E-Poster Presentations – B1) Liver

**# P-0001 New diagnostic approach to screen minimal hepatic encephalopathy using multi-sensory integration**

**Authors:** DAE WON JUN; KANG NYEONG LEE; HANG LAK LEE; OH YOUNG LEE; HO SOON CHOI; BYUNG CHUL YOON

**Affiliation:** Department of Internal Medicine, Hanyang University College of Medicine, Seoul, Korea

**Background/Aims:** Paper-and-pencil-based psychometric tests are gold standard for diagnosis of minimal hepatic encephalopathy (MHE). However, it takes time, can be affected by demographic factors like age/education level, and lacks ecological validity. This study explored feasibility and validity of sensory integration test as a new diagnostic approach to assess MHE. **Methods:** Twenty-one healthy controls and 30 cirrhotic patients were recruited. The sensory integration test presents stimuli from two different sensory modalities (e.g., image and sound) with a short-time lag, and subjects judge, which stimuli appeared first. Repetitive tests reveal the subject’s sensory integration capability. Subjects were compared with each other in their performance of proposed sensory integration test, conventional psychometric tests, and functional near-infrared spectroscopy (fNIRS). **Results:** Sensory integration capability, the perceptual threshold to discriminate time gap between image and sound stimulus, was significantly impaired in MHE patients compared with healthy controls (P < 0.01) and cirrhotic patients without MHE (P < 0.05). Correlation analysis showed that sensory integration test can also detect psychiatric deficits (NCT-A, r = 0.290, P = 0.039; NCT-B, r = 0.395, P = 0.004; DST-B, r = −0.360, P = 0.010; ACPT, r = −0.364, P = 0.009). Conventional psychometric tests were dependent on age and education level, while the sensory integration test was not affected by demographic factors. The sensory integration test, where a cut-off value for the perceptual threshold was 133.1 ms, recognized the patients with MHE at 80% sensitivity and 81% specificity. **Conclusions:** Sensory integration test showed comparable performance to diagnose MHE irrespective of age and education level. Trial identifier: https://cris.mh.go.kr/cris (KCT0000955).

**# P-0002 A randomized, multi-center, phase IV open-label study to evaluate the antiviral efficacy of addition of vitamin D in chronic hepatitis C patients**

**Authors:** DAE WON JUN; KANG NYEONG LEE; HANG LAK LEE; OH YOUNG LEE; HO SOON CHOI; BYUNG CHUL YOON

**Affiliation:** Department of Internal Medicine, Hanyang University College of Medicine, Seoul, Korea

**Background and Aims:** Possible role of vitamin D supplementation in pegylated interferon (PEG-IFN) and ribavirin (RBV) was still debate. We investigate to assess the role of vitamin D supplementation on the response to PEG-IFN/RBV treatment in chronic C patients. **Methods:** One hundred forty-eight chronic HCV patients were classified into two groups: (Group 1): 73 patients received the PEG-IFN/RBV; and, (Group 2): 75 patients received the PEG-IFN/RBV + vitamin D. The primary end point was rate of sustained viral response (SVR). **Results:** Vitamin D supplementation increased rapid viral response (55.8% vs. 79.6%, P = 0.014), but did not increase early viral response and SVR. Overall SVR was seemed to be higher in PEG-IFN/RBV + vitamin D group (84.2%) than PEG-IFN/RBV (75.0%), but it did not reach statistical significance. In genotype I, SVR was 47.7% and 62.5% in control and D group (P = 0.373). In genotype II/III, SVR was 90.3% and 92.7% in control and D group (P = 0.720). Although prevalence of adverse event was not different between two groups, drop-out rate due to adverse effects was lower in vitamin D group than control group (24.0% vs. 34.2%). Multivariate analysis showed that Genotype I (OR = 8.00, P = 0.003), baseline HCV-RNA viral load (OR = 3.38, P = 0.027), and waist circumference (OR = 1.09, P = 0.024) were the significant risk factor affecting SVR. **Conclusions:** Vitamin D supplement did not increase SVR in PEG-IFN treatment in both genotype I and others. But drop-out rate due to adverse effects was lower in vitamin D group than control group.

**# P-0012 Maintenance Zinc therapy after initial Penicillamine chelation to treat symptomatic hepatic Wilson’s disease in resource constrained setting**

**Authors:** PIYUSH GUPTA; MEHUL CHOKSI; ASHISH GOEL; UDAY ZACHARIAH; K G SAJITH; JEYAMANI RAMACHANDRAN; GEORGE CHANDY; GEORGE KURIAN; C E EAPEN

**Affiliation:** Department of Hepatology, Christian Medical College, Vellore, Tamil Nadu, India

**Background:** Experience with Zinc in treating symptomatic hepatic Wilson’s disease (WD) is limited. **Aim:** To study the efficacy of Penicillamine followed by Zinc in treating symptomatic hepatic Wilson’s disease. **Methods:** We retrospectively analysed case records of 31 symptomatic hepatic WD patients in whom disease severity scores (Child’s, MELD, Nazer’s and nNew Wilson Index score) and 24-hour Urinary copper were compared at 3 time points—baseline at presentation, at transition from Penicillamine to Zinc, and at end of follow-up. **Results:** Of the 31 patients with symptomatic hepatic WD studied, 10 had associated neuropsychiatric manifestations of WD. Penicillamine was changed to Zinc sulfate either due to financial constraints (in 28 patients) or due to adverse effects of Penicillamine (in 3). Child’s grade was A in 6 six patients, B in 5 five, and C in 17 at presentation (baseline). Duration of initial Penicillamine chelation therapy was 132 (2–320) weeks, median (range) and of subsequent Zinc therapy was 363 (35–728) weeks. There was significant improvement in liver function tests and disease severity scores (Nazer’s, nNew Wilson index score) at transition from Penicillamine to Zinc compared to with baseline. This improvement was maintained till end of study period. 17 Seventeen patients with Child C cirrhosis at presentation were treated with Penicillamine for 111 (2–320) weeks followed by Zinc for 344 (41–652) weeks, of whom 15 had significant improvement in liver function and disease severity scores until end of follow-up. 3 Three of 31 study patients died at 284, 112, and 437 weeks. No patient underwent liver transplantation. **Conclusions:** Penicillamine followed by Zinc maybe safe and effective treatment in resource constrained setting for symptomatic hepatic WD patients in all grades of baseline disease severity. Our data also suggests that some patients with decompensated cirrhosis due to Wilson’s disease may be managed with medical treatment, avoiding liver transplantation.

**# P-0014 Tumor volume doubling time as a dynamic prognostic marker for patients with hepatocellular carcinoma**

**Author:** KANG MO KIM

**Affiliation:** Department of Gastroenterology, Asan Medical Center, University of Ulsan College of Medicine

**Background and Aims:** To evaluate the clinical value of tumor growth rate in hepatocellular carcinoma (HCC) patients, we investigated the growth rate
of HCC by calculating the tumor volume doubling time (TVDT) and its impact on survival and recurrence. **Methods**: A retrospective cohort study of 269 HCC patients who underwent two or more pretreatment imaging studies of computed tomography or magnetic resonance imaging was performed. Tumor growth rate and TVDT were calculated by comparing tumor volumes between imaging studies. The clinical parameters that correlated with tumor growth rate were evaluated. After dividing patients into slow-growing (159 patients with TVDT > 2 months) and rapid-growing (110 patients with TVDT < 2 months) groups, we compared the groups in terms of their survival and recurrence outcomes. The response to transarterial chemoembolization (TACE) was evaluated according to TVDT. **Results**: The median tumor growth rate and TVDT were 37.5 %/month (range, 18.1–94.5 %/month) and 2.37 months (range, 1.0–4.9 months). In multiple linear regression analyses, poor liver function, initial tumor size, gross vascular invasion, and serum alpha-fetoprotein level were significantly associated with HCC growth rate ($P < 0.05$). Patients in the rapid-growing group had lower survival rates and higher recurrence rates ($P < 0.05$). The response to TACE was worse in the rapid growing group ($P < 0.05$). **Conclusions**: HCC growth rate is associated with poor liver function and aggressive tumor biology. HCC patients with shorter TVDTs exhibit worse survival and recurrence outcomes as well as a poor response to TACE.

**# P-0021 A case of hepatocellular carcinoma with lung and bone metastasis treated sorafenib therapy who obtained a complete remission**

**Authors**: TAKESHI TOMIYAMA; HIDETSUGU NAKAZATO; KOUDAI SHIZNATO

**Affiliation**: Department of Surgery, Okinawa Red Cross Hospital, Okinawa, Japan

**Introduction**: Advanced stage of hepatocellular carcinoma (HCC) has a poor prognosis because of liver dysfunction and a lack of effective treatment. Sorafenib, a multi-targeted tyrosine kinase inhibitor, is a first line systemic treatment for advanced HCC. Sorafenib increases overall survival in patients with advanced HCC; however, sorafenib rarely induces a complete response. **Case Description**: A sixty-six year-old man was found with liver tumor on abdominal echogram in a health screening. He had been diagnosed with HCC in segment VI (6 cm in diameter), for which he had received liver resection in February 2008. Resected specimen revealed moderately differentiated HCC with cirrhosis. He suffered from right thigh pain in 2011. Bone metastasis of HCC was pointed out. Total hip arthroplasty had been performed in October 2011. Multiple lung metastasis was pointed out in January 2012. The Child-Pugh score was A (5 points) and the patient remained in good conditions ($PS = 1$). Sorafenib therapy (800 mg/day) was started. After 3 months administration of sorafenib, tumor markers (AFP, PIVKA-II, and AFP-L3) had been within the normal range. After 3 years administration of sorafenib, a complete radiological response had been obtained. Sorafenib dose was reduced and sorafenib therapy was continued. The patient remains in remission without clinical or imaging evidence of disease recurrence. We report an advanced HCC patient with distant metastasis, who has obtained a complete response by sorafenib therapy. Although cases of complete response are uncommon, these cases are characterized by a very rapid response to sorafenib with an early drop of tumor markers and radiological response. If a complete radiological response is obtained, the issue of a discontinuation of sorafenib is still unresolved. Sorafenib is an important treatment option that has been shown to improve prognosis in selected cases of HCC.

**# P-0030 Nutritional status and hepatic steatosis after direct-acting antiviral therapy for chronic hepatitis C virus infection**

**Authors**: MASAKI SHIMADA; HIROIKE IWASE; NOBORU HIRASHIMA; NOBISUHI RYUGUE; NOBORU URATA; JIN UMEMITA; SATOSHI UNITA; TAKASHI KONDO; DAIKI TANAKA

**Affiliation**: Department of Gastroenterology, National Hospital Organization, Nagoya Medical Center, Japan

**Background**: In this retrospective study, we investigated nutritional status and hepatic steatosis after direct-acting antiviral (DAA) therapy for chronic hepatitis C virus (HCV) infection. **Methods**: Between September 2014 and August 2016, 106 patients with chronic HCV infection underwent HCV-RNA testing 12 weeks after completing DAA therapy. HCV genotype 1 patients received daclatasvir and asunaprevir (DCV/ASV, $n = 35$) for 24 weeks, or sofosbuvir and ledipasvir (SOF/LDV, $n = 37$) for 12 weeks; HCV genotype 2 patients received sofosbuvir and ribavirin (SOF/RBV, $n = 34$) for 12 weeks. DAA therapy was assessed for virologic response, side effects, and posttreatment alanine transaminase (ALT) and α-fetoprotein (AFP) levels. Liver stiffness (LS) was measured using transient elastography. Nutritional status was evaluated using serum albumin (Alb), triglyceride (TG), total cholesterol (T-cho), and low-density lipoprotein cholesterol (LDL-cho) levels. Controlled attenuation parameter (CAP) values were measured for diagnosis of hepatic steatosis using transient elastography. **Results**: HCV RNA became undetectable in 32 patients who received DCV/ASV (91.4%), 37 who received SOF/LDV (100%), and 33 who received SOF/RBV (97.1%). Mild anemia was noted with SOF/RBV. ALT decreased from 64.0 ± 68.9 to 16.9 ± 8.3 IU/L, $P < 0.001$; AFP from 20.0 ± 77.6 to 4.1 ± 5.2 ng/mL, $P < 0.001$; and LS from 10.4 ± 6.7 to 7.6 ± 5.0 kPa, $P < 0.001$. Alb increased from 4.1 ± 0.5 to 4.3 ± 0.4 g/dL, $P < 0.001$; TG from 111 ± 46 to 128 ± 66 mg/dL, $P < 0.05$; T-cho from 158 ± 30 to 187 ± 35 mg/dL, $P < 0.001$; and LDL-cho from 82 ± 20 to 105 ± 30 mg/dL, $P < 0.001$. CAP values increased from 213 ± 60 to 226 ± 55 dB/m ($P < 0.01$). **Conclusion**: DAA therapy was useful for chronic HCV infection, and nutritional status improved. However, long-term follow-up is necessary because short-term steatosis was observed.

**# P-0043 The relationship between gastric acid suppression therapy and incidence of spontaneous bacterial peritonitis in cirrhotic patients with ascites**

**Authors**: LUPITA REKSIDIPUTRO[1]; LUTHER NAPITUPULU[1]; IRSAN HASAN[2]

**Affiliation**: [1]Faculty of Medicine Universitas Indonesia, and [2]Division of Hepatology, Department of Internal Medicine, Faculty of Medicine Universitas Indonesia / Dr. Cipto Mangunkusumo General National Hospital, Jakarta, Indonesia

**Background**: Cirrhotic patients are potentially experiencing ascites complications, which causes increased intestinal permeability that will be a transfer medium of bacteria and bacterial proliferation. As it is known, one of the roles of gastric acid is its defense against pathogens. Suppression of gastric acid by gastric acid suppression (GAS) consumption, commonly proton pump inhibitor (PPI), is said to increase the risk of Spontaneous Bacterial Peritonitis (SBP). **Aim**: To determine risk of SBP associated with GAS in patients with cirrhotic and ascites. **Methods**: Literature searching was conducted using PubMed, Cochrane, and Clinical key. Articles were selected based on inclusion and exclusion criteria, then critically appraised. **Result**: The result of systematic review from 8,204 patients shown risk of SBP with OR 2.17 (1.46–3.23), cohort study from 4,788 patients shown OR 2.28 (1.37–3.78) with
more than 180 days on PPI therapy, and case control study in 480,000
patients shown risk in current users with RR 2.77 (1.90–4.04). 
**Conclusion:** GAS therapy, mainly PPI, therapy is associated with higher 
risk of SBP in patients cirrhotic with ascites, affected by several 
factor, especially the duration of consumption. **Keywords:** GAS, SBP, cirrhotic, ascites.

# P-0051 Profile and predictive value of FIB-4 in patients with dual chronic hepatitis C/B and receiving peg-interferon/ribavirin combination therapy: A comparison with untreated dually infected patients

**Authors:** CHUN-JEN LIU; TAI-CHUNG TSENG; WAN-TING YANG; JIA-HORNG KAO; PEI-JER CHEN

**Affiliation:** Department of Internal Medicine, Hepatitis Research Center and Graduate Institute of Clinical Medicine, and National Taiwan University College of Medicine and Hospital, Taipei, Taiwan

**Background/Aims:** Patients with chronic hepatitis B virus (HBV) or hepatitis C virus (HCV) infection are at risk of developing adverse outcomes including liver cirrhosis and hepatocellular carcinoma (HCC). Dual infection with both viruses may increase the risk. However, little is known about the role of fibrosis-4 index (FIB-4), a liver fibrosis stage biomarker, in the prediction of clinical outcomes. **Methods:** We followed 64 patients with dual chronic HCV and HBV infection, and received peg-interferon/ribavirin combination therapy. Another 128 untreated patients with dual chronic hepatitis C and B were retrospectively collected and served as controls. The association between the FIB-4 index and the incidence of liver cirrhosis, HCC, and HBsAg seroclearance was explored in addition to known risk factors. **Results:** Both groups had comparable baseline sex, HBV genotype, level of HBV DNA, and level of HBsAg; none had cirrhosis at baseline. The untreated dually infected controls had a lower mean serum HCV RNA level and higher FIB-4 score than the treated cases. After a 10-year follow-up, the incidence of HBsAg seroclearance was 5.44 (95% CI: 3.58–8.26) per 100 person-years in the treated cases and was 1.52 (0.98–2.35) in the untreated controls. Of the treated cases, only five cases developed HCC and six cases developed LC. Of the untreated controls, 24 cases developed HCC and 33 controls developed LC. FIB-4 index decreased only in the treated group who achieved sustained virologic response (n = 39, FIB-4 index decreasing from 1.95 to 1.70). High baseline FIB-4 index (per 1 point increase) in the treated groups independently correlated with a higher risk of developing cirrhosis (P = 0.011) or HCC (P = 0.025), but not HBsAg seroclearance. **Discussion and Conclusion:** In Taiwanese patients dually infected with HCV and HBV, FIB-4 index helps predict the development of liver cirrhosis and HCC post-treatment.

# P-0081 Risk factors of development of hepatocellular carcinoma in HCV patients after direct-acting antiviral therapy

**Authors:** NAOKI MORIMOTO; NORIO ISODA; KOUICHI MIURA; SHUNJI WATANABE; YOSHINARI TAKAOKA; MAMIKO TSUKUI; KOZUE MURAYAMA; TAKUYA HIROSAWA; HIRONORI YAMAMOTO

**Affiliation:** Department of Medicine, Division of Gastroenterology, Jichi Medical University, Japan

**Background:** An incidence of HCC in HCV patients achieved SVR by direct-acting antiviral therapy (DAA) was not rare. The aim of this study was to evaluate the risk factors for HCC in patients after SVR by DAA. **Methods:** From September 2014, 557 patients with HCV treated by DAA, with at least 12 weeks follow-up after the end of treatment, were enrolled (DCV+ASV 174, SOF/LDV 185, PTV/r/OMV 33, SOF+RBV 165). The 2-year cumulative HCC incidence rate (HIR) was calculated. The correlation between HCC incidence and the factors (age, gender, platelet count, FIB-4, cirrhosis +/−, history of curative therapy for HCC +/−, AFP, M2BPGi, achievement of SVR12 +/−) were also evaluated. **Results:** Median age was 67 (23–87), 314 (56%) were male, 202 (36%) had cirrhosis, and 78 (14%) cases were with HCC history. SVR was achieved in 504 (90%). HIR in HCC history group (41%) was significantly higher than that in HCC naive group (4%) (P < 0.01). In HCC history positive group, HIR was no difference between SVR (47%) and non-SVR group (15%) (P = 0.39). In all cases, HCC history positive (P < 0.01), AFP > 4 ng/dl (P = 0.01), and M2BPGi > 2.3 at 12 weeks after DAA (P = 0.02) were significant risk factors for HCC incidence with multivariate analysis. Also, in 441 cases with HCC naive and SVR, AFP and M2BPGi were significant risk factors. When AFP and M2BPGi were scored as 1 point for each. HIR in 0, 1, and 2 points were 4%, 9%, and 24%, respectively (P < 0.01), and the risk was well stratified. **Conclusions:** The recurrence of HCC was observed frequently despite achieving SVR in patients with history of curative therapy for HCC. AFP > 4 and M2BPGi > 2.3 were independent risk factors development of HCC after SVR. The patients satisfied these conditions need more careful observation for incidence of HCC.

# P-0085 A prospective study to assess the role of serum procalcitonin in the diagnosis and follow up of patients with spontaneous bacterial peritonitis

**Authors:** VINEET GUPTA; DEEPAK; RAKESH TANDON

**Affiliation:** Pushpavati Singhania Research Institute for Liver, Renal and Digestive Diseases, New Delhi, India

**Background:** To assess the levels and diagnostic role of serum procalcitonin (PCT) in patients with compensated cirrhosis with newly diagnosed spontaneous bacterial peritonitis (SBP) and its accuracy in establishing the resolution of SBP after a 5-day course of broad spectrum intravenous antibiotics. **Methods:** This was a prospective study comprising of three groups of 26 patients each: group 1 (SBP group), group 2 (Sterile ascites group), and group 3 (infectious group excluding SBP) with similar baseline characteristics. PCT and ascitic fluid were analyzed within 4 hours of admission in all the three groups and were repeated after 5 days of intravenous antibiotics. **Results:** Mean PCT was 3.94 ± 3.86 in the SBP group and 1.52 (0.98–2.35) in the non-SBP group (P < 0.001). At a cut-off value of 0.5 ng/ml, PCT had a sensitivity of 92.3%, specificity 50.98%, negative predictive value 92.8%, and positive predictive value 48.97% for the diagnosis of SBP. Significant fall was seen in PCT levels (mean 3.14 ± 3.55) and ascitic fluid PCT levels (mean 3441.30 ± 1319.59) after 5 days of antibiotic therapy in group 1 (P value 0.003 and 0.015, respectively). Positive correlation was seen between proportionate fall in PCT and proportionate fall in ascitic fluid PCT (P value 0.021). This observation indicates that a repeat PCT at the end of antibiotic course can be used as a surrogate marker of resolution of spontaneous SBP. **Conclusion:** PCT is raised in SBP. A normal PCT may be useful in excluding SBP especially when other infections have been ruled out. In SBP patients, a repeat PCT after 5 days of antibiotic treatment can be used as a helpful noninvasive biomarker for resolution of infection.
# P-0087 Terlipressin use in hepatorenal syndrome - Aa case series
Authors: KAH-WAI CLARENCE KWAN[1]; PIK-EU JASON CHANG[1,2]; CHEE-KIAT TAN[1,2]; THINESH LEE KRISHNAMOORTHY[1]
Affiliation: [1]Department of Gastroenterology and Hepatology, Singapore General Hospital, and [2]Duke-NUS Medical School, Singapore

Background: Terlipressin’s efficacy in hepatorenal syndrome (HRS) treatment has been demonstrated in clinical trials, but real world data on adverse events and outcomes is scarce. We describe our experience of terlipressin use in HRS. Methods: We interrogated our hospital pharmacy database for terlipressin prescriptions between January 2006 - and June 2012. Patients who received at least one dose of terlipressin and fulfilled the International Ascites Club HRS diagnostic criteria were included. Results: 18 Eighteen patients were identified, with baseline characteristics summarised in Table 1. Ten patients received terlipressin for more than 48 hours, with treatment response (serum creatinine reduction to < 1.5 mg/dL, or to baseline) seen in 4 four (40.0%) patients. Of the remaining 8 eight patients, 3 three died within 48 hours of terlipressin commencement, 4 four progressed to hemodialysis, and 1 one developed bowel ischaemia necessitating treatment cessation. Four Four (22.2%) patients developed adverse events: bowel ischaemia (n = 1), bowel and myocardial ischaemia (n = 1), limb ischaemia (n = 1), and congestive cardiac failure (CCF) (n = 1). The overall 14-day survival rate was 52.9%, decreasing to 25.0% in patients where terlipressin treatment was delayed (beyond 72 hours post-diagnosis). The 90-day overall survival and transplant-free survival rates were 41.2% and 17.6%, respectively, with 4 four patients having undergone liver transplantation (at 2, 3, 69, and 115 days respectively after terlipressin initiation).

