survival in patients undergoing resection for pancreatic cancer. Larger studies with longer follow up are needed to accurately determine its clinical significance.

KAHBPS-O-4-5

Pancreatogenic diabetes after different pancreatic resection

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(Purpose) Postoperative diabetes mellitus (DM) after pancreatic resection including pancreaticoduodenectomy (PD), central pancreatectomy (CP), and distal pacreatectomy (DP) is one of major long-term complications to worsen the quality of life of patients who survived after operation. The aim of this study is to evaluate the incidence and risk factors of new-onset pancreatogenic DM after various pancreatic resection. **(Methods)** Among 622 patients who had undergone pancreatectomy between May 2007 and December 2013, 123 patients, who had no DM preoperatively and had assessed hemoglobin A1C (HbA1c) at 3 months post-operatively, were selected. DM defined as fasting blood sugar (FBS)≥126mg/dl or HbA1C≥6.5%. The clinical data of these patients were retrospectively analyzed by reviewing the medical records and pathologic reports. **(Results)** The operation type included PD (n=72), DP (n=41), and CP (n=0). Postoperative pathology confirmed malignant tumors in 92 patients, borderline malignancy in 7, and benign tumors in 24. The tumor locations included the pancreas (n=77), the common bile duct (CBD) (n=21), the ampulla of Vater (n=17), and the duodenum (n=8). Postoperative DM (PODM) occurred in 35 patients (28.4%);in cases of PD (n=14 (19%)) and DP (n=21 (51%)); who were more likely to have BMI, tumor location, type of operation compared with patients without PODM ($P<0.05$). On multivariate anlaysis, type of operation ($p<0.001$) was independent predictor of PODM. **(Conclusion)** PODM occurred in 28.4% of patients undergoing peancreatic resection. The incidence of PODM after DP is higher than after PD.