

Oral Presentation IV

IV-1

**Analysis of 800 Resected Hepatocellular Carcinomas for 10 Years**

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**Purpose:** Though several effective non-surgical modalities have been actively adopted for hepatocellular carcinoma (HCC) patients, hepatectomy is undoubtedly the standard modality for resectable HCC. The purpose of this study is to show the clinical characteristics of resected HCC patients and to analysis the prognostic factors for recurrence after resection.

**Patients and Methods:** Between 2001 and 2011, 800 hepatectomies for HCC were performed in National Cancer Center. The patients' data were reviewed retrospectively. For the survival analysis we include the 533 patients with minimal follow-up of 2 years. Survival rate were calculated by Kaplan-Meier method and uni- and multi-variate analysis for prognostic factor were done by log-rank test and Cox proportional hazard model.

**Results:** Male was predominant (M:F=82.3%:17.7%) and median age was 56 (12-83). Hepatitis B surface antigen were positive in 77.3% and anti-hepatitis C antibody positive in 7.2% and most of patients were Child-Pugh Class A (98%). TACE were done preoperative in 35.9%. Patients with ICG R15 >10% were in 57.6% and patients with platelet <80K were in 11.5%. AFP were elevated (>12 ng/ml) in 63.2%. For the operation detail, major hepatectomies (≥3 segments) were done in 50.1% and intraoperative transfusion in 5.6%. Mean hospital stay was 12 days and 4 patients (0.5%) were died during hospital stay after surgery. One-year/3-year/5-year/7-year survival rates after surgery were 90%/77%/68%/61% respectively and 1-year/3-year/5-year/7-year disease-free survival rates were 68%/49%/37%/33% respectively. With the uni- and multi-variate analysis for recurrence, platelet <80K, GPT>40IU, HBV(+), ICG R15>10%, intraoperative transfusion ≥3 pints, multiple tumor, tumor

size>10cm, satellite nodule (+), tumor necrosis>10%, microvascular invasion(+), major vessel invasion (+), serosa invasion (+) and resection margin (+) were independent significant prognostic factors.

**Conclusions:** Hepatectomy for HCC has become so safe. Seven-year survival rates were over 60% however nearly half of them have been alive with the event of recurrence, which suggests the significance of active and proper treatment for recurred HCC patients after hepatectomy. Resection margin and intraoperative transfusion which were the significant factors for recurrence could be surgery-related therefore surgeon should be eager to keep resection margin negative and to reduce the intraoperative bleeding.

IV-2

**Surgical Outcomes after Hepatectomy for Hepatocellular Carcinoma with Concomitant Portal Hypertension in the Cirrhotic Patients**

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**Background and Aims:** Hepatic resection for Hepatocellular carcinoma (HCC) is potentially curative treatment for selected patients. The outcome of hepatectomy in cirrhotic patients has improved remarkably in the recent year. However, the roles of portal hypertension on the postoperative course are still uncertain. The aim of this study was to evaluate surgical outcomes of hepatectomy in these patients with portal hypertension.

**Methods:** Data of 256 cirrhotic patients who underwent hepatectomy for hepatocellular carcinoma from January 1997 to December 2010 in our hospital were collected retrospectively. Patients were divided into two groups according to preoperative presence of portal hypertension; 103 patients with portal hypertension and 153 without it.

**Results:** No difference were encountered in terms of age, sexual difference, etiology of liver disease, AFP, differentiation, blood transfusion. Patients with portal hypertension had worse preoperative hepatic function (Child-Pugh A class patients: 88.3% vs 96.1%, B class

patients: 11.7% vs 3.9%;  $p=0.047$ ). Operative morbidity and mortality did not differ between patients with and without portal hypertension (36.9% vs. 47.1%;  $p=0.123$ , 3.3% vs. 5.8%;  $p=0.358$ ). The 5-year survival rate was higher in patients without portal hypertension but showed no statistical difference between the two groups (46.5% vs. 36.2%;  $p=0.757$ ). Also, the 5-year disease Free Survival rate was no significant difference according to the presence of portal hypertension (41.2% vs. 40.5%;  $p=0.426$ ). The predictive values of postoperative hepatic insufficiency were extent of hepatectomy, plasma transfusion ( $p=0.000$ ), number of tumor in multivariate analysis. Multivariate analysis identified size of tumor, RBC transfusion as independent predicting factors for survival.