Conclusion: Terlipressin should be administered promptly following diagnosis of HRS. For patients on terlipressin, clinicians should be vigilant to adverse events like end-organ ischaemia and CCF. Patients who respond to terlipressin retain an abysmal prognosis short of de-escalation. Terlipressin should be administered promptly following diagnosis of HRS:

Table 1Baseline characteristics

| Characteristic                  | Total cohort (n=18) |
|--------------------------------|--------------------|
| Age, mean (SD)                 | 55.8 (9.9)         |
| Gender, n (%)                  |                    |
| Male                           | 13 (72.2)          |
| Ethnicity, n (%)               |                    |
| Chinese                        | 12 (66.7)          |
| Indian                         | 5 (27.8)           |
| Malay                          | 1 (5.6)            |
| Aetiology of liver disease, n (%)|                    |
| Alcohol                        | 7 (38.9)           |
| Hepatitis B                    | 5 (27.8)           |
| Cryptogenic                    | 2 (11.1)           |
| Others^                        | 4 (22.2)           |

^Other aetiologies include: autoimmune hepatitis / cholangitis (n=2), non-alcoholic steatohepatitis (n=1), drug-induced liver disease (n=1).

# P-0092 Prevalence and risk factors of non-alcoholic fatty liver disease (NAFLD) defined by non-invasive assessment in type 2 diabetes mellitus (T2DM) patients with normal serum aminotransferase (AST/ALT) levels
Authors: SIRINA EKPANYAPONG; THANAYA TECHASIRIOANGKUN; CHALERMRT BUNCHORTAAYAKUL
Affiliation: Department of Medicine, Rajavithi Hospital, Ministry of Public Health, Bangkok, Thailand

Background/Aims: NAFLD is more common and more severe in patients with T2DM; however, the prevalence and severity of NAFLD in T2DM patients with normal AST/ALT is unclear. This study was aimed to evaluate prevalence and risk factors of NAFLD and liver fibrosis in T2DM patients with normal AST/ALT. Methods: T2DM patients with persistently normal AST/ALT (≤ 40 IU/L for ≥ 2 times during ≥ 6 months) were evaluated by controlled attenuation parameter and transient elastography (CAP-TE) by an experienced operator (T. T.) at Rajavithi Hospital, Bangkok, between Nov- 2016 and Mar- 2017. Exclusion criteria were T1DM, significant alcohol drinking, chronic viral hepatitis, and the use of medications that may affect NAFLD. The cut-offs for steatosis were CAP 215 dB/m for S1 (~10% steatosis) and CAP 252 dB/m for S2 (~33% steatosis), whereas for fibrosis, cut-offs were TE 7.0 kPa for significant fibrosis and TE 10.0 kPa for advanced fibrosis (NAFLD defined by ≥ S1). Results: A total of 105 patients were included; 69.5% were women with median age of 62 (33–80) years. Median BMI was 26.5 (16.8–42.2) kg/m² and 59.0% were obese (BMI ≥ 25). The median duration of T2DM was 10 years (0.25–30) years, and 42.9% have microvascular complications. Prevalence of NAFLD was 81.0% (62.9% were ≥ S2). Prevalence of NAFLD with significant fibrosis and advanced fibrosis was 23.8% and 13.3%, respectively. In the multivariate analysis, independent predictors for NAFLD were female (OR 4.28:95%CI; 1.36–13.45) and obesity (OR 7.08:95%CI; 1.74–28.9) and for significant fibrosis were obesity (OR 5.47:95%CI; 1.96–15.22). Other clinical and laboratory parameters, including ALT = 15, 28.9) and 30 in men≤ 30 in women, NAFLD fibrosis score, FIB-4, BARD, and AST/ALT ratio were not associated with the presence of steatosis and fibrosis. Conclusion: NAFLD and fibrosis were relatively common among T2DM patients with normal AST/ALT. Obesity appeared to be a good predictor for NAFLD/fibrosis in this population.

# P-0094 Follistatin is a useful biomarker predicting the effect of sorafenib for the treatment of hepatocellular carcinoma with extrahepatic spread
Authors: TAKUYA ADACHI; KAZUHIRO NOUSO; HIROYUKI OKADA
Affiliation: Department of Gastroenterology and Hepatology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan

Background: Follistatin (FST) is a pro-angiogenic cytokine and plays as an important role in tumor growth and metastasis. In case of hepatocellular carcinoma (HCC), we revealed that prognosis of the patients with high serum FST was poor (JGH 2013; 13 (Suppl. 3): 154–194). The aim of this study is to examine the usefulness of FST as the prognostic biomarker in patients with metastatic HCC treated with sorafenib, as sub-analysis of prospective sorafenib cohort study (UMIN000009771). Methods: We measured serum FST in 48 HCC patients with extrahepatic spread who were treated with sorafenib at several time points, and evaluated the effects of FST on progression- free survival (PFS), overall survival (OS), and post progression survival (PPS). Results: No correlation was observed between FST before the treatment and OS; however, the increase of FST
after 2 weeks indicated short OS (HR = 9.25, 95%CI = 1.74–170, \( P = 0.005 \)). Poor performance status, HbsAg+, large tumor number (≥ 5), high des-gamma-carboxyprothrombin (> 100 mAU/mL), and no hand foot syndrome within 30 days were also predictive markers of short OS. Multivariate analysis with these factors revealed that only the increase of FST after 2 weeks was an independent risk factor for short OS (HR = 13.6, 95%CI 1.41–464, \( P = 0.020 \)). Any single FST level was not correlated with PFS; however, FST ratio (FST at 2 weeks/ FST before the treatment) in Long-SD patients (stable disease more than one year) was lower than that in non-Long SD patients (median 0.58 U.S. 1.49, \( P = 0.019 \)). The increase of FST at progressive disease compared to with FST before the treatment was also a marker of short PFS (HR = 0.005). Poor performance status, HBsAg+, large tumor number (\( P = 0.012 \)).

Conclusions: The prediction of OS, Long-SD, and PPS was possible by measuring serum FST at appropriate timing. FST might be a key cytokine for predicting the prognosis of HCC patients with extrahepatic spread treated with sorafenib.

# P-0100 Control of hepatic edema by tolvaptan: Ceses with long-term or suspended administration
Authors: TAKUYA IWAMOTO; TSUYOSHI ISHIKAWA; ISAO SAKAIDA
Affiliation: Department of Gastroenterology and Hepatology, Yamaguchi University, Graduate School of Medicine

Background: Tolvaptan is used for control of hepatic edema in our department. This study was performed to examine the efficacy of tolvaptan for this purpose. Methods: The subjects were 62 patients with hepatic edema who received tolvaptan from September 2013 to December 2016. The mean age, Child-Pugh score, serum creatinine level, and rate of HCC complication in the subjects were 71.2 (49–87) years, 9.5 ± 1.7 points, 1.18±0.44 mg/dL, and 66%, respectively. Results: An effective case was defined as a subject who lost ≥ 1.5 kg of weight one week after tolvaptan administration. Using this definition, the effective rate of tolvaptan was 66.1%. After one week administration, tolvaptan continued to be administered to 46 subjects on an outpatient basis. The median administration period was 96 (6–992) days. Administration was suspended in 5 subjects because tolvaptan was ineffective. In another 5 subjects, administration was suspended due to improvement of ascites, but 3 of these subjects required readministration within 6 months. Among subjects who continued to receive tolvaptan, there were 28 deaths, but 24 of these patients had ascites control and required no paracentesis for ascites removal until death. In multivariate analysis of potential prognostic factors, efficacy, HCC complication, and continuous administration of tolvaptan were identified as independent factors. Conclusion: Tolvaptan may be an effective and safe drug that can be continuously administered to patients with hepatic edema. In subjects who discontinued tolvaptan, readministration was required at high rates. Continuous administration of tolvaptan may prevent reduction of QOL due to ascites retention until death. Tolvaptan may also improve the prognosis of patients with hepatic edema, and long-term administration is likely to be appropriate.

# P-0104 Diabetic retinopathy as a risk factor associated with development of hepatocellular carcinoma in non-alcoholic fatty liver disease
Authors: SEISHIN AZUMA[1]; YASUHIRO ASAHI[1,2]; SEI KAKINU[1,2]; KEIKO AZUMA[3]; MAMORU WATANABE[1]
Affiliation: Departments of [1]Gastroenterology and Hepatology [2]Liver Disease Control, Tokyo Medical and Dental University, and [3]Department of Ophthalmology, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo, Tokyo, Japan

Background: It is very important to develop the more effective surveillance to diagnosis the hepatocellular carcinoma (HCC) derived from non-alcoholic fatty liver disease (NAFLD) at early tumor stage. But the risk factors associated with the development of HCC from patients with NAFLD, are not fully understood. The aims of the present study were to identify the risk factors associated with the development of HCC from patients with NAFLD. Methods: Between April 2000 and December 2016, a total of 182 patients with NAFLD were enrolled in this study. At the enrollment, 22 patients had HCC, and 160 were not. To identify risk factor, univariate and multivariate analyses were performed, and to identify risk factor other than degree of fibrosis, propensity matched analysis adjusted by NAFLD fibrosis score (NFS) were carried out in 42 patients. Multivariate analysis and Kaplan-Meier analysis were also performed in the patients with HCC. Results: Multivariate analysis indicated that diabetic retinopathy (odds ratio = 9.753; \( P < 0.001 \)) and NFS (odds ratio = 2.107; \( P < 0.001 \)) were independent factors that were significantly associated with development of HCC. After adjustment for NFS, multivariate analysis indicated that diabetic retinopathy (odds ratio = 16.195; \( P < 0.001 \)) and hypertension (odds ratio = 5.382; \( P = 0.013 \)) were identified as independent factors that significantly associated with the development of HCC. In the patients with HCC, multivariate analysis indicated that NFS were significantly associated with diabetic retinopathy. The cumulative survival rates were no significant difference between the HCC patients with and without diabetic retinopathy (log-rank test: \( P = 0.438 \)).

Conclusions: Diabetic retinopathy, NFS, and hypertension are associated with the development of HCC in NAFLD patients. NAFLD patients with diabetic retinopathy should have careful screening for detecting HCC.

# P-0113 Territory-wide study on the clinical characteristics and treatment uptake of patients with chronic hepatitis C in public hospitals in Hong Kong
Authors: Y T HUI[1]; G L H WONG[2]; S D LIU[2]; K LIU[2]; Y K MA[3]; D Y K BUT[4]; W Y MAK[1]; O T Y TSANG[5]; K B LAI[6]; C K LOO[7]; A NG[8]; M S LAI[9]; C W CHAN[10]; J Y L LAU[11]; T T T FAN[12]; A J HU[13]; C Y LAM[14]; W I CHUNG[15]; J CHAN[5]; K LAM[5]; L S W LAI[1,4]; W F LUK[5]; K K LI[3]; W C LAO[11]; J T W LAM[11]; S TSANG[1,2]; K N KUNG[6]; Y K CHAN[8]; W H CHOW[10]; C S LEUNG[10]; C T TO[10]; C W LI[10]; J WONG[10]; W L TAO[10]; W S CHAN[10]; A CHAN[10]; R CHAN[1,3]; K LEE[4]; W YAU[3]; Y H HO[7]; Y M KAN[7]; K L LUI[3]; E SHAN[8]; J Y Y FUNG[4]; H L Y CHAN[2]; M F YUEN[4]; V W S WONG[2]
Affiliations: [1]Queen Elizabeth Hospital, [2]Prince of Wales Hospital, [3]Tuen Mun Hospital, [4]Queen Mary Hospital, [5]Princess Margaret Hospital, [6]United Christian Hospital, [7]Kwong Wah Hospital, [8]Cantás Medical Centre, [9]North District Hospital, [10]Yan Chai Hospital, [11]Pamela Youde Nethersole Eastern Hospital, [12]Teung Kwan O Hospital, [13]Allice HoMui Ling Nethersole Hospital, and [14]Pok Oi Hospital; and [15]Our Lady of Maryknoll Hospital, Department of Medicine, Hong Kong SAR

Background: To study the clinical characteristics and treatment uptake of HCV infection in Hong Kong. Methods: From January 2005 to March 2017, patients who were tested positive for anti-HCV were retrospectively retrieved from all public hospitals. The epidemiological data of 12747 participants were further analyzed. Results: A total of 12747 anti-HCV+ patients were identified. Among the 15 participating hospitals, there were 11309 anti-HCV+ cases, which accounted for 88.7% of the whole registry. Their median age was 59 years old (IQR 47 – 67, 47.2% ≥ 60 years), and 69% of them were male. Majority of them were Chinese (91.4%), followed by Vietnamese (0.8%), Chinese (91.4%), followed by Vietnamese (0.8%),
Nepalese (0.5%), and Indian (0.4%). Genotypes were checked in 2397 patients, and the distribution was as genotype 1 (50.4%; 1b 95.7%, 1a 4.3%), genotype 6 (35.2%), genotype 3 (10.9%), and genotype 2 (3.4%). Other comorbidities included diabetes mellitus (23.6%), HBV co-infection (7.8%), severe renal impairment with eGFR < 30 ml/min/1.73 m² (7.1%), HIV co-infection (N = 158, 1.4%), hemophilia (N = 94, 0.8%), Cooley’s anemia and Hemoglobin H disease (N = 89, 0.8%). Organ transplantation were performed in 202 patients (kidney N = 118, 1.0%, liver N = 103, 0.9%, heart N = 1). The overall treatment uptake was 24.3% (N = 2201). Most of them had received PegInterferon / Ribavirin (N = 2061). The other antivirals used included Ombitasvir/ Paritaprevir/ Dasabuvir (N = 116), Boceprevir-based therapy (N = 54), Ledipasvir / Sofosbuvir (N = 37), Sofosbuvir-based therapy (N = 23), and Daclastavir/Asunaprevir (N = 7). Around 30.6% (N = 3456, annual all-cause mortality rate = 2.5%) of them were dead at the time of review, of which 26.0% were due to liver-related cause of death. The estimated number of untreated alive patients was 5224.

Conclusion: Hepatitis C infection is not common in Hong Kong. However, more than a quarter of them will eventually die of liver-related complications. The treatment uptake remains suboptimal, and a more generalized use of direct-acting antivirals may help to improve the situation.

# P-0128 Safety and efficacy of sofosbuvir + ledipasvir and sofosbuvir + daclatasvir in thalassemic adolescent patients with chronic hepatitis C: A single center observational study

Authors: PRABA SAWANT; RUCHIR PATEL; VIKAS PANDEY; MEGHRAJ INGLE

Affiliation: Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and Hospital, Mumbai, India

Background: Despite of improvement in blood products screening, hepatitis C has still remained an important problem in thalassemia patients who require multiple blood transfusions. Guidelines recommend similar treatment for hepatitis C in hemoglobinopathies as in general population, only issue being the age. Several recent reports have shown safety and efficacy of direct acting antivirals (DAA) in adolescent age group. Aim: To assess efficacy and safety of DAA in thalassemic adolescent patients with hepatitis C. Methods: We retrospectively evaluated medical records of thalassemic patients who received treatment for HCV with DAA in our center from March 2016 to April 2017. Patient demographics, treatment-related parameters, and adverse events were analyzed. Results and Discussion: A total of 25 patients (18 male, 7 female) with mean age of 15.7 years (Range: 11–22 years) received treatment at our liver clinic. 16 Sixteen patients were thalassemia major and 9nine were minor. All patients were treatment naïve and noncirrhotic except one. Most common genotype (GT) was GT1 (76%); these patients received fixed-dose combination of Sofosbuvir + Ledipasvir for 12 weeks. Rest of the patients, being GT3 (24%), were given Sofosbuvir and Daclatasvir for 12 weeks. All patients completed prescribed treatment and 3 month post treatment follow-up. Rapid virological response (RVR) was achieved in 96% patients (24/25), wWhile all 25 patients (100%) achieved end of treatment response (ETR) and sustained virological response at week 12 (SVR12). Side effects reported in 40% of patients included fatigue, weakness, and dry cough. None of them were serious or requiring additional transfusions. Conclusion: This observational study showed that Sofosbuvir, Ledipasvir, and Daclatasvir are highly efficacious and safe in thalassemic adolescents with hepatitis C at doses and regimens recommended for general population.

# P-0134 Budd-Chiari syndrome with segmental obstruction of the intrahepatic inferior vena cava treated by endovascular stent

Authors: PHUONG UYEN PHAM VO[1,2]; DUC TRONG QUACH[1,2]; LUAN MINH DANG[1,2]; THAO HIEU LUU[3]; LUAN DINH NGUYEN[4]

Affiliations: [1]Department of Internal Medicine, University of Medicine and Pharmacy, and Departments of [2]Gastroenterology and Hepatology, [3]Diagnostic Imaging, Gia Dinh People’s Hospital; and [4]Department of Digital Subtraction Angiography, Gia Dinh People’s Hospital, Ho Chi Minh city, Vietnam

Introduction: Budd-Chiari syndrome (BCS), a rare and potentially life-threatening condition, is occasionally associated with hypoprothrombinemia. Segmental obstruction of the inferior vena cava (IVC) is one of the most common causes of BCS in Eastern countries. Besides many radiological interventions, endovascular stenting has been approved as a promising option for recanalization of IVC occlusion. Case Description: A 32-year-old female patient presented with massive ascites and leg edema. She had had history of abdominal distention for 2 months. She had no prior medical history and no oral contraceptives usage. Liver and spleen were slightly enlarged with no tenderness. No other abnormal findings were found. Laboratory data on admission: Hemoglobin 16.1 g/dl, hematocrit 48.7%, normal white blood cell and platelet count, serum albumin level 2.4 g/dl, total proteinemia 4 g/dl, total bilirubin 1.4 mg/dl, normal transaminase level. The serum ascitic albumin gradient was 1.9 g/dl and ascitic protein was 1.1 g/dl. Urinary protein was negative. Upper gastrointestinal endoscopy, colonoscopy, echocardiogram, and bone marrow biopsy results were normal. BCS was suspected because of the discrepancy between mild liver failure and massive ascites; and the presence of hepatosplenomegaly and polycythemia. Abdominal magnetic resonance imaging showed significant stenosis of the inferior vena cava without thrombus. On cavogram, the segmental obstruction of the intrahepatic IVC was 3- cm long with no thrombus and extensive collateral veins (Figure 1). Stent Protégé was deployed to IVC through right femoral vein. Leg edema and ascites were completely resolved only 3 days after stenting and during 6-month follow-up.

Figure 1 A – Inferior vena cava (IVC) on cavogram via right femoral vein demonstrates the obstruction 3 cm long at pars hepatic IVC (Bracket), along with collateral circulations (Orange arrow). IVC pressure = 31 mmHg. B – Cavogram after placement of the stent Protégé shows good flow through the IVC with no collateral circulation. IVC pressure = 21 mmHg.
# P-0136 Eight-week modified alternate-day calorie restriction is an effective dietary strategy for non-alcoholic fatty liver disease with moderate steatosis and mild fibrosis

Authors: MUHAMMAD IZZAD JOHARI[1]; MUHAMMAD ILHAM ABDUL HAFIZD[2]; RONA MARIE LAWENKO[3]; ZHENG FEEI MA[1]; MUNG SEONG WONG[1]; KHAIRIAH MAT YUSOFF[1]; JUHARA HARON[1]; CHANDRAN NADARAJAN[1]; KHAIRUN NISAH IBRAHIM[1]; YEONG YEH LEE[1]

Affiliations: [1]School of Medical Sciences, Universiti Sains Malaysia, Kota Bharu; [2]Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh, Malaysia; and [3]De La Salle Health Sciences Institute, Dasmarnas, Cavite, Philippines

Background: Easier to comply with and proven efficacy, modified alternate-day calorie restriction (MACR) involves alternate day of 70% calorie restriction and habitual energy intake. The aim of study was to assess efficacy of 8-week MACR in reduction of steatosis, fibrosis, and biochemical parameters in non-alcoholic fatty liver disease (NAFLD). Methods: Consecutive participants with NAFLD but without other liver diseases were consented. After 2-week period of stable eating and activity habits, participants began their 8-week MACR through advice of a dietitian. Besides diary, participants received phone-calls and 2-weekly dietitian appointment to ensure adherence. At baseline and 8th 8 weeks after intervention, BMI, bloods (lipid profile, glucose, and liver enzymes), and ultrasound (SuperSonic Imagine Aixplorer, France) to assess liver steatosis grading (mild, moderate, severe) and shear-wave elastography (SWE) were measured. Results: A total of 105 patients were screened, 41 consented but 11 withdrew, and 30 participants (mean age 43.9 years and BMI 31.5 kg/m², males 70%, diabetes 53%) completed the study. With 8-week MACR, significant reductions were observed of grading of liver steatosis (40% reduction in those with moderate steatosis, \( P = 0.001 \)), SWE (mean difference 0.9, \( P = 0.001 \)), BMI (mean difference 0.6 kg/m², \( P = 0.003 \)), glucose (median difference 0.3 mmol/L, \( P = 0.01 \)), ALT (median difference 20.5 U/L, \( P = 0.001 \)), and AST (median difference 9 U/L, \( P = 0.002 \)). Conclusion: Eight-week MACR appears to be an effective dietary strategy for NAFLD especially with moderate steatosis and mild fibrosis.

# P-0139 Four-dimensional ultrasonography for therapeutic radiofrequency ablation for hepatocellular carcinoma

Author: NAOKI HOTTA

Affiliation: Department of Hepatology, Masuko Memorial Hospital, Japan

Introduction: Studies to evaluate the tumor vascularity in HCC have been done extensively with various imaging modalities because the finding of the vascularity is helpful to evaluate the biological features of the tumor. In the present study, we investigated whether four-dimensional (4D) real-time flow imaging is useful to display the accurate position of percutaneous radiofrequency ablation (RFA) needle in the tumor and evaluated the efficacy of RFA therapy in patients with HCC. Materials and Methods: Twenty-six patients with 28 HCC lesions admitted to Masuko Memorial Hospital, US imaging We used VOLUSON 730 (GE Medical Systems, Milwaukee) for RFA therapy with a convex array as US system. 4D real-time refers here to the display of 3-dimensional moving images composed of 3 three orthogonally intersecting scans in the transverse, longitudinal, and horizontal planes. RF ablation was carried out under a real-time US guidance. Supersonic wave contrast agent was SONAZOID (GE Healthcare, Oslo, Norway), which is newer than January, 2007 with this model is cope; is three cases this time time. We put three cases this time and reviewed the contrast 4D. Results: It was possible to obtain accurate position of cool-tip needle and to perform RFA procedure in all 28 HCC patients with 28 nodules using 4D real-time VOLUSON 730 US machine. We confirmed by various angles that the needle was inserted into the center of tumor nodule. The simultaneous study before RFA therapy showed the inflow of arterial blood and tumor stain. And importantly, it appeared that 4D real-time US provided much perceptible information on the spatial relationship between RFA needle and the target lesion, and resulted in accurate therapeutic efficacy for percutaneous RFA procedure. Conclusion: We experienced the treatment of 28 patients with HCC by RFA using 4D real-time ultrasound system. Application of this method allowed a more accurate accurate catherization of the tumor.

