untreatment group (n = 136) had worse outcome than treatment group in recurrence (p < 0.001). In subgroup analysis, if the treatment group had high HBV viremia postoperatively, they had good RFS as group with low viremia. But, even if untreated patients had low viremia, they had poor outcomes as untreated group with high viremia (p < 0.001). Moreover, whether it is advanced stage (III) or not, low postop. HBV viral load showed the better recurrence outcome but, antiviral treatment did not present difference in advanced stage. Finally, postop AFP levels (HR = 3.52, p < 0.001), postop HBV DNA (HR = 2.2, p < 0.001), antiviral therapy (HR = 2.28, p < 0.001), tumor size (HR = 1.54, p = 0.025) & microvascular invasion (HR = 1.997, p = 0.005) were independent risk factors for RFS in multivariated analysis.

Conclusion(s): Low HBV DNA load and antiviral therapy may be important factors after the curative treatment of HBV-related hepatocellular carcinoma in terms of tumour recurrence. Therefore, to maintain the low level of HBV viremia, antiviral therapy should be considered after curative treatment of hepatocellular carcinoma.

**Fig. 1.** Disease free survival after RFA for HCC recurrence (for abstract PS02-013).

**PS02-013**

Is Open RFA Better Than Percutaneous RFA for Recurrent Hepatocellular Carcinoma? A Ten-Year Review of a Single Center Practice

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Introduction: Recurrent hepatocellular carcinoma (HCC) following primary liver resection for HCC is common nowadays. The use of radiofrequency ablation (RFA) in the treatment of recurrent small HCCs had been shown to improve outcome and remained an alternative option to salvage transplantation or re-resection. We aim to compare the open surgical approach to the percutaneous RFA approach to HCC recurrence. The open surgical approach offers the feasibility of RFA in difficult places to reach, which could not be performed by the percutaneous approach.

Methods: From January 2002 to December 2011, 495 patients developed recurrent HCCs following primary liver resection. 42 (8.5%) of these patients underwent RFA as the initial treatment following recurrence. The overall survival and disease free survival from the period after RFA were performed in the percutaneous RFA group, n = 27 (64.3%) and open surgical RFA group, n = 15 (35.7%) were compared.

Results: Patient demographics and the primary tumor characteristics of both groups were similar (p > 0.05) except for...
the AFP levels (p = 0.03). In the percutaneous and open RFA group, the median survival were 27.5 and 29.0 months with 1-, 3- and 5-year overall survival of 72.1%, 40.7 and 20.4% versus 86.2%, 39.2% and 31.3% respectively (p = 0.50). Median disease free survival was better in the open group than the percuta-
neous group (9.7 vs 3.65 months) although was not significant (p = 0.32) with a 1-, 3- and 5-year free survival of 43.2%, 25.9% and 25.9% versus 19.8%, 19.8% and 9.9% respectively. A univariate and multivariate Cox regression analysis showed that high AFP levels >500 to be significant predictive factor for shorter overall survival (OR = 2.66, 95% CI 1.19–5.96).

Conclusion(s): Open RFA offers the feasibility and added advantage for difficult tumor locations that could not be reached by the percutaneous approach. Although there is no significant difference in overall survival, a longer disease-free survival tends to favor with the open approach.

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**PS02-014**

The Comparison of Current Staging Systems of Hepatocellular Carcinoma for Prognostic Stratification

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Introduction: Several prognostic staging systems have been proposed for hepatocellular carcinoma (HCC) and there has been debate regarding which prognostic staging system is the most accurate. We evaluated independent predictors of overall survival and compared 8 prognostic staging systems in patients with HCC.

Methods: A total of 533 patients with treatment-naive HCC who diagnosed and treated between 2007 and 2009 were included. Independent predictors of survival were assessed using the Kaplan-Meier test and the Cox proportional hazard model. And prognostic ability of each of the staging systems was expressed using time-dependent receiver-operating characteristics (ROC) curves.

Results: Median survival was 21.0 months, 54.8% patients had chronic hepatitis B, and 58.5% patients had symptoms present. In tumor characteristics, 59.3% had only one tumor nodule, 24.6% patients had major branch of portal vein thrombosis, 9.6% patients had distant metastasis. At the time of censorship, 361 (67.7%) patients had died. The independent predictors of survival were ECOG performance status (p = 0.005), Child-Pugh classification (p = 0.014/0.008), serum AST levels (p < 0.001), serum AFP levels (p = 0.002), infiltrative tumor (p = 0.004), the presence of portal vein thrombosis (p = 0.002), hepatic vein thrombosis (p < 0.001), distant metastasis (p < 0.001), and BCLC staging system (p = 0.0295/ < 0.001/0.001/0.874). The cancer of the Italian program (CLIP) (area = 0.85) and the Chinese University Prognostic Index (CUPI) (area = 0.87) scoring systems had the best independent predictive power for survival compared with the other prognostic staging systems.

Conclusion: ECOG performance status, Child-Pugh classification, serum AST levels, serum AFP levels, infiltrative tumor, the presence of portal vein thrombosis, hepatic vein thrombosis, distant metastasis, and BCLC staging system were independent predictors of survival in patients with HCC. The CUPI, CLIP, JIS, UIIC7, UIIC6, and UIIC5 (area = 0.87, 0.85, 0.83, 0.81, 0.80, and 0.80, respectively) staging system were comparable to stratify the prognosis of HCC patients, but CUPI was the best prognostic model in Korean cohort that hepatitis B virus associated HCC were major population.

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**PS02-016**

Associated Intervention Factors of Prognosis in Patients with Hepatocellular Carcinoma Underwent Non-Surgical Treatment

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Introduction: Most of HCC staging systems predict prognosis of patients. However, most of determined factors, such as tumor involvement, AFP levels and liver function reserve, were unchangeable. In this study, we try to explore intervention factors of the prognosis in HCC cases underwent non-surgical treatment.

Methods: All cases in a medical center in southern Taiwan from 2002 to 2012, and met all below criteria were enrolled in this study. They were (1) met consensus diagnostic criteria, (2) underwent the 1st two treatments in the Hospital (3) treated by non-surgical treatment and (4) viable cases should be observed form more than 5 year. Among them, 1136 (61.9%) died within two years, 451 (24.6%) died between 2 to 5 years after diagnosis (defined as Group A), and 247 (13.5%) survived for 5 years or longer (defined as Group B). To compare interventional factors between groups A and B, the unchanged factors were matched using propensity score matching (PSM).

Results: Before matching, Group B had significantly better liver function reserve, earlier BCLC stage and low AFP levels. Furthermore, interventional factors, such as initial treatment by RFA, recurrent after 1 year, complete treatment of recurrence tumor, retreatment by RFA and anti-viral treatment, were also associated with good prognosis. After PSM (n = 247 in each group), only BCLC staging, recurrent after 1 year, complete treatment of recurrence tumor and