**PE-093**

**Laparoscopic versus open liver resection for hepatocellular carcinoma; a case matched study**

Sung Hoon Kim, Ho Kyoung Hwang, Gi Hong Choi, Chang Moo Kang, Kyung Sik Kim, Jin Sub Choi, Woo Jung Lee

*Division of Hepatobiliary and Pancreas, Department of Surgery, Yonsei University College of Medicine, Seoul, Korea*

**Background:** Recently, laparoscopic liver resection for malignancy has increased. However, real benefit of laparoscopic resection is still under investigation. The purpose of this study is to assess short-and long-term outcomes of LLR compared with those of OLR for hepatocellular carcinoma (HCC) using a case-matched analysis.

**Methods:** From Apr. 2002 to Dec. 2007, 23 patients with HCC underwent LLR in Yonsei University Health System and fourfold, ninety two patients who performed open liver resection (OLR) in same period were enrolled. Patients were retrospectively matched in pair for the following criteria; age, sex, tumor size, type of operative procedure, and stage of fibrosis in non-tumor parenchymal pathology.

**Results:** 19 patients underwent minor resection, but there were three Rt. and one Lt. hemihepatectomy cases in LLR group. Open conversion was performed in two cases. Blood loss, operation time and transfusion amount did not showed significant difference between two groups. The resection margin was more than 2cm in both groups. There was no R1 or R2 resection on both groups. Tumor charateristics including size, number and stage of fibrosis is similar. Median tumor size was about 2.9 cm. Microscopic vascular invasion was similar on both group (p=0.257). Ascites and pleural effusion tended to be more frequently observed in OLR group (p=0.061). Median hospital stay was significantly shorter for the patients undergoing laparoscopy (p=<0.001; 10.6 days vs 14 days). The recurrence patterns are not different between the two groups. There were no significant difference in overall and disease free survival between two groups.

**Conclusions:** LLR could be performed safely for HCC in terms of short- and long-term outcomes. However, tumor size and location are major concern about deciding LLR or OLR. Therefore, Laparoscopic approach should be recommended in well-selected patients with HCC.

**Keyword:** Liver resection, Laparoscopy, Hepatocellular carcinoma

---

**PE-084**

**Anti-cancer and anti-fibrosis effect of branched-chain amino acids in diethylnitrosamine-induced rat model of hepatocellular carcinoma with liver cirrhosis**

Jung Hoon Cha1, Si Hyun Bae1, Hye Lim Kim1, Jung Ah Park1, Eun Suk Choi1, Eun Sun Jung2, Jung Young Choi1, Seung Kew Yoon1

*Department of 1Medicine and 2Pathology, The Catholic University of Korea, Seoul, Korea*

**Background:** Recent studies have revealed that branched-chain amino acids (BCAA) reduces the risk of liver cancer in patients with liver cirrhosis and obesity, and this has been associated with an improvement of insulin resistance (IR). The aim of the present study was to examine the anti-cancer and anti-fibrosis effect of BCAA on the development of Diethylnitrosamine (DEN)-induced hepatocellular carcinoma (HCC) with liver cirrhosis in rat model.

**Methods:** Male SD rats received weekly intraperitoneal injections of DEN (50 mg/kg of body weight) during 16 weeks for induction of HCC and then they were fed a diet containing 3% casein, 3% BCAA, and 6% BCAA for 10 weeks, starting 6 weeks after injection of DEN. The extent of fibrosis was quantified using Pannoramic viewer software 1.14.50 (3DHISTECH, Co. Ltd, Hungary).

**Results:** Feeding with BCAA caused a mild decrease in the serum levels of ALT, total bilirubin, and in the plasma levels of ammonia compared with the casein-fed rats. For each case, 2 serial sections (one each in right & left lobe) were used to analyze HCC. Consequently, the mean area (mm2) of the HCC in the casein-fed rats tend to be larger than that in the BCAA-fed rats (2.02±4.4, 0.32±0.71, 0.12±0.37, respectively). The mean fibrotic areas in the BCAA group revealed a decreased than casein group (14w DEN and 16w DEN; about 33% and 18.5% reduction). Treatment with BCAA markedly caused decrease in expression level of HIF-1a, VEGFA, MMP-2, TIMP-2, and Smad-4 mRNA. Supplementation with BCAA improved liver fibrosis and HCC in the DEN-treated rats.

**Conclusions:** BCAA supplementation in diet improves liver fibrosis and prevents the development of HCC in DEN-induced rat model of HCC with liver cirrhosis. These results provide a rationale of BCAA treatment for the anti-fibrosis and chemoprevention against HCC.

**Keyword:** Branched-chain Amino Acids (BCAA), Hepatocellular carcinoma, Liver fibrosis

---

**PE-095**

**Establishment of transgenic mouse model of hepatoma using SV40 T antigen**

Kwang Soo Lyoo, Myeong Jun Song, Wonhee Hur, Jung Eun Choi, Sung Woo Hong, Sung Woo Kim, Seung Kew Yoon

*Department of Internal Medicine and WHO Collaborating Center on Viral Hepatitis, The Catholic University of Korea College of Medicine, Seoul, Korea*

**Background:** SV40 T antigen of various oncogenes is capable of transforming a variety of cell types and its expression under albumin promoter can induce adenoma and hepatocellular carcinoma (HCC) in mouse liver within 3-7 months. The aim of this study was to establish the HCC transgenic mouse model using a mouse liver specific vector, pLive vector, in which...