# P-0141 Comparison of renal safety between entecavir and tenofovir for the treatment of chronic hepatitis B: A two 2-year retrospective study

Authors: OH SUHYUN[1]; YOUNG MIN CHOI[1]; YOUNG NAM KIM[2]; BYUNG-CHEOL SONG[1]

Affiliations: [1]Department of Internal Medicine, Jeju National University School of Medicine; and [2]Department of Internal Medicine, Cheju Halla Hospital, Republic of Korea

Background: Entecavir (ETV) and tenofovir (TDF) are most commonly used anti-viral agents for the treatment of chronic B hepatitis (CHB). We evaluated renal safety between two antiviral agents. Methods: Of 549 patients who received ETV or TDF as a first-line treatment, 285 patients (ETV, \( n = 139 \) vs. TDF, \( n = 146 \)) were analyzed retrospectively. We compared the frequency of renal impairment, defined by creatinine increase (≥ 0.3 mg/dL), or GFR reduction (≥ 15%) and GFR change at 2 years. Results: The frequency of creatinine increase was 0.8% and 9.2% in ETV and TDF groups, respectively (\( P = 0.002 \)). The frequency of GFR reduction (≥ 15%) was higher in TDF group (14.2%) than in ETV group (6.8%) (\( P = 0.048 \)). The frequency of renal impairment at 2 years was higher in TDF group compared with ETV groups (17.0% vs. 6.8%, \( P = 0.01 \)). TDF treatment, baseline albumin, GFR, and diabetes mellitus were independent risk factors for renal impairment. The GFR decreased from 76.6 ml/min/1.73 m² to 74.0 ml/min/1.73 m² in ETV group (\( P < 0.0001 \)) and from 76.2 ml/min/1.73 m² to 72.0 ml/min/1.73 m² in TDF group (\( P < 0.0001 \)). GFR change between two groups was not different at 2 years. (\( P = 0.16 \)). In subgroups with high GFR (≥ 76 ml/min/1.73 m²), GFR change was not different between two groups at 2 years. (\( P = 0.97 \)). However, in patients with low GFR (< 76 ml/min/1.73 m²), GFR was higher in ETV groups than in TDF groups, (\( P = 0.005 \)) at 2 years. Conclusions: TDF treatment might be associated with renal function deterioration. Therefore, before choosing antiviral agents, efficacy and risk factors for renal impairment should and should be considered.
# P-0142 The effectiveness and safety of direct-acting antivirals for HCV infection during clinical practice

Authors: HOE SOO JANG; EUKKWANG CHOI; BYUNG-CHEOL SONG

Affiliation: Department of Internal Medicine, Jeju National University School of Medicine, Jeju, Korea

Background: We assessed the real-world experience for efficacy and safety of direct-acting antivirals (DAAs) for patients with HCV infection.

Methods: This retrospective study analyzed 127 patients with HCV infection (genotype 1b, n = 77; genotype 1a, n = 1; mixed with genotype 1a/1b, n = 1; genotype 2, n = 48) who were treated with DAAs. In patients with genotype 1b without NS5A RAV (n = 64), daclatasvir and asunaprevir (DCV+ASV) therapy was introduced. In patients with genotype 1b harbouring NS5A RAV (n = 12) or decompensated liver cirrhosis (n = 1), and a patients whose NS5A RAV was not available, genotype 1a, mixed with genotype 1a/1b were treated with sofosbuvir and ledipasvir (SOF+LDV). Genotype 2 patients (n = 48) were treated with sofosbuvir and ribavirin (SOF +RBV).

Results: Of the 127 patients (male, n = 63 [49.6%]; mean age, 62.9 years; liver cirrhosis 47 [37%]), 66 patients (52.0%) were interferon-experienced. In genotype 1 patients, SVR12 was achieved in 59 (92.2%) in DCV+AV group. Among 5 patients without SVR12 receiving DCV +ASV, virologic breakthrough occurred in a patient and virologic relapse occurred in 4 patients. In SOF +LDV group, SVR12 occurred in all patients. In SOF +RBV group, SVR12 was achieved in 46 patients (95.8%). In genotype 1 patients treated with DCV+ASV, 2 patients early stopped the treatment because of economic reason (n = 1) and virologic breakthrough (n = 1). In genotype 2 patients, 3 patients (SVR12, n = 1; no SVR12, n = 2), all were over 70 years old, stopped the medication due to gastrointestinal trouble (n = 2) or pruritus (n = 1). During or after DAA treatment, hepatocellular carcinoma developed in 2 patients (1 in DCV+ASV group and 1 in SOF +RBV group) whose ages were over 75 years. Conclusions: DAAs provide high rate of SVR12 and safety in patients with HCV infection. However, in some older patients, especially ribavirin containing regimen is not tolerable and HCC can develop during or after DAAs treatment.

# P-0155 Non-invasive parameters for assessment of esophageal varices

Authors: MOHAMED H BADR[1]; EHAB A ABD EL LATTY[1]; MOHAMED F EL MANSORY[2]

Affiliations: [1]Internal Medicine Department, Faculty of Medicine, Menoufyia University, Egypt; and [2]El Mahallah Hepatology Teaching Hospital

Introduction: Portal hypertension is the major complication of cirrhosis and leads to the development of esophageal varices. Bleeding from ruptured EV is the most severe complication of patients with cirrhosis, and leads to the development of esophageal varices. Bleeding from esophageal varices at diagnosis and every 3–5 years with EGD. Current guidelines recommend screening of all cirrhotic patients for varices at diagnosis and every 3–5 years with EGD. These recommendations are considered a burden on endoscopy units with relative high costs, which force the patients to perform an unpleasant invasive procedure; on the other hand, many patients refuse repeated endoscopies because of discomfort and fear of transmission of infection. Aim of the Study: The aim of this work is to assess presence of EV by non-invasive markers in patients with liver cirrhosis using some clinical, laboratory, and sonographic parameters. Patients and Method: This study was carried on 120 patients with liver cirrhosis whom underwent EGD in the endoscopy unit of Menoufiya University Hospital, Egypt, after exclusion of patients with previous interventions for portal hypertenion, HCC, and portal vein thrombosis and other malignancies. Patients are classified into three groups:

1. Cirrhotic with EV and history of bleeding (40)
2. Cirrhotic with EV and no history of bleeding (40)
3. Cirrhotic without EV (40)

Patients were subjected to thorough history taking, clinical examination and exceptional investigations, abdominal Utrasound, and EGD. The following parameters were calculated: Child-Pugh, APRI score, NICE Index, Platelet count / spleen diameter ratio (PC/SD), right lobe liver / Albumin ratio, right lobe liver / Prothrombin ratio, and FIB-4 score. Also, varices were graded according to three size classifications and the presence of risky signs. Results: Serum albumin (< 3.65 g/dl), platelet count (< 99 × 10^9 /cm); PC/SD (< 919.6), APRI score (> 1.14), spleen longitudinal diameter (> 14.05 cm), pPortal vein diameter (> 15.2 mm), and PT (> 15.1 sec.) all can predict the presence of varices, while NICE index (< 25.4), pPlatelet count (< 74 × 10^9 /cm), and PC/SD (< 85.6) can predict EV bleeding in cirrhotic patients. Conclusion: Many non-invasive markers (Albumin, PC, APRI score, PC/SD, and others) can predict EV in cirrhotic patients, while NICE Index, PC, and PC/SD can provide information help in prediction of EV bleeding risk in cirrhotic patients.

# P-0176 Clinicopathologic characteristics of WNT/β-catenin deregulated hepatocellular carcinoma

Authors: MUNITA BAL[1]; ANUJ VERMA[1]; MUKTA RAMADWAR[1]; KEDAR DEODHAR[1]; PRACHI PATIL[2]; MAHESH GOEL[3]

Affiliations: [1]Pathology, [2]Digestive diseases and Clinical Nutrition; and [3]Department of Surgical Oncology, Tata Memorial Centre, Mumbai, 400012, India

Background/Aim: Activation of WNT/β-catenin pathway has been implicated as a mechanism of oncogenesis of hepatocellular carcinoma (HCC). CTNNB1 mutation, which encodes for β-catenin, has been found to be the commonest underlying genetic alteration. In this study, we evaluated the frequency of aberrant β-catenin expression in our cohort of HCC cases and explored its correlation with clinicopathologic features.

Methods: Fifty-three cases of histologically proven HCC were included in the study. Nuclear expression (with or without cytoplasmic staining) in > 5% tumor cells was regarded as positive for β-catenin. Comparison with clinicopathologic features of β-catenin negative HCC cases (controls) was also undertaken. Results: Nuclear β-catenin positivity was seen in 20 (38%) of HCC cases. Median age was 60.5 years and male to female ratio was 5:1. Alpha-fetoprotein levels were normal in two-third patients (P = 0.04). About 36.8% of HBV-related, 50% of HCV-related, and 35% of viral marker negative HCC were positive for β-catenin. Median tumor size was 8.7 cm. Majority (53%) of the β-catenin positive HCCs were uncinteric, and a significant proportion (65%) displayed a well-differentiated histology (P = 0.12). No specific histologic type was associated with β-catenin positivity. Although not statistically significant, more patients (57%) with β-catenin positive HCCs developed recurrence or progressive disease than β-catenin negative cases (35%). Discussion and Conclusion: Aberrant WNT signaling/β-catenin was observed in a substantial proportion of our HCC cases. β-catenin positive HCC were associated with normal AFP levels, uncinteric tumors, well-differentiated histology, and an unfavorable outcome.
# P-0199 A 24-year old female with indeterminate hyperacute liver failure: A case report
Authors: MARIA ELIZABETH CHING; MARIE ANTOINETTE LONTOK
Affiliation: St. Luke’s Medical Center-Global City, Bonifacio Global City, Taguig, Philippines

**Background:** Acute liver failure (ALF) in the young is rare, yielding limited known data in its pathophysiology and management. **Introduction:** ALF refers to sudden massive hepatic necrosis with encephalopathy and impaired synthetic function without pre-existing cirrhosis. Chronicity is based on interval between jaundice and encephalopathy onset as hyperacute (< 7 days), acute (7–28 days), and subacute (4–26 26 weeks). **Case Description:** A previously healthy 24-year-old female with a history of larcinal gland tumor on chronic oral prednisone (40 mg) for a year was admitted for acute decreased sensorium, generalized jaundice, tea-colored urine, anorexia, and undocumented fever. **Methods and Results:** Laboratory findings showed hyperbilirubinemia, transaminitis, elevated alkaline phosphatase, impaired coagulation hyperammonemia, and normal platelets. Extensive work-up including hepatitis panel, paracetamol, methamphetamine, cannabinoids, benzodiazepene, barbiturates, cocaine, opiates, phenylcycelidine, cytomegalovirus IgM, EBV, HSV1, HSV2, C3, anti-5m and anti-mitochondrial antibody, LKM1, cerulopalsmin, strepA throat screen test, malarial smear, and leptospiral IgM were all unremarkable. Liver transplantation (OLT) was contemplated, however, cerebral edema and hemorrhage ensued on Day 5 leading to demise.

**Discussion:** Extensive work-up including hepatitis panel, paracetamol, methamphetamine, cannabinoids, benzodiazepene, barbiturates, cocaine, opiates, phenylcycelidine, cytomegalovirus IgM, EBV, HSV1, HSV2, C3, anti-5m and anti-mitochondrial antibody, LKM1, cerulopalsmin, strepA throat screen test, malarial smear, and leptospiral IgM were all unremarkable. Medical and supportive treatments were promptly provided. Orthotopic liver transplantation (OLT) was contemplated, however, cerebral edema and hemorrhage ensued on Day 5 leading to demise. **Conclusion:** We report a case of indeterminate hyperacute liver failure in a healthy female. Despite extensive work-up and prompt intensive medical management, rapid chronic deterioration ensued. History of chronic steroid use might be a precipitant, as supported by few case reports.

# P-0226 Comparison between APRI, FIB-4 index, and transient elastography as a marker of liver fibrosis at Makati Medical Center
Authors: J R VIRGILIO LO; MADALINEE ETERNITY LABIO; ROEL GALANG
Affiliation: Department of Medicine, Makati Medical Center, Manila, Philippines

**Background:** Recent advances in technology have led to novel, rapid, and non-invasive methods that challenge liver biopsy as an imperfect gold standard for assessment of liver fibrosis. Numerous non-invasive methods for assessing liver fibrosis have been proposed as an alternative to liver biopsy. The aim of this study is to compare and evaluate the utilities of APRI and FIB-4 index with transient elastography as noninvasive markers of liver fibrosis. **Methods:** Retrospective data collection was performed on 222 patients who underwent transient elastography (TE) at Makati Medical Center between September 2014 to and September 2015. Liver fibrosis was staged according to the METAVIR scoring system. Data obtained from the APRI and FIB-4 index were compared with TE scores and analyzed. **Results:** The FIB-4 index enabled the correct identification of patients with cirrhosis (F4) with an area under the receiver operating characteristic curve (AUROC) of 0.936. A FIB-4 index < 1.47 had a negative predictive value of 98.9% to exclude cirrhosis, which had a sensitivity of 90.5% and a specificity of 85.15%. However, both FIB-4 and APRI could not significantly discriminate groups with moderate to severe fibrosis (F3–F4) from groups with no to mild fibrosis (F0–F2); nor groups with mild to severe fibrosis and cirrhosis (F1–F4) from groups with no fibrosis (F0). **Conclusion:** The FIB-4 index and APRI are both two non-invasive tests for the assessment of liver fibrosis; with cut-off values of 1.47 and 0.44 that were determined to correctly identify patients who have cirrhosis, respectively. FIB-4 is more sensitive and specific than APRI in detecting fibrosis with a sensitivity of 90.5% and a specificity of 86.63%.

# P-0227 Evaluation of the long-term clinical efficacy of Balloon occluded retrograde transvenous obliteration (BRTO) for gastric varices with liver cirrhosis
Authors: YU TAKAHASHI; TAKUYA SHIJIMAYA; MASAO YAMASHINA; RINAKO TSUDA; MIKI MURATA; TAKAHIRO WAKAMATSU; DAIKAKU HACHIMINE; TOSHIHITO SEKI; AKIYOSHI NISHIO; KAZUICHI OKAZAKI
Affiliation: Department of Gastroenterology and Hepatology, Kansai Medical University, Japan

**Aims:** The purpose of this study was to evaluate the long-term clinical efficacy of BRTO and liver function of patients treated by BRTO for gastric varices with liver cirrhosis. **Methods:** The subjects were 35 patients who underwent BRTO for gastric varices due to liver cirrhosis at our hospital from 2004 to 2014. Male was 19 cases, and female was 16 cases. The median age was 65 years old (36–81 years old). Background liver diseases were HCV 18 cases, AIH 5 five cases, aAlcoholic 4 four cases, and the other 8 eight cases. Nine patients had HCC. Pretreatment Child–Pugh classification A was 22 cases, and B was 13 cases. The observation period was 12 to 102 months (median 43). **Results:** In the 22 cases of CP classification A, 6six cases improved their CP score one year after BRTO, 12 cases did not change, and 4four cases deteriorated. 2Two cases of the 22 cases were dead. The cumulative survival rates after 1, 3, and 5 years after BRTO were 100%, 64%, and 64%, respectively. In the 13 cases of CP-B, 5five cases improved the score one year after treatment, 4four cases did not change, and 4four cases deteriorated. 4Four cases of these 13 cases were dead. The cumulative survival rates of 1, 3, and 5 years after BRTO were 100%, 64%, and 64%, respectively. **Conclusion:** BRTO for gastric varices inhibited the recurrence of varices for a prolonged period. Even in CP-B cases, their liver function was improved or maintained for a long period (3 years over) after BRTO. BRTO has shown great promise in the treatment for gastric varices even in the long term.

# P-0288 Therapeutic apheresis in a patient with thyrotoxicosis with severe hepatic complications and liver cirrhosis from chronic Hepatitis B Infection
Authors: EVERLY FAITH RAMOS[1]; DIANE CARLA BERNARDO[2]; DEONNE GAURINAN[3]; GERALDINE CLAIRE FLORO[4]; GRECO MALIJAN[1]; JAN MICHAEL LOMANTA[1]; SONIA SALAMAT[5]; MIA FOJAS[2]; ANGELINA MIRASOL[3]
Affiliation: [1]Department of Medicine, [2]Section of Endocrinology, Department of Medicine, [3]Section of Hematology, Department of Medicine, [4]Section of Gastroenterology, Department of Medicine, [5]Section of Infectious Diseases, Department of Medicine, Philippine General Hospital, Taft Avenue, Manila

**Introduction:** Thyroid storm is an endocrine emergency with a high mortality. Treatment is limited in patients with co-existing liver disease, whether the dysfunction is from the thyrotoxic state or due to other causes. Plasmapheresis at volumes of 40–60 ml/kg has been described as a
therapeutic option for thyroid storm and acute liver failure. **Case Description**: We report the case of a 32-year-old Filipino female who was admitted for a one-week history of abdominal pain, jaundice, and hyperreflexia. She is a known case of Graves’ disease and chronic hepatitis B infection. She was managed as a case of thyroid storm and acute liver failure from hyperthyroidism on top of liver cirrhosis from chronic hepatitis B with high infectivity. High transaminases (ALT 627 U/L, AST 741 U/L) and bilirubins prevented continued use of thionamides. The HBV DNA was 4494 mIU/mL. Because of hemodynamic instability, a low volume plasma exchange (30 ml/kg) with fresh frozen plasma was done and led to 69% and 62% decrease in ALT and AST, respectively; 86% decline in FT3, 3% decline in FT4, 25% decline in thyroglobulin, and 17% decline in anti-TPO six hours after the procedure. This was associated with rapid clinical improvement in thyrotoxic symptoms sustained over six days. Hepatitis B infection was diagnosed with Tenofovir. Plasmapheresis is a viable treatment option and bridge to definitive treatment in thyroid storm with liver disease and may be life-saving. Low-volume plasma exchange safely achieves a rapid yet temporary decline in liver enzymes and hepatotoxins, thyroid hormones, and antibodies. Among Graves’ disease patients with concomitant liver disease, early definitive treatment should be done to avoid hepatic complications from uncontrolled hyperthyroidism as well as to lessen exposure to hepatotoxic anti-thyroid medications.

**# P-0299 Real-world efficacy of sofosbuvir and daclatasvir, with and without ribavirin for patients with chronic hepatitis C in Asia**

**Authors:** SAKKARIN CHIRAPONGSATTHORN[1,2]; VIRASAK Wongpaitoon[1]; PATAMAPORN Phanubol[1]; SATIEN Techapaitoon[1]; RUJAPONG Sukhabote[1]; CHARKAPAN Osangthammont[1]; SINN ANURAS[1]

**Affiliations:** [1]Digestive Disease and Liver Center, Bumrungrad International Hospital; and [2]Division of Gastroenterology and Hepatology, Phramongkutklao College of Medicine, Bangkok, Thailand

**Background:** Efficacy and well-tolerability of direct antiviral agents are integral to treatment for chronic hepatitis C. However, controversy exists regarding applicability of clinical trials to real world practice, especially for HCV genotype 6. **Aim:** We report virologic responses of patients with HCV infection receiving sofosbuvir (SOF) and daclatasvir (DCV) with or without ribavirin (RBV) therapy for 12 weeks. **Methods:** Approval was obtained from the Bumrungrad Institutional Review Board. Treatment naïve and treatment experienced (TE) HCV all GT patients, during March 2016 through January 2017 who started SOF/DCV-based therapy, were consecutively enrolled by dedicated nurse and analyzed on an intent-to-treat basis. End of Treatment (EOT) and Sustained Virological Response 12 and 24 (SVR12, SVR24) were defined as HCV RNA less than the lower limit of quantification at completion of therapy, 12 and 24 weeks after completing therapy, respectively. Patients were defined cirrhotic if either: (a) any history of biopsy-proven cirrhosis, (b) clinical manifestation of cirrhosis or transient elastography defined cirrhosis. Treatment was at clinician discretion. **Results:** The efficacy population (N=211) infected with HCV GT1 (42%), GT6 (29%), GT3 (19%), GT2 (5%), and GT4 (3%). All patients started SOF/DCV-based therapy; 135 started SOF/DCV/RBV therapy and 76 started SOF/DCV therapy for 12 weeks. Respective baseline characteristics were median age (57 with IQR 48, 68 years), female (125, 59%), TE (136, 64%), and cirrhotic (111, 53%). We report EOT, SVR12, and SVR24 rates of 100%, 98%, and 86% for patients receiving SOF/DCV with or without RBV. No any serious adverse side effect was reported. **Conclusions:** DCV+SOF±RBV achieved high SVR12 in all GT and was well tolerated in this real-world cohort of HCV patients in Asia. **Acknowledgements:** The authors thank Orpin Tanapanantik, Veerakit Apiratpraschin, Vibhakorn Permpoon, Yudhana Sattawathamrong, Anuchit Chutaputi, Sith Siramolpiwat, Poungpen Sirisuwananath, Siriwat Amantapunpong, Abhasnee Sobjonsudisuk, Nusont Kladchareon, Pisetspisponsa, Yeayong Jeangwichaihongkorn, Pattana Vanhanich, Asda Vihagoo, and Mondej Sookpranee for providing clinical information.