**Conclusion:** Presence of portal hypertension should not be considered as a contraindication for hepatic resection in cirrhotic patients. Child-Pugh A and B patients with portal hypertension have surgical outcomes similar to patients without portal hypertension.

#### IV-3

### Risk Factors of Peritoneal Recurrence and Outcome of Resected Peritoneal Recurrence Following Liver Resection in Hepatocellular Carcinoma: Reviewing 1,222 Cases of Hepatectomy in a Tertiary Institution

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**Background:** Liver resection is one of the main treatment modalities for hepatocellular carcinoma (HCC). Peritoneal recurrence (PR) after liver resection is uncommon and reports on the long term outcome of resected PR is lacking. In this study, we report the risk factors of PR after hepatectomies and long term outcome of resected PR in a tertiary institution.

**Methods:** We retrospectively reviewed the data of 1222 patients who underwent hepatectomies for HCC in Samsung Medical Center from January 2006 to August 2010. We identified patients with PR and documented the data of resected PR and their long

term outcome. We defined Group A as patients without PR and Group B as patients with PR. Subgroup analysis was performed for patients with irresectable and resectable PR in Group B. Kaplan-Meier analysis and Cox proportional regression was used to study the risk factors and survival of PR in this cohort.

**Results:** The rate of peritoneal recurrence was 3.0% ( $n=36$ ) in this study. The mean age of patients was  $54.0 \pm 10.2$  years. Amongst those with PR, 23 patients (1.964%) were irresectable and 13 patients (1.136%) were resectable. On univariate analysis, the median tumour size of HCC ( $p=0.001$ ), higher T-stage ( $p=0.008$ ), rate of microvascular invasion (MVI) ( $p=0.007$ ), bile duct invasion (BDI) ( $p=0.002$ ), portal vein invasion (PVI) ( $p=0.022$ ), serosal involvement (SI) ( $p=0.014$ ), proportion of totally necrotic nodule ( $p=0.002$ ) and involved resection margin ( $p<0.001$ ) were significantly higher in Group B compared to Group A. Using multivariate analysis, tumour size  $>50$  mm, presence of MVI, BDI and involved resection margins were significant predictors of peritoneal recurrence following liver resection for HCC. On subgroup analysis between resectable and irresectable PR, the pre-hepatectomy PIVKA-II level ( $p=0.001$ ), proportion of PIVKA-II level  $>200$  mg/dL ( $p=0.009$ ), the AFP ( $p=0.032$ ) & PIVKA-II level ( $p=0.034$ ) at detection of PR, median tumour size of HCC ( $p<0.001$ ), proportion of tumour  $>60$  mm ( $p=0.014$ ) and T-stage of the tumour ( $p=0.033$ ) were significantly higher in the irresectable group. In addition, the median interval between hepatectomy and detection of PR was significantly longer in the resectable PR ( $p=0.009$ ). At the time of detection of PR, the median number of lesion was statistically higher in the irresectable group ( $p=0.044$ ). The proportion of solitary lesion in the resectable group was doubled that in the irresectable group ( $p=0.096$ ). The overall survival (OS) of patients with resectable PR was significantly better compared to the irresectable patients. The 1-year, 3-year and 5-year OS of patients with resectable PR was 81.0%, 58.0% and 29.0%, as compared to 30.0%, 6.0% and 6.0% for patients with irresectable PR ( $p<0.001$ ). Using Cox Proportional Hazard regression, only interval between hepatectomy and peritoneal recurrence ( $p=0.016$ ) and level of AFP at detection of peritoneal recurrence ( $p=0.045$ ) was found to be significant negative predictive factors of OS.

**Conclusion:** Peritoneal metastases of HCC are rare. Selected patients with peritoneal recurrence following HCC may enjoy the benefit of surgical resection to