**# P-0302 The prognostic value of 24-hour urine sodium (24-hr UNa) in cirrhotic patients with ascites on diuretics**

**Authors:** SUKANTA CHANDRA DAS[1]; ABDUR RAHIM MIAH[2]; CHANCHAL KUMAR GHOSH[2]; NAYMUL HASAN[3]; BIRENDRA NATH SAHA[4]; SHAKHAWAT HOSSAIN[5]; MOHAMMAD MAJHARUL HAQUE[1]

**Affiliation:** [1]Gastroenterology Division of Medicine, General Hospital, Narayanganj; [2]Department of Gastroenterology, Bangabandhu Sheikh Mujib Medical University, Dhaka, [3]Department of Gastroenterology, BograShaheed Zia Medical College, Bogra, [4]Department of Gastroenterology, Sathiakhira Medical College, Sathkhira, [5]Department of Gastroenterology, Rangpur Medical College, Rangpur, Bangladesh

**Background:** Ascites due to cirrhosis can be mobilized with sodium restriction (88 mEq/day) and diuretics. Patients with non-responder to diuretics may have pre-heporenal syndrome and a poor prognosis. Diuretic response can be monitored by measuring 24-hr UNa, which can also be a prognostic marker. The aim of this study was to evaluate the value of 24-hr UNa as a prognostic marker in cirrhotic patient with ascites on diuretics. **Methods:** This cross-sectional study included 100 patients of cirrhosis on diuretics. 24Twenty-four-hour urine was collected properly and tested accordingly. At the same time, liver and renal function tests were done to calculate MELD and CTP score. **Results:** Out of 100, 48 (48%) subjects had excreted ≥ 78 mmol/d of sodium and 52 (52%) subjects excreted < 78 mmol/d. 64 Sixty-four subjects belong to CTPS “B” and 36 in CTPS “C” group. Majority of the cases (81.3%) of CTPS “B” group had excreted ≥ 78 mmol sodium/day, and 51.9% patients of the CTPS “C” group had 24-hour urinary sodium < 78 mmol/day. In patients who excreted < 78 mmol/day, MELD score was 17.71 ± 4.51 and it was 14.60 ± 2.98 in patients who excreted ≥ 78 mmol/day of urinary sodium. These differences were statistically significant (P < 0.001). **Conclusion:** This study showed that advanced cirrhosis have relatively lower natriuresis in response to diuretics. So, 24-hr UNa can be considered as a prognostic indicator. But multicentered studies are needed for further recommendation.
# P-0313 A case of hepatocellular carcinoma with Osler-Rendu-Weber disease treated by laparoscopic radiofrequency ablation

**Authors:** YOSHINARI TAKAOKA[1]; NAOKI MORIMOTO[1]; HIROAKI NOMOTO[1]; KOZUE MURAYAMA[1]; TAKUYA HIROSAWA[1]; SHUNJI WATANABE[1]; HIROAKI NOMOTO[1]; KOZUE MURAYAMA[1]; HIRONORI YAMAMOTO[1]; KOUICHI MIURA[1]; NORIO ISODA[1]; MAKOTO IIJIMA[2]; TAKUYA HIROSAWA[1]; SHUNJI WATANABE[1]; HIROAKI NOMOTO[1]; KOZUE MURAYAMA[1]; HIRONORI YAMAMOTO[1];

**Affiliation:** [1]Department of Internal Medicine, Division of Gastroenterology and Hepatology, Jichi Medical University, and [2]Department of Internal Medicine, Division of Gastroenterology and Hepatology, Dokkyo Medical University, Tochigi, Japan

**Introduction:** Osler–Rendu–Weber disease, also known as Hereditary haemorrhagic telangiectasia, is a genetic autosomal dominant disorder occurring with an estimated incidence of 1–2/100 000. Osler–Rendu–Weber disease is characterized by the classic triad of mucocutaneous telangiectasia, recurrent epistaxis, and familial occurrence. Some cases of hepatocellular carcinoma (HCC) in association with Osler–Rendu–Weber disease have been reported, but are very rare. We report a case that laparoscopic radiofrequency ablation (RFA) was useful for the treatment of HCC with Osler–Rendu–Weber disease. Case report: A 71-year-old man was admitted to our hospital for the treatment of HCC in 2016. He had a history of Osler-Rendu-Weber disease and was diagnosed with hepatitis C virus infection in 2001. He had been treated with IFN monotherapy, but was discontinued due to side effects. Several angiomatos were found on his lip by physical examination. Dynamic computed tomography images showed that a 20-mm tumor was detected as defect on portal phase in hepatic segment IV, and showed dilated and meandering hepatic arteries and several arterioportal shunts. RFA with laparoscopic approach was performed for the curative treatment for HCC, in order to cope with intraperitoneal bleeding. Although hemorrhage occurred from the needle tract, a complete hemostasis was achieved by treating with the coagulation forces. The patient was discharged without a complication 5 days after the operation. Conclusion: In a Patient with Osler-Rendu-Weber disease, percutaneous RFA for HCC has a relatively high risk of bleeding due to expansion and meandering of intrahepatic vessels. However, hemostasis can be achieved using coagulation forces under laparoscopic observation in case of any bleeding from the liver with laparoscopic approach.

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**Table 1** Distribution of different variables of the study population according to the 24-hr urine sodium excretion.

| Description | ≥ 78 (Mean ± SD) | < 78 (Mean ± SD) | P value |
|-------------|-----------------|-----------------|---------|
| TPC (cumm)  | 139.18 ± 47.631 | 126.71 ± 52.478 | 0.217  |
| S. Creatinine (mg/dl) | 1.18 ± 0.15 | 1.28 ± 0.12 | <0.001 |
| S. Na(mmol/L) | 130.48 ± 4.59 | 129.63 ± 4.13 | 0.319  |
| Bilirubin (mg/dl) | 2.23 ± 1.11 | 3.82 ± 2.80 | <0.001 |
| Albumin (gm/L) | 26.27 ± 3.40 | 23.64 ± 4.28 | 0.001  |
| Prothrombin | 1.46 ± 0.29 | 1.58 ± 0.29 | 0.021  |

Mann–Whitney U test was done to measure the level of significance. P value <0.05 is significant. TPC, Total platelet count; Na, sodium; K, potassium; ALT, alanine aminotransferase; AST, aspartate aminotransferase; MELD, model for end stage liver disease; CTPS, Child Turcotte Pugh Score.

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# P-0324 Analysis of risk factors for postoperative liver insufficiency in patients undergoing liver resection

**Authors:** HONG-WEI HOU[1]; DONG WANG[2]; JIN-MIN WANG[2]; RONG WU[2]; ZHENG PAN[2]

**Affiliation:** [1][2]Department of General Surgery, Zhongda Hospital, Southeast University, Nanjing, China

**Background:** To investigate the risk factors for postoperative liver insufficiency (PLI) in patients undergoing liver resection. Methods: Clinical data of altogether 225 patients receiving liver resection were reviewed to screen the risk factors that mostly relate to PLI. Results: Of all the 225 patients, 24 (10.7%) patients developed liver insufficiency after hepatectomy. Mean age of PLI group was significantly higher than that of non-PLI group (62.3 ± 7.7 years vs 55.1 ± 11.0 years, P < 0.05). Serum biochemical data showed that Prealbumin (PA) and Cholinesterase (CHE) levels were both significantly lower in patients of PLI group than in those of non-PLI group 3 days after surgery (65.6 ± 48.2 mg/L vs 111.0 ± 54.9 mg/L and 3400.0 ± 1610.7 IU/L vs 5146.6 ± 2115.6 IU/L, respectively, with P < 0.05). There was no statistical difference in other variables between these 2 groups (P > 0.05). PA and CHE levels were closely related to surgical process according to the results of correlation analysis. ROC curve showed that patients with age ≥ 60 years, prealbumin ≤ 100mg/L, or CHE ≤ 4348 IU/L have significantly higher risk to develop PLI. Conclusions: Patients with preoperative liver functional class of Child-Pugh class A may still have the risk of developing PLI. For patients undergoing liver resection, combinatorial analysis of age, PA, and CHE can effectively assess the hepatic functional reserve and predict the occurrence of PLI.

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# P-0327 Primary Hodgkin’s lymphoma of liver: Aa case report

**Authors:** SHOKO NOMURA[1]; SHINYA KONDO[1]; HISASHI FUKUTANI[2]; HAYAO NAKANISHI[3]; HIRONORI YAMAMOTO[1];

**Affiliation:** [1]Department of Gastroenterology, [2]Department of General Surgery, Zhongda Hospital, Southeast University, Nanjing, China

**Introduction:** Primary hepatic Hodgkin’s lymphoma (PHHL) is a very rare malignancy, with unknown findings on imaging modalities. Case Description: A case of a 61-year-old woman with PHHL with magnetic resonance imaging (MRI) and 18F-fluorodeoxyglucose positron emission tomography/computed tomography (PET/CT) findings that were helpful for diagnosis is presented. The patient had been treated for rheumatoid arthritis (RA) with methotrexate for 14 years and infliximab for 6 years. She presented with high fever, and suspicious liver lesions were identified by computed tomography (CT). Contrast-enhanced CT showed rim-enhanced hypodense lesions in the liver. However, the borders were unclear. Multiple liver lesions were detected on MRI; hypointense lesions were observed on T1-weighted images, and hyperintense lesions on T2-weighted images and diffusion-weighted MRI. Gadolinium ethoxybenzyl-diethylenetriaminepentaacetic acid-enhanced MRI revealed multiple hypodense lesions. PET/CT showed high uptake lesions in the
liver and spine. Although the liver lesions were not clearly visible on ultrasound (US), the MRI and PET/CT findings were useful to determine the site for US-guided biopsy for pathological diagnosis. Classical Hodgkin’s lymphoma was diagnosed based on hematoyxin-and-eosin and immunohistochmical staining. The patient was diagnosed with PHHL. Combination chemotherapy with adriamycin, bleomycin, vinblastine, and dacarbazine (ABVD) was initiated. After one course, the MRI findings showed improvement. After two courses, no uptake was observed on PET/CT. The patient received six cycles of ABVD and showed a complete response. This case demonstrates that MRI and PET/CT are useful for diagnosis and therapeutic evaluation of PHHL. Furthermore, RA and its treatment might contribute to the pathogenesis of PHHL.

# P-0330 Natural prevalence of NS5A polymorphisms in patients infected with hepatitis C virus genotype 6 and their effects on the antiviral activity of drugs targeting NS5A

**Authors:** FIONA MCPHEE[1]; VINCENT VELLUCCI[1]; JOSEPH UELAND[1]; WILLIAM SIEVERT[2]; NANNAN ZHOU[1]

**Affiliations:** [1]Bristol-Myers Squibb Research and Development, Wallingford, CT, USA; and [2]Monash University, Melbourne, Victoria, Australia

**Background:** Hepatitis C virus (HCV) genotype (GT)-6 is predominantly found in Southeast Asia, with prevalence approaching 60% in some countries in the region. Intravenous drug use has resulted in the spread of this GT to neighbouring countries. Most in vitro and clinical studies have focused on patients infected with HCV GT-6a where high response rates have been described. However, there are 24 reported GT-6 subtypes (GT-6a-xa). We explored the diversity of GT-6 sequences and their impact on the in vitro activity of drugs targeting the HCV non-structural protein 5A (NS5A). **Methods:** Phylogeny and baseline NS5A polymorphisms (at 28, 30, 31, or 93) associated with resistance to drugs targeting NS5A were examined in 24 patient-derived and 105 public database HCV sequences. Susceptibility analyses of HCV GT-6 replicons harbouring NS5A substitutions to different NS5A inhibitors were performed. **Results:** NS5A position 28 was the most polymorphic; NS5A-T28, a drug-resistant polymorphism, was observed in 2/2 GT-6b and 11/16 GT-6f sequences from Thailand. NS5A-T28 was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences). The potency of drugs against consensus HCV GT-6a was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences). The potency of drugs against consensus HCV GT-6a was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences). The potency of drugs against consensus HCV GT-6a was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences). The potency of drugs against consensus HCV GT-6a was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences). The potency of drugs against consensus HCV GT-6a was also linked with other drug-resistant NS5A polymorphisms in these GT-6 subtypes: F28T+L31I (GT-6b; 2/2 sequences) and F28T-R30S (GT-6f; 11/11 sequences).

**Conclusion:** HCV GT-6 response rates to NS5A inhibitors may depend on the GT subtype being treated.

## Susceptibility of HCV GT-6 NS5A substitutions against approved NS5A inhibitors

| NS5A Substitution | EC50 Value (SD), nM* | Daclatasvir | Ledipasvir | Ombitasvir |
|-------------------|----------------------|-------------|------------|------------|
| Consensus (wild-type) | 0.3 (0.3) | 3.0 (0.2) | 7.5 (0.5) |
| F28T | 224 (13) | 560 (3) | 1483 (49) |
| L31I | 6.4 (0.1) | 295 (0.4) | 130 (7.3) |
| F28T-R30S | 735 (72) | 876 (22) | 1746 (16) |
| F28T-L31I | 2349 (125) | >5000 | >5000 |

*Drug susceptibility assays were performed using a sub-genomic replicon comprising a consensus HCV GT-6a NS3-5B sequence; EC50 values represent the average of n ≥ 3 values; R30S alone did not replicate in the replication assay.

# P-0333 Predicting the response to sorafenib treatment for patients with hepatocellular carcinoma using 18F-fluorodexoyglucose positron emission tomography

**Authors:** SI HYUN BAE[1]; PIL SOO SUNG[1]; KEUNGMO YANG[1]; IE RYUNG YOO[2]; SEAWON HWANG[1]; JEONG WON JANG[1]; JONG YOUNG CHOI[1]; AND SEUNG KEW YOON[1]

**Affiliation:** [1]Department of Internal Medicine, The Catholic University Liver Research Center, College of Medicine, and [2]Department of Nuclear Medicine, College of Medicine, The Catholic University of Korea

**Introduction:** Sorafenib, an oral multikinase inhibitor, remains the only standard treatment offered for patients with BCLC – C. 18F-FDG PET has been used to assess glucose metabolic activity of various types of tumor, and also used to evaluate the biological behavior of HCC. The aim of this study is to evaluate the performance of 18F-FDG PET for predicting the response to sorafenib treatment. **Methods:** We formed a retrospective cohort comprising patients treated with sorafenib for at least 30 days and undergoing 18F-FDG PET/CT scan within 1 month before treatment. Thirty-five HCC patients fulfilling these criteria were included, who began sorafenib treatment between May 2009 and December 2015. The median duration of sorafenib treatment was 92 days (31–775 days). Treatment response according to SUVmax, recurrence-free survival (RFS), and overall survival (OS) were was studied. **Results:** Among total patients enrolled, two patients obtained partial remission, and 11 patients showed stable disease after first response evaluation during sorafenib treatment. Patients with SUVmax ≥ 6 (n = 17) had median overall survival (OS) of 3.7 months after sorafenib treatment, whereas patients with SUVmax < 6 (n = 18) had median of 12.2 months (P < 0.001). For progression-free survival (PFS), patients with SUVmax ≥ 6 had PFS of 1.9 months, whereas patients with SUVmax < 6 had median of 4.7 months (P = 0.023). SUVmax ≥ 6 (HR = 32.901, P < 0.001), high MELD score (MELD > 9) (HR = 6.629, P = 0.015), and poor performance state demonstrated by ECOG score (ECOG = 2) (HR = 6.607, P = 0.018) were poor prognostic factors for OS by multivariate analysis. Regarding PFS, SUVmax ≥ 6 (HR = 3.160, P = 0.001) was the only poor prognostic factor by multivariate analysis. **Conclusion:** Tumor metabolic activity assessed by 18F-FDG PET/CT is an independent prognostic factor in patients BCLC-C stage HCC after sorafenib treatment.

# P-0342 Stereotactic body radiation therapy for hepatocellular carcinoma: A single-center experience

**Authors:** MASAYUKI UENO; TAKAHISA KAYAHARA; HIROYUKI TAKABATAKE; YOUICHI MORIMOTO; HIROSHI YAMAMOTO; MOTOWO MIZUNO

**Affiliation:** Department of Gastroenterology and Hepatology, Kurashiki Central Hospital, Japan

**Background:** Stereotactic body radiation therapy (SBRT) has become an accepted treatment option for hepatocellular carcinoma (HCC) patients who are not suitable for other locoregional therapies, but its indication and irradiation dose have varied among institutions. In this study, we aimed to investigate its efficacy, safety, and the optimal indication on the basis of our experience. **Methods:** We conducted a retrospective observational study involving 16 patients who underwent SBRT for HCC from October 2014 to November 2016 at our hospital; 53 to 88 years old (median 78 years) and 12
males and 4 females. All of them were classified as Child-Pugh class A or B. 

**Results:** Complete response (CR) and partial response (PR) were achieved in 11 (69%) and 3 patients (19%), respectively. The other 2two patients failed to control their disease. Averse events were grade 1 malaise \( n = 1 \) and liver injury \( n = 1 \). Discussion: In the largest retrospective study re-
ported by Sanuki et al., a single lesion, Child-Pugh Classification A or B, tumors < 5 cm, and dose to the bowels < 25 Gy/5 fractions were the eligi-
bility criteria for SBRT. In our study, CR was achieved in 11 (92%) of 12 patients who met the criteria, whereas of four patients who did not satisfy the criteria, none achieved CR, and the tumor progressed in two patients. 

**Conclusion:** SBRT showed favorable efficacy and safety for HCC patients who are not suitable for other locoregional therapies. When patients are 
appropriately selected, SBRT looks promising option for treatment of HCC.

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**# P-0346 Nested case–control study for risk factors of hepatic encephalopathy in patients with liver cirrhosis**

**Authors:** LAN-TING YUAN[1]; SENG-KEE CHUAH[2,3]; DENG-CHYANG WU[4]; PIN-I HSU[5]; CHIEN-NING HSU[6] 

**Affiliation:** [1]Divisions of Gastroenterology, Yuan General Hospital, [2]Chang Gung University, College of Medicine, [3]Division of Gastroenterology, Department of Internal Medicine, Kaohsiung Medical University Hospital and Kaohsiung Medical University, and [4]Division of Gastroenterology, Department of Internal Medicine, Kaohsiung Veterans General Hospital, National Yang-Ming University, Kaohsiung, [5]Division of Hepato-gastroenterology, Department of Internal Medicine, Chang Gung Memorial Hospital, and [6]Department of Pharmacy, Kaohsiung Chang Gung Memorial Hospital, Taiwan

**Introduction:** The pathophysiology of hepatic encephalopathy is not fully 
understood. This study was conducted to investigate risk factors in the 
development of hepatic encephalopathy (HE) among patients with liver cirrhosis (LC) in Taiwan. **Methods:** A total of 913 patients with incident HE and 3,499 patients without HE (control) were identified from a cohort of liver cirrhosis \( n = 14,428 \) using the population-based, Longitudinal Health Insurance Database 2000 in 1997–2012. Controls were matched to case patients on age at LC diagnosis (± 2 years), sex, Charlson Comorbid index score, year of LC and follow-up time at 1:1 ratio. A multivariate logis-
tic regression model for HE was developed to explore the relative 
contribution of various risk factors. A Cox regression model for all-
cause mortality was performed. **Results:** A total of 714 cases of HE and matched to 714 controls were enrolled in the analysis. Infections (adj. OR, 3.41, 95% CI, 2.7–4.31, \( P < 0.0001 \)) and frequency of infections yearly (≥ 3:adj. OR 11.26, 95%CI, 5.7–22.22; 1–3: adj. OR 2.82, 95%CI, 2.26–3.53) were significantly associated with increased risk of HE. **H. Pylori pylori** infection and sites of infections such as pneumonia, peritonitis, sepsis, urinary tract infection, biliary tract infection, and cellulitis resulted in HE. HE (adj. HR, 0.90, 95% CI, 0.76–1.06, \( P = 0.02 \)) and infections (adj. HR, 1.13, 95% CI 0.93–1.38, \( P = 0.23 \)) increased hazards of death but did not reach statistical significance. **Conclusions:** The study provides further evi-
dences that infections are strongly associated with HE development among patients with liver cirrhosis; risks for HE vary by relative frequencies and sites of infections.

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**P-0349 Hepatic angiomyolipoma presenting with chronic epigastric pain: A case report and review of literature**

**Authors:** CLARENCE YACAPIN[1]; ANTHONY PEREZ[1,2]; MARK ADONA[1]; MIGUEL MENDOZA[1] 

**Affiliation:** [1]Asian Hospital and Medical Center, Muntinlupa, [2]Philippine General Hospital, Manila, Philippines

**Introduction:** Hepatic angiomyolipoma (HAML) is a rare tumor char-
acterized by the presence of blood vessels, muscle tissue, and adipose 
tissue with only about 300 reported cases to date, and to the best of 
our knowledge, this the first case reported on a Filipino patient. **Case:** A 49-year- 
old Filipino female presented with a 2-year history of re-
current epigastric pain. Abdominal magnetic resonance imaging re-
vealed a fat-containing lesion in the left liver lobe. Serologic tests 
were negative for malignancy or infection. The patient underwent left 
hepatic lateral segmentectomy which that revealed a 7.5 x 7- cm fri-
able mass involving hepatic segments II and III (Figure 1a and 1b). Histopathology showed mature fat cells with a few thick-walled blood 
vessels and spindled smooth muscle cells with no atypia (Figure 1c). 
Homatropine mehtylbromide-45 test showed strong and diffused stain-
ing confirming angiomyolipoma (Figure 1d). The patient did not show 
any recurrence or complications on follow-up. **Discussion:** HAML is 
difficult to diagnose because of its rarity and varying composition of 
adipose and muscle tissue, which resembles other hepatic tumors. 
Pre-operative diagnosis is only 11% to 50% accurate, where the major-
ity are is misdiagnosed as hepatocellular carcinoma. Although HAML 
is considered a benign tumor, several cases have reported recurrence 
or malignancy. Tumor size of 10 cm or greater seems to have greater 
risk of recurrence. **Conclusion:** Confirmatory tests should be included 
in hepatic masses suspected for HAML. Close follow-up is advised 
particularly among patients with large tumors.

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**Figure 1** Gross specimen (A,B). H&E stain 40x (C). HMB-45 stain (D).
**# P-0355 Does hepatocellular carcinoma surveillance result in longer survival: A district hospital experience**

**Authors:** WAI CHUEN WONG[1,2]; YIU KAY CHAN[2]; WING I CHEUNG[1]

**Affiliation:** [1]Our Lady of Maryknoll Hospital, and [2]Caritas Medical Centre, Hong Kong

**Background:** Hepatocellular carcinoma (HCC) is the third commonest cancer death in Hong Kong. Several international liver associations recommended HCC surveillance in high-risk subjects. However, evidence about effectiveness of HCC surveillance in real-life practice in district hospitals is limited. Therefore, we aim to evaluate any survival difference between surveillance and non-surveillance groups of HCC patients and to identify prognostic factors.

**Subjects and Methods:** All HCC patients who were diagnosed between January 2000 and December 2008 in the Department of Medicine and Geriatrics at Caritas Medical Centre were enrolled and followed up until June 2012. All these patients recruited were retrospectively reviewed whether HCC surveillance were done or not. Surveillance method consisted of half-yearly ultrasound abdomen and serum alpha-feto-protein.

**Results:** The surveillance and non-surveillance groups consisted of 91 and 127 patients, respectively. The surveillance group had smaller tumor (3.1 cm vs 5.4 cm; \( P < 0.001 \)), less portal vein invasion (5% vs. 18%; \( P = 0.002 \)), more unifocal HCC (71% vs. 58%; \( P = 0.05 \)), and early tumor stage (59.3% vs. 17.3%; \( P < 0.001 \)). More patients in the surveillance group received curative therapy (surgical resection: 35% vs. 17.3%, \( P = 0.032 \); local ablative therapy: 17% vs. 6%, \( P = 0.009 \)). Median survival was significantly longer in surveillance group than that in non-surveillance group (29.2 months vs. 14.6 months; \( P < 0.001 \)) (Figure 1). Multivariate analysis showed that absence of portal vein thrombosis, Child’s A grading, unifocal tumor, having hepatectomy, and early tumor stage were independent favorable prognostic factors.

**Conclusion:** HCC surveillance conducted in a district hospital could detect HCC at early tumor stage that is potentially amenable to curative therapy, thus resulting in longer survival.

**Figure 1** Comparison of survival of HCC patients in surveillance group and non-surveillance group

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**# P-0362 The combination of anti-HBc and anti-HBs is a useful predictor of the development of chemotherapy-induced reactivation in lymphoma patients with resolved HBV infection**

**Authors:** TOKUHIRO MATSUBARA; TSUTOMU NISHIDA; YU HIGAKI; RYO TOMITA; AKIYOSHI SHIMODA; HIROMI SHIMAKOSHI; NAO TO OSUGI; AYA SUGIMOTO; KEI TAKAHASHI; DAI NAKAMATSU; KAORI MUKAI; MASASHI YAMAMOTO; SHIRO HAYASHI; KOJI FUKUI; MASAMI INADA

**Affiliation:** Department of Gastroenterology and Hepatology, Toyonaka Municipal Hospital, Toyonaka, Japan

**Background/Aims:** Fatal chemotherapy-induced hepatitis B virus reactivation (HBV-R) is a well-described serious complication in lymphoma patients with resolved HBV infection. The aim of this study was to determine the predictive factors of the development of chemotherapy-induced HBV-R.

**Methods:** Seventy-seven consecutive newly diagnosed lymphoma patients with resolved HBV infection who received chemotherapy from 2007 through 2015 were analysed, retrospectively. Significant predictive factors associated with HBV-R development were identified based on the data from these patients.

**Results:** Ten patients developed HBV-R during and after chemotherapy, and two of these 10 patients developed HBV-related hepatitis flares. There was a significant negative correlation between anti-HBc titles prior to chemotherapy and time to HBV-R (\( P = 0.016, R = -0.732 \)). Univariate and multivariate logistic regression analysis demonstrated that both anti-HBc and anti-HBs titles at baseline were significant predictive factors for HBV-R. Furthermore, patients with high anti-HBc titres at baseline (above 10 S/CO) were significantly more likely to experience HBV-R than were patients with low anti-HBc and high anti-HBs titres (above 28 mIU/ml) who did not experience complete reactivation (\( P < 0.0001 \)). Additionally, patients with low anti-HBs titres were significantly more likely to experience HBV-R than were those with high anti-HBs titres (\( P = 0.031 \)). All HBV-R episodes among the patients with high anti-HBc titres occurred within 3 months after starting chemotherapy.

**Conclusion:** The combination of anti-HBc and anti-HBs titres at baseline in patients with lymphoma could serve as a surrogate marker of the occurrence of HBV-R under the influence of chemotherapy.

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**# P-0376 Evaluation of partial splenic embolization in cirrhotic patients with hypersplenism by contrast-enhanced ultrasonography**

**Author:** TATSURO NISHIMURA

**Affiliation:** Department of Gastroenterology & and Hepatology, Yamaguchi University Graduate School of Medicine, Japan

**Aims:** The present study investigates whether contrast-enhanced ultrasonography (CE-US) using perflubutane can be therapeutically applicable as an evaluation modality of partial splenic embolization (PSE) compared with contrast-enhanced computed tomography (CE-CT).

**Methods:** From January 2013 to January 2017, 30 cirrhotic patients (mean age = 65.4 years; female/male = 16/14; hepatitis B virus/hepatitis C virus/alcohol/other = 2/17/8/3; Child-Pugh class A/B/C = 17/12/1) with hypersplenism were treated by PSE with the aim of increasing platelet count. Wedged hepatic venous pressure (wHVP) was measured immediately before and after the PSE procedure. CE-US, CE-CT, and transient elastography (TE) were performed before and 1 week after PSE.

**Results:** Embolization of splenic artery resulted in a significant decrease in both splenic venous volume (\( P < 0.01 \)) and portal venous volume (PVV, \( P < 0.01 \)) ultrasonographically. PSE significantly reduced wHVP.
(P < 0.01), and values for liver stiffness measured by TE showed a decreasing tendency following PSE (P = 0.09). Meanwhile, platelet count increased significantly from 54.4 x 10^9/L before PSE to 125.9 x 10^9/L 1 month after PSE (P < 0.01), with mean number and mean rate of increase in platelet count of 69.2 x 10^9/L and 264.2 %, respectively. The splenic infarction ratio (SIR) measured by CE-US was almost equivalent to that measured by CE-CT, and a statistically significant correlation was observed between them (P < 0.01). In addition, the SIR by CE-US was positively associated with both the number and the rate of increase in platelet count 1 month after PSE (r = 0.56 (P < 0.01) and r = 0.41 (P < 0.05), respectively), compared favorably with that by CE-CT [r = 0.50 (P < 0.01) and r = 0.20 (P = 0.27), respectively].

Conclusions: The USA can evaluate hemodynamic changes in portal-splenic venous system in response to PSE, unlike the CT scan. Moreover, CE-US would be comparable to CE-CT in terms of SIR measurements after PSE. Consequently, the USA, especially CE-US, will be therapeutically applicable as a less-invasive modality that is useful for the evaluation of PSE.

# P-0394 Extreme learning machine used for focal liver lesion identification
Authors: SHUIHUA WANG[1,2]; YUNCHUAN WU[2]; YUDONG ZHANG[1,2]
Affiliations: [1] Nanjing Normal University; and [2] Nanjing University of Chinese Medicine, Nanjing, China

Background: Identifying malignant carcinoma from benign lesions is of importance. Currently, scholars have used support vector machine (SVM) and artificial neural network (ANN) to identify focal liver lesions. We aim to use an alternative approach—extreme learning machine (ELM)—and test its validity. Methods: This research has been approved by an ethical committee. We enrolled 71 patients, who were scanned by spiral computed tomography (SCT). The diagnosis was made by hepatologists with over 10 years of experiences by pathological studies, follow-up treatment, etc. 38 Thirty-eight are malignant tumors, including hepatocellular carcinoma, intrahepatic cholangiocarcinomas, and liver metastases. 33 Thirty-three are benign tumors, including focal fatty change and hemangiomas. We segmented the tumor manually. The coefficients of three-level wavelet entropy were obtained, and submitted to an ELM. Results: The ELM identifies 62 cases correctly (malignant: 34/38, benign: 28/33). It has a sensitivity of 89.47%, a specificity of 84.85%, and an accuracy of 87.32%. In comparison, the ANN correctly identifies 59 cases (malignant: 32/38, benign: 27/33); the SVM correctly identifies 57 cases (malignant: 29/38, benign: 28/33). The confusion matrices of three classifiers are presented in Table 1. Discussion: ELM is superior to both ANN and SVM for focal liver lesion identification. The wavelet entropy is an effective biomarker for liver CT images. We shall try to use ensemble methods to increase the identification performance. Acknowledgement: NSFC (61602250)

Table 1 Confusion matrices of three classifiers (M = Malignant, B = Benign)

| ELM | ANN | SVM |
|-----|-----|-----|
| M   | 34  | 5   | 32  | 6   | 29  | 5   |
| B   | 4   | 28  | 6   | 27  | 9   | 28  |

# P-0401 Metformin overcomes the radioresistance of CD34+ liver cancer stem cells and multicellular organotypic model of hepatocellular carcinoma
Authors: SU CHEOL PARK[1]; JAE-HOON JEONG[2]; YONG JIN JUNG[3]
Affiliations: [1] Department of Internal Medicine, Korea Institute of Radiological and Medical Sciences, Korea Cancer Center Hospital, and [2] Department of Radiation Therapeutic Development, Korea Institute of Radiological and Medical Sciences; and [3] Department of Internal Medicine, Seoul National University College of Medicine, SMG-SNU Boramae Hospital, Seoul, South Korea

Backgrounds: Radiotherapy and chemotherapy can be used as a salvage therapy for advanced hepatocellular carcinoma (HCC), however, the responses of the treatments are insufficient due to the resistance. Liver cancer stem cells can be a possible cause of radioresistance and recurrence of HCC. Anti-cancer effects of metformin, the medication for the treatment of diabetes, are recently reported in many types of cancer. This study is to elucidate the role of liver cancer stem cells in the anti-radioresistance of HCC.
resistance to radiation treatment and observe whether metformin can overcome the resistance to the radiation treatment. **Methods:** We sorted CD34+ cells from human hepatoma cell line using flow cytometric analysis and cell sorting (FACS) method. CD34+ cells were placed on mouse embryonic fibroblasts under our derived culture condition. Then we compared the anti-proliferative effect of metformin to the CD34+ cells and CD 34--- cells as a single treatment or combination treatment with radiation. Cell viability and growth inhibition were assessed by MTT. We also established multicellular organotypic model of HCC and measured the area of each spheroid after exposure to radiation and treatment of sorafenib, a multi kinase inhibitor and metformin to investigate the response to chemo-radiotherapy. **Results:** CD34+ cancer stem cells are more radio-resistant than CD34--- cells, possibly due to less DNA damage and better DNA damage repair capacity. Metformin inhibited not only the growth of CD34--- cells but also CD34+ cells. In addition, metformin inhibited organotypic growth of HCC spheroids and showed a synergistic effect with radiation treatment. However, combination of sorafenib with radiation did not show any synergistic inhibition. **Conclusions:** CD34+ liver cancer stem cells and multicellular organotypic model of HCC have radioresistance, and metformin can overcome the radioresistance of HCC cells. Thus, metformin could be the useful strategy in the treatment of patients with radioresistant HCC.

# P-0406 Fimasartan-induced liver injury

**Authors:** GEE YOUNG YUN; SEOK HYUN KIM; DAE HWA PARK; JAE HO PARK; SEO HEE LEE; HYUK SOO EUN; JONG SEOK JOO; EAUM SEOK LEE; BYUNG SEOK LEE

**Affiliation:** Department of Internal Medicine, Department of Gastroenterology, Chungnam National University School of Medicine, Korea

**Introduction:** Angiotensin II receptor blocker (ARB) is widely used drug for hypertension patients. There have been several reports for losartan-induced hepatotoxicity, although it is rare (< 0.1%). And there have been several reports of hepatotoxicity due to irbesartan or candesartan, still much rare. To our knowledge, there has been no published report for fimasartan-induced liver injury. Herein, we report a case of hepatotoxicity secondary to fimasartan use. **Case Description:** A 73-year-old South Korean man with hypertension, referred from the local hospital for elevated liver enzyme. He had been taking fimasartan 60 mg orally every day for 2 months. He did not report any use of alcohol or illicit drugs. Blood work revealed acute liver dysfunction with aspartate aminotransferase, 233 U/L; alanine aminotransferase, 424 U/L. The total bilirubin, alkaline phosphatase, and gamma-glutamyl transpeptidase levels were 1.22 mg/dL, 1182 U/L, and 118 U/L, respectively. Hepatitis A immunoglobulin M and hepatitis B surface antigen were negative, and hepatitis C RNA levels were undetectable. Anti-smooth muscle, anti-mitochondrial, and antinuclear antibodies were all negative, and the serum copper, ceruloplasmin, and 24-hour urine copper levels were in the normal ranges. The modified Roussel Uclaf Causality Assessment Method scale score was 9. These findings strongly suggested drug-induced liver injury. Percutaneous liver biopsy was performed, and hepatocellular necrosis was seen in zones 3 and 2, with sparing of periportal hepatocytes in the zone 1, suggesting toxic hepatitis. As a result, fimasartan was immediately discontinued. He showed improvement of the clinical and laboratory abnormalities, with aspartate aminotransferase and alanine aminotransferase levels of 44 and 34, respectively, after 3 weeks. **Conclusion:** This case report describes a 73-year-old man who experienced liver injury after fimasartan administration. To our knowledge, there have been no published case reports about fimasartan hepatotoxicity. Therefore, we case emphasizes that liver function tests should be monitored periodically after administration of fimasartan.

# P-0412 Short- and long-term outcomes of de novo liver transplant patients treated with once-daily prolonged-release tacrolimus

**Authors:** YUICHIRO OKUMURA[1]; TAKEHiro NODA[1]; HIDETOSHI EGUCHI[1]; YOSHIFumi IWAGAMI[1]; DAISAKU YAMADA[1]; TADAFUMI ASAOKA[1]; HIROSHI WAIDA[1]; KOICHI KAWAMOTO[1]; KUNIHIITO GOTOHI[1]; YUTAKA TAKEDA[1,2]; MASAIRO TANEMURA[1,3]; SHIGERU MARUBASHI[4]; KOJI UMESHITA[5]; YUICHIRO DOKI[1]; MASAKI MORI[1]

**Affiliation:** [1]Department of Gastroenterological Surgery, Graduate School of Medicine, [2]Division of Health Science, Graduate School of Medicine, Osaka University, and [3]Department of Surgery, Osaka Police Hospital, Osaka, [4]Department of Regenerative Surgery, Fukushima Medical University, Fukushima and [2]Department of Surgery, Kansai Rosai Hospital, Hyogo, Japan

**Background:** Tacrolimus is the key immunosuppressive drug for liver transplantation. Once-daily prolonged-release tacrolimus (TAC-PR) exhibits good drug adherence but has difficulty controlling the trough level in the early phase of liver transplantation. The aim of this study was to compare the feasibility and efficacy of immediately starting oral TAC-PR versus traditional twice-daily tacrolimus (TAC-BID) in de novo liver transplantation recipients. **Methods:** The study included 28 patients treated with conventional TAC-BID and 60 patients treated with TAC-PR (median follow-up 70.5 months). Short-term and long-term outcomes were compared. This study was approved by institutional review board. **Results:** Patient characteristics were similar except for the incidence of hepatocellular carcinoma and type of graft. Dose adjustment was more frequently required for TAC-PR than TAC-BID (42.9% versus 73.3%, P = 0.006), but trough levels of TAC during the first 3 months after liver transplantation were controlled well in both groups. The rate of acute cellular rejection and long-term renal function were similar in both groups. In both groups, renal function worsened during the first 6 months after transplantation and remained stable until the end of the follow-up period. The 1-year, 3-year, and 5-year survival rates were 96.4%, 85.7%, and 85.7% for TAC-BID and 96.7%, 94.8%, and 94.8% for TAC-PR, respectively. The overall survival curve for TAC-PR was not inferior to that of TAC-BID. **Conclusions:** The TAC-PR protocol was feasible and effective with strict adjustment.

# P-0415 Reactive lymphoid hyperplasia (RLH) of the liver: Case report of a rare mimic

**Authors:** KOK PUN CHEN; CHRISTOPHER TZE WEI CHIA

**Affiliation:** Department of Gastroenterology & and Hepatology, Tan Tock Seng Hospital, Singapore

**Introduction:** Hepatic reactive lymphoid hyperplasia (RLH) is a rare clinical entity with an unknown etiology. Diagnosis is challenging as preoperative modalities usually yield equivocal findings. **Description:** A 50- year-old Chinese lady with a history of microprolactinoma presented with acute epigastric pain. An ultrasound (US) of the abdomen revealed a 1-cm hypochogenic foci in the left hepatic lobe. A magnetic resonance imaging (MRI) of the liver enhanced with gadobenate dimeglumine was subsequently performed, showing a solitary 1.7 x 1.1 cm lesion in segment two of the liver, which demonstrated arterial phase enhancement with washout in the portal venous and delayed phases. This lesion was hyperintense on T2 with no uptake of contrast in the hepatobiliary phase. Serum alphafetoprotein level was normal, and there was no primary malignancy elsewhere. Hepatitis B and C markers, antinuclear and anti-smooth muscle antibodies were negative. In view of the concerning features, laparoscopic left lateral liver resection was performed. Intra-operative findings
confirmed a solitary segment 2 lesion. Surgery was uneventful and the patient recovered well. Microscopic examination revealed a nodular proliferation of lymphoid cells including reactive germinal centres and small interfollicular lymphocytes. CD20 immunohistochemistry highlights B-cells, which are largely confined to the germinal centres while CD3+ T-cells are seen in-between. CD138 reveals a mild infiltrate of plasma cells.

Discussion: Hepatic RLH is a rare clinical entity that was first reported by Snover et al. in 1981. It occurs predominantly in females (male-to-female ratio of nearly 1:8) and those aged 50–70 (mean 56.4). Typically, lesions are solitary and less than 20 mm. Lack of risk factors for HCC should alert the clinician to the remote possibility of RLH. While surgery is the treatment of choice in view of the distressing resemblance to HCC, consideration for biopsy or radiological follow-up in the appropriate patient population may be an option.

# P-0421 A novel albumin-bilirubin grade-based risk prediction model for patients with hepatocellular carcinoma undergoing chemoembolization

**Authors:** DONG HYUN SINN[1]; JEONG-HOON LEE[2]; HEE KIM[3]; WONSEOK KANG[1]; GEUM-YOUN GWAK[1]; YONG-HAN PAIK[1]; KYO SOO SHIN[1]; Joong-kyun CHEOL KOH[1]; SEUNG WOON PAIK[1]; MOON SEOK CHO[1]

**Affiliations:** [1]Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, and [2]Department of Internal Medicine and Liver Research Institute, Seoul National University College of Medicine, and [3]Department of Internal Medicine, Hallym University Hangang Sacred Heart Hospital of Hallym University Medical center, Korea

**Background:** Recently, albumin-bilirubin (ALBI) grade has been suggested as a better surrogate for hepatic functional reserve for patients with hepatocellular carcinoma (HCC). Methods: We developed a novel prediction model to predict outcome for HCC patients (n = 476) who underwent transcatheter arterial chemoembolization (TACE) as a first-line therapy. From a multivariate Cox-regression model for overall survival, the ALBI grade, the Barcelona Clinic Liver Cancer (BCLC) stage, and the ABRAS score were developed and scored to generate an 8-point risk prediction model. The model’s prognostic performance was assessed in the randomly assigned internal validation set (n = 475) and external validation set (n = 243). Results: The ALBI grade was able to stratify patient survival within the same Child-Pugh class. The time-dependent area under receiver-operating characteristics curves (AUROCs) for overall survival at 1- and 3-years were 0.78 and 0.73 in the training set, 0.78 and 0.71 in the internal validation set, and 0.70 and 0.65 in the external validation set, respectively. When stratified by BCLC stage, ABRAS score at cutoff point of more than 3, and 5 for BCLC stage 0/A, B, and C could identify subset of patients with dismal prognosis. Conclusion: ABRAS score was useful in estimating prognosis for patients who underwent TACE as a first line therapy. This score can be useful in planning and guiding treatment strategies with TACE, which warrants prospective validation.

Bacterial pericarditis is very rare in the modern antibiotics era. It is a rapidly progressive and highly lethal infection with mortality rates reaching 100% if left untreated. It is usually arise from hematogenous dissemination or contiguous spread from an intrathoracic infection. Transdiaphragmatic extension of pyogenic liver abscess is the rarest cause of purulent paracarditis. Herein, we presented the rare case of a purulent pericardial and pleural effusion that was caused by the extension of an infection from subdiaphragmatic pyogenic liver abscess. A 67-year-old man presented to our emergency room after having been prolonged fever and progressive dyspnea lasting for 5 days. Initial chest computed tomographic scan showed moderate amount of left pleural effusion, dependent atelectasis, small amount of pericardial effusion, and 10 × 6 cm sized multiloculated space occupying lesion in left hepatic lobe. After the emergent thoracentesis relieving 300 ml of puslike fluid, his dyspnea symptom was more relieved. Both pleural fluid and blood culture grew *Klebsiella pneumoniae*. Follow up chest CT showed acute paracarditis with moderate amount of pericardial effusion due to transdiaphragmatic extension of liver abscess and increased size of liver abscess; therefore, emergent surgical pericardiostomy and laparoscopic surgical drainage of liver abscess was performed. After surgical drainage and intravenous antibiotics, the patient recovered and discharged. In conclusion, purulent pericardial effusion is a rare but fatal complication of left lobe liver abscess, and a high suspicion index is needed in patients who complain of cardiac symptoms. Early diagnosis and immediate treatment such as pericardiocentesis and abscess drainage combined with intravenous antibiotics can avoid patient death.

**Keywords:** Liver abscess; Pericarditis; Klebsiella pneumoniae

# P-0437 The effect for sleep disturbance of sustained virologic response by direct acting antivirals in the patients with HCV-related chronic liver disorders

**Author:** HIROTO TANAKA

**Affiliation:** Department of Internal Medicine, Wakayama Medical University, Kihoku Hospital, Japan

**Background:** It has been reported that HCV-related chronic liver disorders, especially cirrhosis, are associated with sleep disturbance. In this study, we examined the effect for sleep disturbance of sustained virologic response by direct acting antivirals in the patients with HCV-related chronic liver disorders. Methods: The study population comprised 43 patients with HCV-related chronic liver disorders without neuropsychiatric impairment (37 patients with chronic hepatitis and six patients with liver cirrhosis). All patients were treated by direct acting antivirals (DAAs) and achieved the sustained virologic response (SVR). Twenty patients with chronic genotype 2 HCV-related liver disorders were treated with Sofosbuvir and Ribavirin. Nineteen patients with chronic genotype 1 HCV-related liver disorders were treated with Sofosbuvir and Ledipasvir, and four patients with chronic genotype 1 HCV-related liver disorders were treated with Ombitasvir, Paritaprevir, and Ritonavir. Pittsburgh sleep quality index (PSQI) was used to assess sleep quality before and
onset, and time of sleep were not significant after the achievement of SVR. However, SDS scores significantly improved after the achievement of SVR (P < 0.05). In the comparison of patients with sleep disturbance, PSQI scores tended to improve (P = 0.0687) and the time of sleep was significantly longer (P < 0.01) after the achievement of SVR. Conclusion: Patients with HCV-related liver disorders and sleep disturbance showed the significant increase in the time of sleep after the achievement of SVR.

Results

A total of 298 patients were analyzed (32 excluded for incomplete data). Previous studies reported its incidence of adults on home PN for intestinal failure to be as high as 15–40%. However, till date, few studies tried identifying predictive risk factors predisposing patients to PNALD. This study thus aims to determine the incidence of, and identify risk factors associated with PNALD. Methods: A review of medical records was done; of all 330 patients receiving PN between January 2014 and November 2016 at National University Hospital, Singapore. PNALD was defined as direct serum bilirubin > 34 μmol/L or alanine amino transaminase > 2× the upper limit of normal. Multivariate logistic regression analysis was performed, calculating the statistical significance of risk factors. Results: A total of 298 patients were analyzed (32 excluded for complete data). The incidence of PNALD was 13.1% (n = 39). More patients with sepsis developed PNALD (7.7% vs 4.2%); however, this was not statistically significant on multivariate analysis. On multivariate analysis, only longer duration of PN was significantly associated with PNALD. Discussion: PNALD remains common in patients requiring long-term parental nutrition (PN). Previous studies have reported the incidence of adults on home PN for intestinal failure to be as high as 15–40%. However, till date, few studies have tried identifying predictive risk factors predisposing patients to PNALD. This study aims to determine the incidence of, and identify risk factors associated with PNALD.

Table 1

| Baseline Demographics | Presence of PNALD | Univariate Analysis | Multivariate Analysis |
|------------------------|-------------------|---------------------|-----------------------|
|                        | NO (N = 259)      | YES (N = 39)        | p-value               |
|                        |                   |                     | OR (95% CI)           | p-value               |
| **Age (years)**        | 62.1 ± 16.4       | 56.6 ± 15.8         | 0.05                  |
| **Male Sex (%)**       | 147 (56.8%)       | 25 (64.1%)          | 0.39                  |
| **BMI (kg/m2)**        | 22.3 ± 6.0        | 21.0 ± 3.7          | 0.08                  |
| **Distribution of BMI subgroups** |                 |                     |                       |
| Healthy BMI (18.5 - 24.9) | 116/250 (46.6%)   | 20/38 (52.6%)       | 0.57                  |
| Underweight (<18.5) | 67/250 (26.8%)    | 11/38 (28.9%)       | 0.72                  |
| Overweight (25 - 29.9) | 45/250 (18.0%)    | 6/38 (15.8%)        | 0.96                  |
| Obese (>30.0)          | 22/250 (8.8%)     | 1/38 (2.6%)         | 0.29                  |
| **Distribution of Races** |                     |                     |                       |
| Chinese                | 175 (67.6%)       | 24 (61.5%)          | 0.88                  |
| Malay                  | 21 (8.1%)         | 4 (10.3%)           | 0.91                  |
| Indian                 | 20 (7.7%)         | 3 (7.7%)            | 1 Ref                 |
| Others                 | 43 (16.6%)        | 8 (20.5%)           | 1 Ref                 |
| **Site of PN initiation** |                     |                     |                       |
| General Ward           | 196 (76.0%)       | 23 (60.5%)          | <0.01                 |
| ICU/High dependency unit | 62 (24.0%)       | 14 (36.8%)          | 2.14                   |
| Home                   | 0                 | 1 (2.6%)            | 1 Ref                 |
| **Indications for PN** |                     |                     |                       |
| Impaired Absorption    | 73/257 (28.4%)    | 11/38 (28.9%)       | 0.87                  |
| Inadequate Nutrition for ≥ 7 days | 93/257 (36.2%) | 14/38 (36.8%) | 0.68 (0.24 – 1.89) | 0.43 |
| Need for Bowel Rest    | 46/257 (17.9%)    | 6/38 (15.8%)        | 0.92 (0.29 – 2.96)    |
| Motility disorder      | 39/257 (15.2%)    | 5/38 (13.2%)        | 0.88 (0.27 – 2.89)    |
| Others                 | 6/257 (2.3%)      | 2/38 (5.3%)         | 1.63 (0.27 – 9.91)    |
| **Characteristics of TPN administered** |                 |                     |                       |
| Refeeding risk present | 56 (22.4%)        | 10 (25.6%)          | 0.65                  |
| Duration of PN (Days) | 12.0 ± 12.2       | 29.6 ± 52.6         | 0.05                  |
| Pre-nutritional Assessment Done | 253 (100%)  | 39 (100%)           | NA                    |
| Sepsis                 | 11 (4.2%)         | 3 (7.7%)            | 0.34                  |
| Supplemental enteral nutrition | 62 (23.9%)  | 15 (38.5%)          | 0.05                  |
| PN composition (kCal)  | 1466 ± 265        | 1530 ± 270          | 0.16                  |
| Serum Triglyceride (mmol/L) | 1.65 ± 1.19    | 2.47 ± 1.36         | 0.01                  |

# P-0467 Parenteral nutrition-Associated associated Liver liver disease (PNALD) amongst adults dults in in Singapore

Authors: VANESSA HENG[1]; WEI JIE LEE[1,2]; SIANG NEE TEOH[3]; CASSANDRA LIM[4]; LI LIN LIM[2]

Affiliations: [1]Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, [2]Department of Gastroenterology, University Medical Cluster, and [3]Department of Pharmacy; and [4]Department of Dietetics, National University Health System, Singapore

Background: Parenteral nutrition-associated liver disease (PNALD) is common in patients requiring long-term parental nutrition (PN). Previous studies reported its incidence of adults on home PN for intestinal failure to be as high as 15–40%. However, till date, few studies tried identifying predictive risk factors predisposing patients to PNALD. This study thus aims to determine the incidence of, and identify risk factors associated with PNALD. Methods: A review of medical records was done; of all 330 patients receiving PN between January 2014 and November 2016 at National University Hospital, Singapore. PNALD was defined as direct serum bilirubin > 34 μmol/L or alanine amino transaminase > 2× the upper limit of normal. Multivariate logistic regression analysis was performed, calculating the statistical significance of risk factors. Results: A total of 298 patients were analyzed (32 excluded for incomplete data). The incidence of PNALD was 13.1% (n = 39). More patients with sepsis developed PNALD (7.7% vs 4.2%); however, this was not statistically significant on multivariate analysis. On multivariate analysis, only longer duration of PN was significantly associated with PNALD.
durations of PN (29.8 ± 52.6 days vs 12.0 ± 12.2 days) OR 1.04 (95% CI 1.01–1.06, P < 0.01); and higher serum triglyceride levels whilst on PN (2.47 ± 1.36 mmol/L vs 1.65 ± 1.19 mmol/L) OR 1.41 (95% CI 1.04–1.90, P = 0.03) were significant. Interestingly, fewer obese patients (BMI > 30 kg/m²) developed PNALD (2.6% vs 8.8%), although not statistically significant on multivariate analysis. Conclusion: 1 One in eight hospitalized patients receiving PN may develop PNALD. This study may suggest that patients requiring PN longer than two weeks with elevations in serum triglyceride levels, and have had sepsis, could take precautionary measures to reduce their chances of developing PNALD.

# P-0469 Statin therapy in the reduction of portal hypertension in patients with liver cirrhosis: A meta-analysis of randomized controlled trials

Authors: JOSE GUILLAIN E CATALUÑA; JULIET G CERVANTES
Affiliation: Institute of Digestive and Liver Diseases, St. Luke’s Medical Center – Quezon City, Quezon City, Philippines

Background: Statins have been shown to decrease intrahepatic vascular resistance and improve vasodilation of the liver vasculature via enhanced nitric oxide production. This meta-analysis of randomized controlled trials (RCTs) was conducted to determine if statin therapy reduces portal hypertension as measured by the hepatic venous pressure gradient (HVPG) among adult patients with liver cirrhosis. Methods: A comprehensive literature search from the PubMed-Medline, EMBASE, Cochrane Library, and Ovid databases was performed using the following terms: cirrhosis, portal hypertension, HVPG, and statin. Three studies were selected. The quality of the included studies was independently appraised by four authors using the Jadad scale. All disagreements and discrepancies of the reviewers were discussed. Trial results were combined under a random-effects model. Continuous data were analyzed by calculating the standard mean difference with 95% confidence interval (CI) and a significant P value of 0.05. Cochrane Review Manager Software version 5.0 statistical software was used for all analyses. Results: Three trials comprising of 98 patients met the inclusion criteria. In the random-effect model, the weighted mean difference was 0.76 mmHg, favoring statin therapy over placebo. There was no evidence of significant heterogeneity (P = 0.51; I², 0%). Conclusion: Statin therapy reduces portal hypertension as measured by the HVPG among adult patients with liver cirrhosis. The findings of this study reinforce the promising role of statins in decreasing portal hypertension. Further RCTs with larger population and with longer duration of follow-up as well as the use of different statin drugs to explore further on the class effect are recommended.

# P-0477 Effects of carnitine complex on metabolic parameters in patients with elevated alanine aminotransferase: A retrospective nationwide real life cohort study

Authors: DAE WON JUN[1]; JUN YOUNG SONG[2]; WOO SEOG KIM[3]; SONG YEE LEE[4]; JONG SIN LEE[5]; EUN KYUNG BAEK[6]; KI SAN JOO[7]; MYUNG SOOK YOON[8]; YOUNG LIM[9]; YOOK KIM[10]; IL KWON PARK[11]; YOUNG CHEOL JU[12]; NA RAE KIM[12]; JI CHEOL BAE[13]
Affiliations: [1]Department of Internal Medicine, Hanyang University School of Medicine, and [12]Research and Development Department, Celltrion Pharm, Inc, Seoul, [13]Division of Endocrinology and Metabolism, Department of Medicine, Samsung Changwon Hospital, Sungkyunkwan University School of Medicine, Changwon, Korea; and [2]Sehung Hospital, [3]Yonsei Care Hospital, [4]Leegepieum Internal Medicine Clinic, [5]Dongbbo HUH Hospital, [6]Barosun Hospital, [7]Mediphill Internal Medicine Clinic, [8]Yoon Internal Medicine Clinic, [9]Gangbuk Samsung Clinic, [10]Seomun Internal Medicine Clinic, and [11]Seoulwooridul Internal Medicine Clinic

Background: Previous reports showed that carnitine restore mitochondrial and liver function in various liver diseases. We aimed to assess various metabolic profiles after 3 months carnitine-orotate complex (Godex®) treatment in patients with metabolic disease and elevated alanine aminotransferase levels. Method: We reviewed the records of 544 outpatients who had metabolic derangement and elevated liver enzyme from 31 primary or secondary care clinics from January 2015 to May 2016 in Korea. The key inclusion criteria were such as the following: (i) participants who were prescribed antidiabetic, antihypertension, or lipid-lowering drugs; (ii) elevated alanine aminotransferase activity more than 40 IU/L; and (iii) who were newly prescribed carnitine-orotate complex. Biochemical parameters (liver enzyme, glycated hemoglobin, lipid profile) as well as anthropometric markers were monitored for 3 months. Results: There was no significant weight change after carnitine-orotate complex treatment (71.55 ± 12.19 kg vs. 71.1 ± 11.8 kg, P = 0.5367). After 3 months of combined treatment with carnitine-orotate complex, the rates of normalization of serum ALT and AST levels were 68.2% and 63.2%, respectively. Mean change in serum ALT levels from before was −44.07 ± 36.15 IU/L (P < 0.0001) while it was −33.28 ± 39.46 IU/L in serum AST levels (P < 0.0001). Carnitine-orotate complex showed improvement in Hba1c level with 0.74 % decrease (P < 0.0001) in diabetes. Serum triglyceride level significantly decreased 54.22 mg/dl compared to baseline in dyslipidemic subjects (P < 0.0001). Systolic and diastolic blood pressure also significantly decreased in hypertensive subjects (−6.84 mmHg vs. −3.86 mmHg, respectively, P < 0.0001). Conclusion: Three months of treatment with carnitine-orotate complex decreased not only liver enzyme but also improved metabolic parameters.
### # P-0485 Comparative study of non-alcoholic steatohepatitis (NASH) in the obese versus non-obese Asians

**Authors:** X X TAN[1]; W J LEE[2]; A WEE[3]; S T SOON[3]; Y Y DAN[2]

**Affiliation:** [1]University Medical Cluster, National University Health System, [2]Department of Gastroenterology & Hepatology, University Medical Cluster, National University Health System, and [3]Department of Pathology, National University Hospital, Singapore

**Introduction and Objectives:** Obesity is a major risk factor for the development of non-alcoholic fatty liver disease. However non-obese patients are also at risk of NASH. This study aims to describe clinical and biochemical profiles of non-obese and obese patients with NASH.

**Methods:** Medical records of all 97 patients with biopsy-proven NASH at National University Hospital, Singapore, between 2005 and 2015 were reviewed. Patients with anthropological data available and index liver biopsies were included and divided into non-obese (BMI < 25 kg/m²) and obese (BMI ≥ 25 kg/m²) groups. Continuous and categorical variables were compared with t-test and χ²-test, respectively. All data analysis was performed using SPSSv21.

**Results:** 65 Sixty-five patients were included in the final analysis. Prevalence of non-obese NASH was 20%, (n = 13). The non-obese group had higher proportion of patients with hypertension* ([76.9% vs 43.1%]), insulin resistance (IR*) ([81.8% vs 57.4%]), dyslipidaemia* ([84.6% vs 63.3%]), and hypertriglyceridaemia* ([76.9% vs 51.0%]), although not statistically significant. When metabolic risk factors* were combined, there was significantly higher proportion of patients in non-obese group with ≥ 3 of metabolic risk factors ([84.6% vs 36.7%; P < 0.01]). Nevertheless, obese NASH coupled with metabolic syndrome increases the risk of stage ≥ 2 fibrosis whereby RR = 1.91 95% CI 0.96–3.81, P = 0.06. There is minimal difference in lobular inflammation, steatosis, or hepatocyte ballooning between the two groups. * dyslipidaemia: HDL< 1.03 mmol/L in males, < 1.28 mmol/L in females or on drug therapy; hypertriglyceridaemia: triglycerides ≥ 1.7 mmol or on drug therapy; IR: impaired fasting glucose, impaired glucose tolerance or diabetes; hypertension: systolic Blood pressure ≥ 140 mmHg or on anti-hypertensives. **Conclusion:** Non-obese NASH is common in the Asian population, and a significantly higher proportion of non-obese NASH patients had ≥ 3 metabolic risk factors. These findings potentially could shed light on pathophysiology of non-obese NASH. The presence of metabolic syndrome in obese NASH patients increases the risk of advanced fibrosis on index biopsy.

### # P-0505 Surgical outcomes for intrahepatic cholangiocarcinoma:

**Authors:** YUKIHIRO ISO; TAKU AOKI; TAKAYUKI SHIRAKI; KYUNG HWA PARK; KEIGO TANI; TAKASHI SUZUKI; TAKAYUKI SHIMIZU; TAKATSUGU MATSUMOTO; SHOZO MORI; MASATO KATO; KEICHI KUBOTA

**Affiliation:** Department of Gastroenterological Surgery, Dokkyo Medical University, Japan

**Background:** Intrahepatic cholangiocarcinoma (ICC) is usually in the advanced stage at the time of diagnosis. Although surgical resection is a golden standard of the treatment, the recurrence rate is still high with a poor prognosis. In this study, we retrospectively reviewed our experiences of resected cases of ICC, in terms of clinicopathological features and the outcome. **Methods:** Between April 2000 and March 2017, a total of 55 surgical resections for ICC were carried out in our department. **Results:** There were 33 males and 22 females with a median age of 66.5 years. 15 Fifteen patients underwent hepatic resection plus extrahepatic bile duct resection, and 40 patients underwent hepatic resection only. According to the Liver Cancer Study Group of Japan (LCSGJ) classification, the mass-forming (MF) type was present in 43 patients, the periductal infiltrating (PI) type in 6six patients, and MF + PI type in 8eight patients. The overall 2 and 5-year survival rates were 47.4% and 12.4%, respectively. Clinicopathological findings revealed no significant differences in survival rate between patients with those positive or negative for macroscopic gross appearance (P = 0.12), PI (P = 0.21), and chronic hepatitis (P = 0.36). However, lymph nodes (LN) metastases (P = 0.0005) and multiple tumors (P = 0.0006) were significantly related to survival rates. **Conclusions:** In this study, the positive LN metastasis and multiple tumors were the adverse prognostic factors. In these patients, other therapeutic approaches (i.e., adjuvant or neoadjuvant chemo therapy) should be evaluated to improve results.
Background/Aims: Viral eradication is the most effective mean in reducing the occurrence of hepatocellular carcinoma (HCC) in hepatitis C patients. The aim of the study was to evaluate the occurrence rate of HCC and survival rate in hepatitis C patients after their medical viral treatment.

Methods and Results: From 2002 to 2016, 434 patients (male, 233; female, 201; mean age 58,) with HCV-RNA infection were treated with interferon-based agents and/or direct-acting antivirals (DAAs) in our hospital. The average treatment sessions they had received was 1.3 times (maximum 5 times), and their final SVR (sustained viral response) rate was 93% (395 patients). They were followed-up after the final antiviral treatment at least at every 6 month for the mean of 5.3 ± 3.9 years (maximum 15 years). Among 395 of those who achieved SVR, 17 (4.3%, 14 male and 3 female) and 7 seven (17.9%, 4 four male and 3 three female) among 39 with non-SVR patients, developed HCC. Out of 17 HCC patients with SVR, the HCC was found within 3 years after the viral eradication in 8 eight patients (47%), and within 5 years in 13 (76%), but after as late as 10 years in 2 two patients. Among all SVR patients, 5 five in (1.3%) and 6 six in non-SVR (15.4%) died of liver-related cause, and only 2 two died of non-liver-related cause. Among all 434 patients, 21 had already experienced HCC development before the antiviral treatment that were successfully treated, and 12 of them (57.1%) achieved SVR. However, HCC recurrence was seen in 8 of 21 patients (4 four In SVR and 4 four in non-SVR patients), and 4 four died of liver-related cause.

Conclusion: Eradicating HCV-RNA is effective in reducing the development of HCC in hepatitis C patients. However, careful and long-time follow up is required even in patients with SVR.

# P-0579 A pilot randomized controlled trial (RCT) of 26 weeks of lifestyle modifications (LM) versus. liraglutide (LG) in reducing severity of non-alcoholic steatohepatitis (NASH) in Asian adults.

Authors: RAHUL KUMAR; ANG TIING LEONG; JESSICA TAN; JOAN KHOO

Background: NASH is epidemic in western world and increasing in prevalence across Asia. So far, LM is the only known intervention to be effective. Liraglutide has shown to induce weight loss and reduction of insulin resistance in obese individuals. Treatment with Liraglutide for 20 weeks leads to weight loss in obese patient with/without diabetes. There is little information of its effect on NASH. We, therefore, aim to compare Liraglutide’s efficacy, safety, and effect on NASH severity as compared to LM.

Methods: We conducted RCT with aim to recruit 15 patients in each arm. This interim analysis includes 21 patients, recruited based on body mass index > 27.5, waist circumference > 90 cm in males, 80 cm in females, with NASH, assessed on liver functions, hepatic ultrasound and after excluding other etiologies of liver disease. Parameters were evaluated at week 0 (W0) and week 26 (W26).

Results: Both groups were similar in baseline characteristics except triglyceride (TG), which was higher in LM group. Table 1.1. Significant reductions in weight, BMI, waist circumference, glucose, Alanine aminotransferase (ALT), Aspartate aminotransferase (AST), Insulin, minimum/maximum liver fat fractions was seen in both groups comparing W0 to with W26,Table 1.2. Percent-age change (W0—W24/W0) in none of the compared parameters differed significantly between LM versus. LG (Table 1.3). Conclusion: Both interventions were equally effective in reducing weight, liver enzymes, and liver fat fraction. Liraglutide is a potential alternative to lifestyle modifications for treatment of NASH.

Table 1.1. Data Presented in Median and interquartile range

| Baseline at week 0 | LM (N = 11) | LG (N = 10) | P-value |
|--------------------|------------|------------|---------|
| Height (1.58-1.75) | 1.67 (1.67-1.75) | 1.71 | 0.197 |
| Weight (77.1-100.5) | 90.6 (87.0-111.6) | 102 | 0.152 |
| BMI (29.7-35.4) | 31.3 (30.638.8) | 35.3 | 0.197 |
| Waist (96-111) | 108 (104.5-115.3) | 109 | 0.512 |
| Glucose (5.5-6.6) | 5.6 (5.2-6.0) | 5.7 | 0.468 |
| ALT (69-120) | 73 | 80 (60-98.8) | 0.809 |
| AST (36-79) | 38 | 45 (34.5-53.3) | 0.756 |
| TG (1.65-2.86) | 2.10 (1.06-1.55) | 1.23 | 0.004 |
| HDL (1.09-1.29) | 1.17 (0.94-1.11) | 1.07 | 0.072 |
| LDL (2.76-4.73) | 4.02 (3.71-4.76) | 3.71 | 0.912 |
| Insulin (18.5-31.4) | 25.7 | 27.4 | 0.863 |

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The prevalence and risk factors of hepatitis B and hepatitis C among seafarers in Cebu City from 2011 to 2015

Authors: FRANZ SEIDENSCHWARZ; ENJEL GABRIEL
Affiliation: Cebu Doctors’ University Hospital, Cebu City, Philippines

Background: Hepatitis B and Hepatitis C are major health concerns in the Philippines with as many as 16.7% of the population being carriers. Foreign Studies show that seafarers are at an increased risk for contracting these viruses given their high-risk lifestyle. At present, epidemiologic data among Filipino seafarers are limited.

Methods: We conducted a retrospective descriptive study by reviewing 3072 charts of seamen undergoing fitness testing at the Cebu Sagrada Corazon Health Services clinic and analyzing the characteristics of the patients who tested positive for Hepatitis.

Results: About 12.5% of the population was HBsAg positive, with 12.5% aged 40 to 49 (230/384), 6% admitted to intercourse with multiple partners (23/384), 1.8% were intravenous drug users (7/384), 12% had surgery (46/384), and 6% had blood transfusions (23/384). There was no significant difference in those who tested positive for Hepatitis B compared to those who tested negative with a 95% CI. Only 0.23% tested positive for anti-HCV, with 5/7 intravenous drug users and 28.57% had surgery and blood transfusions (2/7). When analyzing the laboratories, only 10.6% had an SGPT greater than 2 times the upper limit of normal, 20.8% had abnormal albumin, 15.6% had abnormal ultrasound findings, 2% were cirrhotic, and 1.3% had an HBV DNA > 2000 IU/mL. Conclusion: The prevalence was of Hepatitis B and C was lower in seamen than the national average, possibly attributed to better education and higher socioeconomic status. There was no significant difference in risks among those who tested positive and negative indicating vertical transmission was the likely mode of transmission. Most patients had chronic hepatitis B.

# P-0581 The prevalence and risk factors of hepatitis B and hepatitis C among seafarers in Cebu City from 2011 to 2015

Authors: FRANZ SEIDENSCHWARZ; ENJEL GABRIEL
Affiliation: Cebu Doctors’ University Hospital, Cebu City, Philippines

Background: Hepatitis B and Hepatitis C are major health concerns in the Philippines with as many as 16.7% of the population being carriers. Foreign Studies show that seafarers are at an increased risk for contracting these viruses given their high-risk lifestyle. At present, epidemiologic data among Filipino seafarers are limited.

Methods: We conducted a retrospective descriptive study by reviewing 3072 charts of seamen undergoing fitness testing at the Cebu Sagrada Corazon Health Services clinic and analyzing the characteristics of the patients who tested positive for Hepatitis.

Results: About 12.5% of the population was HBsAg positive, with 12.5% aged 40 to 49 (230/384), 6% admitted to intercourse with multiple partners (23/384), 1.8% were intravenous drug users (7/384), 12% had surgery (46/384), and 6% had blood transfusions (23/384). There was no significant difference in those who tested positive for Hepatitis B compared to those who tested negative with a 95% CI. Only 0.23% tested positive for anti-HCV, with 5/7 intravenous drug users and 28.57% had surgery and blood transfusions (2/7). When analyzing the laboratories, only 10.6% had an SGPT greater than 2 times the upper limit of normal, 20.8% had abnormal albumin, 15.6% had abnormal ultrasound findings, 2% were cirrhotic, and 1.3% had an HBV DNA > 2000 IU/mL. Conclusion: The prevalence was of Hepatitis B and C was lower in seamen than the national average, possibly attributed to better education and higher socioeconomic status. There was no significant difference in risks among those who tested positive and negative indicating vertical transmission was the likely mode of transmission. Most patients had chronic hepatitis B.
# P-0584 The prognostic value of 24-hour urine sodium (24-hr UNa) in cirrhotic patients with ascites on diuretics

Authors: SUKANTA CHANDRA DAS[1]; ABDUR RAHIM MIAH[2]; CHANCHAL KUMAR GHOSH[2]; NAYMUL HASAN[3]; BIRENDR A NATH SAHA[4]; SHAKHAWAT HOSSAIN[5]; MOHAMMAD MAJHARUL HAQUE[1]

Affiliation: [1]Gastroenterology Division of Medicine, General Hospital, Narayanganj, [2]Department of Gastroenterology, Bangabandhu Sheikh Mujib Medical University, Dhaka, [3]Department of Gastroenterology, Bogra Shaheed Zia Medical College, Bogra, [4]Department of Gastroenterology, Sathkhira Medical College, Sathkhira, [5]Department of Gastroenterology, Rangpur Medical College, Rangpur, Bangladesh

Background: Ascites due to cirrhosis can be mobilized with sodium restriction (88 mEq/day) and diuretics. Patients with non-responder to diuretics may have pre-hepatic syndrome and a poor prognosis. Diuretic response can be monitored by measuring 24-hr UNa, which can also be a prognostic marker. The aim of this study was to evaluate the value of 24-hr UNa as a prognostic marker in cirrhotic patient with ascites on diuretics.

Methods: This cross-sectional study included 100 patients of cirrhosis on diuretics. 24-hour urine was collected properly and tested accordingly. At the same time, liver and renal function tests were done to calculate MELD and CTP score.

Results: Out of 100, 48 (48%) subjects had excreted ≥ 78 mmol/day of sodium and 52 (52%) subjects excreted < 78 mmol/day. 64 Sixty-four subjects belong to CTPS “B” and 36 in CTPS “C” group. Majority of the cases (81.3%) of CTPS “B” group had excreted ≥ 78 mmol sodium/day and 51.9% patients of the CTPS “C” group had 24-hour urinary sodium < 78 mmol/day. In patients who excreted < 78 mmol/day, MELD score was 17.7 ± 4.51, and it was 14.60 ± 2.98 in patients who excreted ≥ 78 mmol/day of urinary sodium. These differences were statistically significant (P < 0.001).

Conclusion: This study showed that advanced cirrhosis have relatively lower natriuresis in response to diuretics. So, 24-hr UNa can be considered as a prognostic indicator. But multicentered studies are needed for further recommendation.

Table 1  Distribution of different variables of the study population according to the 24-hr urine sodium excretion.

| Variable                  | ≥ 78 (Mean ± SD) | < 78 (Mean ± SD) | P value |
|---------------------------|------------------|------------------|---------|
| TPC (/cumm)               | 139187 ± 47631   | 126711 ± 52478   | 0.217   |
| S. Creatinine (mg/dl)     | 1.18 ± 0.15      | 1.28 ± 0.12      | <0.001  |
| S. Na(mmol/L)             | 130.48 ± 4.41    | 129.63 ± 4.13    | 0.319   |
| S. K (mmol/L)             | 4.43 ± 0.59      | 4.13 ± 0.67      | 0.023   |
| Bilirubin (mg/dl)         | 2.23 ± 1.11      | 3.82 ± 2.80      | <0.001  |
| Albumin (gm/L)            | 26.27 ± 3.40     | 23.64 ± 4.28     | 0.001   |
| Prothrombin time (INR)    | 1.46 ± 0.29      | 1.58 ± 0.29      | 0.021   |
| CTPS B                    | 39 (81.3%)       | 25 (48.1%)       | 0.001   |
| CTPS C                    | 9 (18.8%)        | 27 (51.9%)       | 0.001   |
| MELD                      | 14.60 ± 2.98     | 17.71 ± 4.51     | <0.001  |
| Spot urine sodium(mmol/L) | 88.32 ± 42.86    | 36.83 ± 23.98    | <0.001  |
| Spot urine potassium (mmol/L) | 34.33 ± 11.67   | 27.50 ± 10.86    | 0.003   |

Mann–Whitney U test was done to measure the level of significance.

P value < 0.05 is significant.

TPC, Total platelet count; Na, sodium; K, potassium; ALT, alanine aminotransferase;AST, aspartate aminotransferase; MELD, model for end stage liver disease; CTPS, Child Turcotte Pugh Score.

# P-0592 18F-fluorodeoxyglucose positron emission tomography and outcome after radiofrequency ablation for hepatocellular carcinoma

Authors: YOSHIYUKI IDA; HIDEYUKI TAMAI; SYUYA MAESHIKA; RYO SHIMIZU; SATOSHI YOSHIDA; KIYOKAZU SHIAI; MASAHIRO ITONAGA; KAZUHIRO FUKATSU; TAKEICHI YOSHIDA; YOSHIMASA MAEDA; KOSAKU MORIBATA; TAKAO MAEKITA; MIKITAKA IGUCHI; JUN KATO; AND MASAYUKI KITANO

Affiliation: Second Department of Internal Medicine, Wakayama Medical University

Aims: It has been reported that poorly differentiated hepatocellular carcinomas (HCC) are visualized more frequently than well or moderately differentiated HCCs on 18F-fluorodeoxyglucose positron emission tomography (FDG PET). The present study aimed to evaluate whether the signal intensity of small hypervascular HCC on the FDG PET is related to the treatment outcome of radiofrequency ablation (RFA).

Methods: In total, 121 consecutive patients with initial hypervascular HCC (≤ 3 tumors and ≤ 3 cm in diameter) without vascular invasion on imaging were examined by FDG PET before RFA. FDG uptake in HCC on the FDG PET were visually compared with the surrounding liver and categorized as positive and negative. Metastatic recurrence was defined as more than three intrahepatic recurrences, recurrence with vascular invasion, seeding, dissemination, and/or extrahepatic metastasis.

Results: The median follow up was 1267 days. The 121 HCCs were evaluated as 110 negative and 11 positive tumors on the FDG PET. Tumor size, alpha-fetoprotein (AFP), Lens culinaris agglutinin-reactive alpha-fetoprotein (AFP-L3), and Des-gamma-carboxyprothrombin (DCP) were higher in the positive group than the negative group on the FDG PET significantly. The cumulative 1-year recurrence rates of the negative and positive group on the FDG PET were 30% and 64% (P = 0.017), respectively, with cumulative 1-year metastatic recurrence rates of 6% and 36% (P < 0.001), respectively. The cumulative 5-year survival related to HCC rates were 88% and 22% (P < 0.001), respectively. On multivariate analysis, positive on the FDG PET was the strongest independent factor related to metastatic recurrence and survival after RFA.

Conclusions:
The visual evaluation of FDG uptake in small hypervascular HCC on the FDG PET was strongly associated with outcome after RFA. These results suggest that treatment strategy should be determined carefully even for small HCC when they appear positive on the FDG PET.

**# P-0604 Survival after transarterial chemoembolization following concurrent chemoradiation therapy for advanced hepatocellular carcinoma**

**Authors:** IN YOUNG KIM[1]; JA KYUNG KIM[1,2]; YONSOO KIM[1]; JUNG IL LEE[1,2]; KWAN SIK LEE[1,2]

**Affiliation:** [1]Department of Internal Medicine, Yonsei University College of Medicine, and [2]Liver Cancer Clinic, Gangnam Severance Hospital, Seoul, Korea

**Background:** Concurrent chemoradiation therapy (CCRT) followed by hepatic arterial infusional chemotherapy (HAIC) is beneficial for treatment of advanced hepatocellular carcinoma (HCC) with portal vein thrombosis. However, transarterial chemoembolization (TACE) is not preferred in this setting. The aim of this study was to assess the factors affecting survival after CCRT, including additional TACE during repeated HAICs. **Methods:** Thirty-eight patients treated with CCRT as the initial treatment for Barcelona Clinic Liver Cancer stage C HCC with portal vein invasion between 2009 and 2016 were retrospectively reviewed. During CCRT, infusion of 5-fluorouracil (FU) was infused during the first and last five 5-days of external beam radiation therapy for 5 weeks. After CCRT, repeated HAIC with cisplatin and 5FU was performed monthly. Nineteen patients (50%) underwent additional TACE between repeated HAICs. Factors related to overall survival and time to progression were analyzed. **Results:** The mean age of patients was 55 years (male: female, 33:5). Underlying liver diseases were hepatitis B, hepatitis C, and non-B/C in 29, 1, and 8 patients, respectively. The objective response rate after CCRT was 36.8%. The median time to progression was 8.1 (range, 1.8—32.1) months. The median overall survival was 11.6 (range 2.8—65.7) months. Partial response after CCRT (hazard ratio (HR), 0.074; P < 0.001) and additional TACE (HR, 0.237, P = 0.002) were independent significant factors related to overall survival. **Conclusion:** Patients who underwent additional TACE after repeated HAICs showed better survival at advanced stage of HCC with portal invasion. Further prospective study to confirm the positive effect of TACE after CCRT is warranted. **Key words:** hepatocellular carcinoma; radiotherapy; chemoradiotherapy; chemoembolization

**# P-0615 A multicenter randomized trial investigating the antiviral efficacy of tenofovir switch therapy for lamivudine-resistant chronic hepatitis B patients with complete virological response to lamivudine plus adefovir therapy**

**Authors:** MI JU CHEON[1,2]; HEE YEON KIM[1,2]; CHANG WOOK KIM[1,2]; JIN AH KIM[1,2]; CHAN RAN YOU[1,2]; SANG WOOK CHO[1,2]; DO SEON SONG[1,2]; U IM CHANG[1,2]; JIN MO YANG[1,2]; SUNG WON LEE[1,2]; HAE LIM LEE[1,2]; NAM IK HAN[1,2]; MYEONG JUN SONG[1,2]; HYUNG JUM YIM[2]; SANG JUN SUH[2]; YOUNG KUL JUNG[2]; JOO HO LEE[3]; HANA PARK[3]

**Affiliations:** [1]Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [2] The Catholic University Liver Research Center, Department of Internal Medicine, Korea University College of Medicine, Ansan; and [3] Department of Internal Medicine, CHA Bundang Medical Center, CHA University, Seongnam, Korea

**Background:** This study aimed to assess the efficacy of tenofovir (TDF) monotherapy in lamivudine (LAM)-resistant chronic hepatitis B (CHB) patients with a complete virological response to LAM plus adefovir (ADV). **Methods:** This is an investigator-initiated open-label, randomized controlled, non-inferiority trial. LAM-resistant CHB patients on LAM plus ADV therapy with undetectable hepatitis B virus (HBV) DNA were randomized (1:1) to TDF or LAM plus ADV and followed with serum biochemistry and HBV DNA every 12 weeks for 96 weeks. The primary endpoint was the proportion of patients with sustained undetectable HBV DNA at week 48. **Results:** A total of 76 CHB patients including 26 compensated cirrhosis were enrolled in this study. Thirty-eight patients were randomized to TDF and 38 patients to LAM plus ADV arm. There were no significant differences between two groups in baseline characteristics. Three (7.9%) patients in LAM/ADV group and 7 (18.4%) patients in TDF group were HBsAg-positive. Three patients (2 two in LAM/ADV group and 1 one in TDF group) dropped out of the study before the 48-week follow-up. Two patients achieved HBsAg seroconversion in LAM/ADV group (2/38, 5.3%). HBsAg loss rate at week 48 was 33.3% (100%) as well as intention-to-treat analysis (94.7% in LAM/ADV group vs 97.2% in TDF group). Conclusions: Switching to TDF monotherapy showed a comparable efficacy to continuing combination therapy in LAM-resistant CHB patients with undetectable HBV DNA to LAM plus ADV combination therapy. **Keywords:** chronic hepatitis B; lamivudine resistance; tenofovir; switching
# P-0616 Hepatitis B reactivation among chronic hepatitis C patients treated with direct acting antivirals

**Authors:** HEE YEON KIM[1,2]; CHANG WOOK KIM[1,2]; JIN AH KIM[1,2]; MI JU CHEON[1,2]; CHAN RAN YOU[1,2]; SANG WOOK CHOI[1,2]; SE HYUN CHO[1,2]; JIN MO YANG[1,2]; SUNG WON LEE[1,2]; HAE LIM LEE[1,2]; NAM IK HAN[1,2]; SUN HONG YOO[1,2]; JUNG HYUN KWON[1,2]; SOON WOO NAM[1,2]; SEO-HWAN KIM[1,2]; MYEONG JUN SONG[1,2]; SEAWON HWANG[1,2]; PIL SOO SUNG[1,2]; JEONG WON JANG[1,2]; SI HYUN BAE[1,2]; JONG YOUNG CHOI[1,2]; SEUNG KI YOON[1,2]

**Affiliation:** [1]Department of Internal Medicine, College of Medicine, The Catholic University of Korea, and [2]The Catholic University Liver Research Center, Seoul, Republic of Korea

**Background:** This study aimed to investigate hepatitis B virus (HBV) reactivation among hepatitis C virus (HCV) infected patients treated with oral direct acting antiviral (DAA) therapy in areas endemic for HBV in Korea.

**Methods:** A total of 821 HCV-infected patients receiving oral DAA therapy from March 2015 to November 2016 were evaluated. Serum HBV DNA and HCV RNA were regularly assessed during and after DAA treatment for HCV infection is warranted.

**Results:** Prior to DAA therapy, 95.8% (787/821) had HBsAg testing and 1.7% (13/787) were positive. HBV virological reactivation was found in 1.7% (13/787) were positive. HBV virological reactivation was found in 7 (53.8%) of the 13 patients. HBV-related clinical reactivation was not observed in our cohort.

**Conclusions:** For HBV-HCV co-infected patients, the risk of HBV virological reactivation was present after oral DAA treatment for HCV infection. Monitoring the HBV DNA level during oral DAA therapy for HCV infection is warranted.

**Key words:** hepatitis C virus; hepatitis B virus; coinfection; direct acting-antivirals; reactivation

# P-0621 Differential modulation of chemokine RANTES and receptor CCR5 interaction as a key determinant of HAV mediated liver disease pathogenesis: A multiple-approach- based study

**Authors:** VARGAB BARUAHI[1]; SANGIT DUTTA[2]; RAJIB K HAZAM[1]; DIPTIKA TIWARI[1]; PREMASHISH KAR[1]; ANJAN K SAIKIA[3]; RAJEN KALITA[2]; SUJYO BOSE[1]

**Affiliation:** [1]Department of Biotechnology, Gauhati University, [2] Gauhati Medical College, and [3]Central hospital, NF Rly, Guwahati, Assam, India

**Background/Aims:** Hepatitis A virus (HAV) infection is associated with morbidity and mortality in northeast India. With a background of a detrimental role played by chemokine RANTES and chemokine receptor 5 (CCR5) in viral disease pathogenesis, and lacunae on their role in hepatitis A virus (HAV) mediated liver disease, the present study targeted to ascertain their role in the susceptibility and severity of HAV infected liver disease using *in silico*, *in vitro*, and *in vivo* approaches. **Methods:** *In silico* interaction was studied using ClusPro and contact map analysis. Role of RANTES in HAV infection was evaluated using *in silico* analysis, followed by in vitro analysis using HepG2 cell line and HAV serum/attenuated virus- based vaccine stimulation. Macrophage modulation and activation was estimated by MUSE- based flowcytometry approach. Differential downstream vaccine expression was studied by ELISA. *In vivo* patient- based analysis for the role of RANTES and CCR5 in HAV disease pathogenesis was studied in clinically proven HAV cases (*AVH = 73; FHF = 28*) compared to as controls (N = 81). **Results:** *In silico*, CCR5 was found to bind with the VP3 region of HAV capsid with more affinity and amino acid clusters than its established receptor, HAVCR1. *In silico* analysis suggested that RANTES is competitive to HAV for CCR5 binding; and *in vitro* analysis proved that RANTES supplementation was able to effectively regulate the magnitude of immune response through controlled modulation of CCR5 expression, TNF-alpha and IFN-gamma expression, and macrophage levels and activation. Patient-based analysis showed that: (i) RANTES expression was downregulated in a gradient pattern viz., controls > HAV-AH1 > HAV-FHF, (ii) CCR5 was upregulated in a gradient pattern viz., controls < HAV-AH1 < HAV-FHF; and, (iii) RANTES expression inversely correlated with TNF-alpha levels and HAV viral load statistically. **Discussion and Conclusion:** CCR5 might be a potent receptor for HAV, and the RANTES-CCR5 interaction axis and resulting regulated immunomodulation holds key to HAV susceptibility and severity. RANTES stimulation holds promise for HAV disease therapeutics.

# P-0629 Predictors of developing liver complication in the patients of chronic hepatitis C after failure in peginterferon therapy

**Authors:** CHENG-KUAN LIN; MENG-TZU WENG; CHIEN-CHU LIN; CHEN-SHUAN CHUNG; CHING-YU CHIU; TZONG-HSI LEE

**Affiliation:** Division of Gastroenterology and Hepatology, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan

**Background:** The peginterferon plus ribavirin therapy for the patients of chronic hepatitis C is effective for decreasing liver complications. We aimed to investigate the characteristics of the patients who failed in therapy with developing liver complications. **Methods:** From November 2009 to December 2016, the patients who failed in peginterferon therapy without further treatment were enrolled. The cases included the patients who received treatment without SVR, stopped therapy due to no EVR, and discontinued therapy due to intolerable side effects. The demographic characteristics, pre-treatment laboratory data, and sonographic findings were analyzed. **Results:** Overall, 182 patients with failure in antiviral treatment. Sixty-nine patients received either 24 or 48-week of therapy had no SVR (68% with genotype 1 infection). Among the patients with discontinued therapy, 56 patients had no EVR (77% with genotype 1 infection) and 57 patients had side effects. The age were 61 ± 12- year-old (range: 31–86), 45% man, and 35% had liver cirrhosis. During the follow-up after therapy, 26 patients (14%) developed the complications, included hepatoma, variceal bleeding, hepatic encephalopathy, ascites with/without spontaneous peritonitis. For the patients with complication had more liver cirrhosis (84.6% vs 26.2%, P < 0.001), splenomegaly (50.0% vs 24.4%, P = 0.007), older age (67.7 ± 10.3 vs 59.4 ± 11.7, P = 0.001), lower platelet count (136 ± 60 vs 164 ± 61 x 10^3/µL, P = 0.033), body weight (60.1 ± 10.6 vs, 66.4 ± 13.5 kg, P = 0.026), and BMI (23.5 ± 2.7 vs 25.8 ± 4.3, P = 0.011). Using logistic regression model, liver cirrhosis, and low BMI were independent factors of developing hepatic complications. **Conclusion:** Among the patients of chronic hepatitis C with failure in peginterferon therapy, the patients with liver cirrhosis or low BMI could be further progressed to hepatic complications. Future study of using new antiviral agents for these patients in prevention of disease progression is warranted.
### # P-0630 Hepatic Schwannoma- A Rare but Benign Tumor of Liver

**Authors:** YOEN YOUNG CHUAH[1,4]; PING I HSU[1]; WEN CHI HEN[1]; HUAY MIN HUANG[1]; WEI CHIH SUN[1]; CHANG CHE WU[3]; I SHUN CHEN[2]

**Affiliation:** [1]Division of Gastroenterology and Hepatology, Department of Internal Medicine, [2]Division of General Surgery, Department of Surgery, [3]Department of Pathology, Kaohsiung Veterans General Hospital, Kaohsiung, [4]Division of Gastroenterology and Hepatology, Department of Internal Medicine, Ping Tung Christian Hospital, Ping Tung, Taiwan

**Introduction:** Schwannoma is a benign nerve sheath tumor composed of Schwann cells. They predominantly occur in the extremities, but can be found in head and neck, trunk, pelvis, and retroperitoneum. In very rare occasion, it might be seen at liver and pancreas with less than 1% will have malignant transformation. Hepatic schwannoma is rare and difficult in making definite radiological diagnosis. Surgery is often required in order to reach the diagnosis. We present a case of benign hepatic schwanna. The tumor was resected surgically and the disease was confirmed pathologically with no recurrence. The associated literature is also reviewed. **Case Description:** A 44-year-old female patient presented to our outpatient department because of the hepatic tumor found on Fluorodeoxyglucose-positron emission tomography examination (FDG-PET) had become progressively enlarged in sonography follow up in the recent two months. She had been asymptomatic, however. Neither was she a carrier of hepatitis B nor hepatitis C. Laboratory study showed no elevation of AFP, CA-199, or CEA. Further Magnetic Resonance Image (MRI) revealed a mass lesion about 4.2 cm in size, at S2-3 of liver, favorable of hepatic cystadenoma. She underwent laparoscopic segmental hepatectomy. Pathology showed compatible result of schwanna that was positive for S100, and negative for CD34 and CD117 immunostaining. We present a rare case of hepatic schwanna, which was successfully managed with surgical resection with no recurrence for two year after surgery.

### # P-0638 Changing epidemiology of non-alcoholic steatohepatitis/cryptogenic cirrhosis in contribution to end-stage liver complications

**Authors:** HUI EN JANICE TAN[1]; JIANYI CALVIN KOH[2]; MARK MUTHIAH[2]; WAI MUN LOO[2]; EN XIAN SARAH LOW[2]; POH SENG TAN[2]; IYER SHRIDHAR GANPATHI[3]; GLENN KUNNATH BONNEY[3]; BOON LENG KIERON LIM[2]; MAUREEN DA COSTA[2]; YOCK YOUNG DAN[2]

**Affiliation:** [1]Yong Loo Lin School of Medicine, National University of Singapore, and Divisions of [2]Gastroenterology and Hepatology, [3]Hepatobiliary and Pancreatic Surgery, National University Hospital, Singapore

**Background:** With the rising prevalence of obesity and metabolic syndrome, there has been a mirrored increase in prevalence of non-alcoholic fatty liver disease (NAFLD). In the United States, NAFLD is poised to become the commonest aetiology for liver transplantation. The Asian NAFLD epidemic trails the Western world but is expected to result in an increase in non-alcoholic steatohepatitis (NASH)/cryptogenic (CC) related liver cirrhosis and hepatocellular carcinoma (HCC). We aim to ascertain the prevalence of NASH/CC-associated HCC and liver transplantation, and difference in survival time compared to with other aetiologies. **Methods:** A retrospective analysis of data collected from 1989 to 2016 at the National University Hospital was performed. We looked at two cohorts of patients, HCC and liver transplantation patients, across three distinct time periods (1989—1998, 1999—2007, and 2008—2016), and analysed their baseline clinical characteristics and clinical outcomes. **Results:** One out of six patients (16.7%) was diagnosed with NASH/CC-associated HCC from 1989- to 1998, and this increased to 52 out of 199 (26.1%) from 1999- to 2007 and 342 out of 945 (36.2%) from 2008- to 2015. For transplants, 1 out of 22 (4.55%) was performed for NASH/CC from 1989- to 1998, and increased to 5 out of 50 (10.0%) from 1999- to 2007 and 26 out of 126 (20.6%) from 2008- to 2016. Survival time for NASH/CC-associated HCC patients (71 months) was worse than that for HBV (154 months) and HCV (83 months). Similarly, survival time for NASH/CC-associated transplant patients (180 months) was worse than that for HCV (217 months) and HBV (205 months). **Conclusion:** The results show a definite increasing burden of NASH/CC-associated end-stage liver complications. Patients with NAFLD-associated complications demonstrated worse survival times compared to with other etiologies, which suggested that the presence of multiple co-morbidities in patients with NAFLD may account for a worse survival. Further studies are needed to determine the impact of this on screening strategy and treatment options.

### # P-0661 Association of serum autotaxin level with disease stage in Japanese patients with primary biliary cholangitis

**Authors:** SATORU JOSHITA[1,2]; TAKEJI UMEMURA[1,2]; YOKO USAMI[3]; AYUMI SUGIURA[1]; TOMOYO YAMAZAKI[1]; NAOYUKI FUJIMORI[1]; MICHIHARU KOMATSU[1]; AKIHIRO MATSUMOTO[1]; KOJI IGARASHI[4]; MASAO OTA[1]; AND EIJI TANAKA[1]

**Affiliation:** [1]Department of Medicine, Division of Gastroenterology and Hepatology, Shinshu University School of Medicine, [2]Research Center for Next Generation Medicine, Shinshu University School, [3]Department of Laboratory Medicine, Shinshu University Hospital, [4]Bioscience Division, TOSOH Corporation, Kanagawa, Japan

**Background/Aims:** Primary biliary cholangitis (PBC) is a chronic, slowly progressive, organ-specific autoimmune liver disease. Autotaxin (ATX) is a secreted enzyme metabolized by liver sinusoidal endothelial cells that is considered to be associated with liver fibrosis. We investigated the association of serum ATX level with disease stage in patients with PBC. **Methods:** Serum ATX values were retrospectively evaluated in 128 treatment-naive PBC patients (84% female, median age: 57 years), all of whom had undergone liver biopsy for histological assessment, and 80 healthy controls for comparisons of clinical parameters. **Results:** Median ATX concentrations in controls and subjects with PBC of Nakamura stages I, II, III, and IV were 0.70, 0.80, 0.87, 1.30, and 1.70 mg/L, respectively, which increased significantly with disease stage (r = 0.53, P < 0.0001). ATX levels also correlated those of with established fibrosis biomarkers, including Wisteria floribunda agglutinin-positive Mac-2-binding protein (M2BPGi) (r = 0.54, P < 0.0001) and AST-to-platelet ratio index (r = 0.36, P = 0.006). All PBC patients commenced ursodeoxycholic acid (UDCA) therapy. Alkaline phosphatase levels decreased from 467 at diagnosis to 360 U/L at 1 year after UDCA treatment (P < 0.001). It was noteworthy that while M2BPGi levels were decreased from 1.1 to 0.9 C.O.I. (P < 0.001) by UDCA, ATX levels were normal (0.95 to 0.96 mg/L; P = 0.07). Longitudinal analysis of patient ATX values over 12 years revealed a significant difference between the ATX increase rates of survivors (0.02 mg/L/year) and patients with disease-related death (0.05 mg/L/year) (P < 0.01). **Conclusions:** Serum ATX values appear to be useful for assessing disease stage and prognosis in PBC. Further studies are needed to clarify the mechanisms of ATX in PBC stage progression.
# P-0669 Surgery versus radiofrequency ablation in the treatment of very early or early stage hepatocellular carcinoma patients with portal hypertension

**Authors:** SE HEON CHANG; JI HYUN AN; JU HYUN SHIM; HA IL KIM; DAN BI LEE; KANG MO KIM; YOUNG-SUK LIM; HAN CHU LEE; YOUNG-HWA CHUNG; YUNG SANG LEE

**Affiliation:** Department of Gastroenterology, Asan Liver Center, Asan Medical Center, University of Ulsan College of Medicine, Korea

**Background:** Surgical resection is not universally recommended in hepatocellular carcinoma (HCC) patients with established portal hypertension, even in single small cases. Radiofrequency ablation (RFA) is a formal alternative in treating such patients. A number of studies have concluded that portal hypertension should not be a contraindication for hepatic resection. We aimed to compare prognostic outcomes of surgical resection versus RFA in patients with solitary ablatable HCC and portal hypertension.

**Methods:** This retrospective study included 189 resected or ablated patients who had a subclinical single HCC ≤ 3 cm and clinical signs of portal hypertension. All patients had well-preserved liver function with 105 (55.6%) and 84 (44.4%) primarily receiving surgery and RFA, respectively. Overall and recurrence-free survivals were compared between the two subsets, and clinical factors related to survival endpoints were identified in the entire set. **Results:** The number of patients belonging to BCLC 0 stage was 45 (42.9%) and 55 (65.5%), respectively, in the resection and ablation groups (P < 0.05). During the median follow-up of 6.2 years, tumor recurrence and mortality from any cause were noted in 62 (59.0%) and 27 (25.7%) patients; and 50 (59.5%) and 26 (31.0%), respectively, in the resection and RFA groups (Ps = NS). In multivariate Cox model adjusted for other confounders, resection and RFA was comparable in terms of risk of recurrence and death (Ps = NS).**Conclusion:** Our data indicate that guidelines-based RFA treatment can be justifiable in patients with single small HCC and portal hypertension, even though a tumor is resectable.

# P-0676 The fecal microbiota of IBS-D patient effects Kupffer cells and liver inflammation in recipient rats

**Authors:** QIONG JIA; LU ZHANG; JINDONG ZHANG; SHIWEI ZHU; KUO ZHANG; LIPING DUAN

**Affiliation:** Department of Gastroenterology, Peking University Third Hospital, Beijing, China

**Background:** Increasing of intestinal permeability in patients with diarrhea-predominant irritat bowel syndrome (IBS-D) is a major pathophysiological feature, which results in pathogens from the gut enter into the portal blood. Kupffer cells (KCs) initiate innate immunity, partially due to the short-chain fatty acids (SCFAs) produced by gut microbiota. We aim to explore the effects of fecal microbiota of IBS-D patients to the rat liver. **Methods:** The germ-free rats were gavaged with diluted fecal samples from IBS-D patient (GI) and health control (GH). KCs, protein levels of TNF-α, IFN-γ and tryptophan 2,3-dioxygenase (TDO), fecal SCFAs, and serum metabolic profiles were analyzed. **Results:** Hypertrophy of KCs, TNF-α, and IFN-γ of the liver tissue and fecal SCFAs related to the inhibition of inflammation inflammation present significant differences among the three groups, but there are no obviously different in expression of TDO (see table). **Conclusion:** Alteration of gut microbiota in IBS-D patients with lower acetate, propionate and isobutyrate can cause KCs hypertrophy of rats might through FcYr-mediated phagocytosis pathway.

**Table 1** Hypertrophy of KCs, liver protein expression levels, and fecal SCFAs of recipient rats (Mean ± SE)

|                | GN(n=5) | GH(n=5) | GI(n=5) | ANOVA P<0.05 |
|----------------|---------|---------|---------|--------------|
| hypertrophy    | 0±0     | 0±0     | 0.8±0.18| c vs b, c vs a |
| TNF-α          | 0.29±0.06| 0.09±0.07| 1.67±0.36| c vs b, c vs a |
| IFN-γ          | 0.35±0.07| 0.24±0.04| 0.71±0.07| c vs b, c vs a |
| TDO            | 0.76±0.12| 0.95±0.04| 0.69±0.08| none |
| acetate        | 2.77±0.34| 13.87±0.48| 8.00±1.33| c vs b, c vs a, b vs a |
| propionate     | 0.006±0.0005| 5.14±0.53| 1.97±0.38| c vs b, c vs a, b vs a |
| isobutyrate    | 0.017±0.004| 0.060±0.006| 0.036±0.005| c vs b, c vs a, b vs a |

*Serum metabolic profiles related in FcγR-mediated phagocytosis pathway are different in GI group compared to others.*

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# P-0686 Effect of treatment of chronic hepatitis C on health-related quality of life in old-aged patients

**Authors:** KARIM SOBHY ELNOEMANY[1]; MOHAMED BADR[2]

**Affiliation:** [1]Tropical diseases hospital, Ministry of Health, and [2] Internal medicine department, Menoufia University, Egypt

**Background and Aim:** Hepatitis C virus (HCV) diminishes health-related quality of life (HRQOL). Currently, there is no published data on assessing of the impact of treatment of chronic hepatitis C with the new antiviral drugs in old-aged patients. The aim is to study the effect of treatment of chronic hepatitis C with the new antiviral drugs in old-aged patients in HRQOL. **Methods:** About 132 patients with chronic hepatitis C (cirrhotic and non-cirrhotic) were enrolled in the study. Age of patients was sixty 60 years old and older. All patients were treated with sofosbuvir/daclatasvir with or without ribavirin for three 3 months. The HRQOL was assessed with sickness impact profile scoring (SIP) before start of treatment, at end of treatment and after three 3 months of end of treatment. **Results:** Old chronic hepatitis C patients who were treated achieved primary virological response (end of treatment) with percentage 100% and sustained virological response (SVR) (after 3 months of end of treatment) in about 96% of treated patients. Before treatment, patients with chronic hepatitis C had worse scores especially in work, sleep, rest, and recreation, and pastimes categories. After treatment, patients who received sofosbuvir/daclatasvir with or without ribavirin had significant improvement in work, sleep, rest, and recreation, and pastimes categories with P- value 0.001. Numerical improvement was observed in total score, and physical and psychosocial dimension scores. In patients with SVR, the most improvement was in work and psychosocial dimension scores. There was no significant difference in SIP between scores after end of treatment and after 3 months of end of treatment. **Conclusion:** Treatment
of chronic hepatitis C in old-aged patients had a significant improvement in HRQOL.

# P-0687 Challenges in treatment of minimal hepatic encephalopathy

**Authors:** KARIM SOBYH ELNOEMANY[1]; AYMAN ALSEBAEY ALGORAIEB[2]; NASHWA ABU ELFETUH SHEBL[2]; TARY ABDEL HAMID SALMAN[2]; EMAN AHMED REWEISHA[2]

**Affiliation:** [1]Tropical diseases hospital, Menoufiya, [2]Hepatology department, National Liver Institute, Egypt

**Background:** Minimal hepatic encephalopathy (MHE) is observed in 84% of patients with liver cirrhosis without the presence of overt HE. It adversely affects health-related quality of life (HRQOL). **Aim:** To compare lactulose, rifaximin, L-Ornithine L-Aspartate (LoLa), their combination on MHE treatment, and HRQOL. **Methods:** After screening for MHE, 126 patients with MHE were assigned for the following treatment regimens: 30–60 ml lactulose twice daily (n = 31), 200 mg rifaximin thrice daily (n = 32), 6 g LoLa thrice daily (n = 32), and combined therapy (n = 31). All patients were assessed by critical flicker frequency (CFF), number connection test (NCT), serial dotting test (SDT), ammonia, and sickness impact profile (SIP) questionnaire at baseline and two consecutive months. **Results:** By repeated measure ANOVA test, there was favorable treatment-induced changes in all groups concerning the three consecutive values of CFF (36.6 vs. 31.33 vs. 38.09 Hz; P = 0.001 except LoLa; P = 0.167), NCT (−2.5 vs. −1.15 vs. −0.9 SD; P = 0.001), SDT (−2.6 vs. −1.27 vs. −1.07 SD; p=0.001), ammonia (85.75 vs. 76.93 vs. 69.65 mmol/l; P = 0.001 except rifaximin; P = 0.50), and SIP questionnaire score (24.75 vs. 16.1 vs. 16.31; P = 0.001). The overall comparison of all groups was insignificant (P > 0.05). The tangent point of ALT was 36 U/L using Youden index in boys, and 33 U/L in girls. **Conclusion:** Lactulose, rifaximin, LoLa, and their combination are the same on MHE treatment and HRQOL.

# P-0688 Association of adolescent obesity with nonalcoholic fatty liver disease and related risk factors in Xi’an, China

**Author:** RONG YAN

**Affiliation:** Department of Gastroenterology, First Affiliated Hospital of Xi’an Medical College, China

**Introduction and Aim:** To investigate the association of adolescent obesity with nonalcoholic fatty liver disease (NAFD) and related risk factors in Xi’an, China. **Materials and Methods:** A total of 4141 adolescents (2061 girls and 2080 boys, mean age: 18.6 ± 0.66 years, age range 15–22 years) were enrolled in this investigation. Anthropometric index was measured, and liver ultrasonography and liver function biochemical tests were performed in all the subjects. T test, Chi-square test, and logistic regression analysis were used for statistical analyses. **Results:** The total rates of obesity was 7.9% (308/4141). The prevalence rate of NAFLD was 8.1% (335/4141) with a declining trend from obesity, overweight to normal BMI. NAFLD prevalence rate in obese boys was significantly higher than in girls (χ² = 56.5, P < 0.01). BMI, body weight, ALT, and AST in NAFLD group were higher than in non-NAFD group (P < 0.05). The tangent point of ALT was 36 U/L using Youden index in boys, and 33 U/L in girls. **Conclusion:** The prevalence of obesity and NAFLD in adolescents is higher in Xi’an than anticipated. Body weight and BMI may be the associated independent risk factors of NAFLD.

# P-0700 Do same cut-off values for controlled attenuation parameter (CAP) apply for both M probe and XL probe of transient elastography (FibroScan®)?

**Authors:** WAH-KHEONG CHAN[1]; NIK RAHAN NIK MUSTAPHA[1]; SANJIV MAHADEVA[1]; VINCENT WAI-SUN WONG[2,3]; JENNY YEUK-KI CHENG[2,3]; GRACE LAI-HUNG WONG[2,3]

**Affiliation:** [1]Gastroenterology and Hepatology Unit, Gastrointestinal Endoscopy Unit, Department of Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia; [2]Institute of Digestive Disease; and [3]Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Hong Kong

**Background:** The XL probe generates lower liver stiffness values than the M probe in the same patient, but similar data on controlled attenuation parameter (CAP) as a measurement of hepatic steatosis are scarce. We aim to test the hypothesis that the same CAP cut-offs can be used for both probes. **Methods:** We included subjects who had a liver biopsy and reliable FibroScan examination using both M and XL probes simultaneously. Hepatic steatosis was graded as S0, < 5%; S1, 5–33%; S2, 33–66%; S3, > 66%. **Results:** Data for 146 patients were analyzed (mean age 52.4 ± 10.7 years old, 45.9% male, mean BMI 28.5 ± 6.5 kg/m², NAFLD, 82.2%; HBV, 5.5%; HCV, 2.1%; others, 10.3%). The distribution of steatosis grade was S0, 11.0%; S1, 26.0%; S2, 41.1%; S3, 21.9%. There was strong positive correlation (r = 0.75, P < 0.001) between CAP measured by M and XL probes. Mean CAP using the XL probe was significantly higher compared with the M probe in the same patient, but similar data on controlled attenuation parameter (CAP) apply for both M probe and XL probe of transient elastography (FibroScan®)?

**Word count:** 218.
between the two probes appeared small and not clinically significant when using 248 dB/m, 268 dB/m, and 280 dB/m as cut-offs for steatosis grades ≥ S1, ≥ S2, and S3, respectively. Conclusion: While the XL probe produces significantly higher CAP compared with the M probe, similar cut-offs may be used for both the probes.

# P-0705 Blood flow blocking RFA for hepatocellular carcinoma reduces the risk of critical HCC recurrence

Authors: RYO SHIMIZU; HIDEYUKI TAMAI; SYUYA MAESHIMA; YOSHIYUKI IDA; NAOKI SHINGAKI; KAZUHIRO FUKATSU; MASAHIRO ITONAGA; TAKEICHI YOSHIDA; YOSHIMASA MAEDA; KOUSAKU MORIBATA; TAKAO MAEKITA; MIKITAKA IGUCHI; JUN KATO; MASAYUKI KITANO

Affiliation: Department of Gastroenterology, Yamaguchi University Medical University, Japan

Background: From April 2001, we perform RFA with internal cooled monopolar electrode and “Direct puncture ablation.”. This method is that we puncture tumors directly without advance ablation of feeding arteries for tumors. From August 2006, we perform RFA with “Blood flow blocking ablation.”. With this method, we identify feeding arteries for tumors with color Doppler ultrasonography and/or perfusate contrast-enhanced ultrasonography first, and ablate the blood vessels before puncturing tumors. The purpose of this study is to evaluate efficacy of “Blood flow blocking ablation” compared with “Direct puncture ablation.”

Methods: Between April 2001 and December 2015, 363 patients with initial HCC (less than 5 cm) were treated with RFA and included in this analysis. Critical recurrence, which is difficult to treat radically, was defined as > 3 intrahepatic recurrences, recurrence with vascular invasion, seeding, dissemination, and/or extrahepatic metastasis. Results: One hundred fifty patients were treated with “Direct puncture ablation” and 213 patients were treated with “Blood flow blocking ablation”. We compared with background of both groups; there were no significant differences in age, gender, Child-Pugh classification, viral hepatitis or not, maximum tumor size, AFP level, AFP-L3 level, and DCP level. Cumulative 5-year critical recurrence rates of “Direct puncture ablation” and “Blood flow blocking ablation” were 32% and 20% (P = 0.02). Univariate analysis for factors related to critical recurrence showed significant differences in ablation method, maximum tumor size, AFP level, and AFP-L3 level. These factors were independent on multivariate analysis. Discussion: Tumor blood supply for HCC is abundance and internal pressure of HCC is high; therefore, direct puncture of tumors may increase the risk of tumor dissemination. Rigid ablation of feeding artery for tumors may reduce the internal pressure. Hence “Blood flow blocking ablation” may reduce the risk of critical recurrence.

# P-0707 Accuracy validation of hepatitis virus test with micro litter scale blood collection from fingertip with novel blood collecting devices

Authors: KOICHI TAKAGUCHI[1]; FUSAO IKEDA[2]; YASUYUKI MORITA[1]; HIROMI KIMURA[1]; SHIHOKO NAMBA[2]; YASUYUKI SHIMOMURA[2]; TETSUYA YASUNAKA[2]; SHITA NEMOTO[3]; HAJIME IWASAWA[3]; AND HIROYUKI OKADA[2]

Affiliation: [1]Department of Hepatology, Kagawa Prefectural Central Hospital, Takamatsu, [2]Department of Gastroenterology and Hepatology, Okayama University Graduate School of Medicine, Dentistry, and Pharmaceutical Sciences, Okayama, [3]MBS corporation, Tokyo, Japan

Background and Aim: Fingertip blood sampling does not require venipuncture. However, it can collect only a small amount of blood. This study assessed whether small amount of blood collection by fingertip blood sampling with novel blood collecting devices might work adequately for hepatitis virus tests. Methods: This study planned the cross-sectional survey for local people in Kasaoka City and Shodoshima Island for hepatits screening tests, and the patients infected with hepatitis B virus (HBV) or hepatitis C virus (HCV) at the hospitals for confirmatory assays. Result: A total of 114 consecutive individuals who took hepatitis screening test were enrolled. Thirty-three HBV patients and 38 HCV patients were also enrolled in the hospitals for evaluating accuracy of measuring HBs antigen and anti-HCV in fingertip blood samples. Twenty A total of 20 μl of plasma was successfully obtained from all the participants. The results of HBs antigen and anti-HCV in fingertip blood samples were compared with those in the serum. All the samples with undetectable HBs antigen or anti-HCV in the serum showed undetectable in fingertip blood samples, and significant correlations of the test results were observed between the serum and in fingertip blood samples (P < 0.01). The quantifiable ranges in fingertip blood samples showed in-between 1.0 and 80 cut-off index for anti-HCV and in-between 0.03 and 200 IU/mL for HBs antigen. Conclusion: Fingertip blood sampling technique with novel blood collecting devices may work adequately for hepatitis virus test with small amount of blood samples.

# P-0710 A study of the effectiveness for improving hepatic fibrogenesis and suppressing hepatocarcinogenesis after SVR in DAA therapies

Authors: ISAO HIDAKA; ISAO SAKAIDA

Affiliation: Department of Gastroenterology and Hepatology, Yamaguchi University Graduate School, Japan

Background: In chronic hepatitis type C, viral clearance by interferon therapy is known to lead to improvement of hepatic fibrogenesis and suppression of hepatocarcinogenesis. Although the emergence of direct acting antivirals (DAA) has allowed the high rate of viral clearance, the effectiveness for improving hepatic fibrogenesis and suppressing hepatocarcinogenesis after DAA therapies has not been shown. Therefore, we conducted DAA therapies to analyzes the effectiveness for improving fibrogenesis and suppressing carcinogenesis in patients who achieved a sustained virologic response (SVR). Methods: We analyzed changes in the levels of serum fibrosis markers, P-3-P and M2BPGi, over time. The changes in the liver fibrosis index (LFI) were also analyzed by using real-time tissue elastography. In analyzing the effectiveness for suppressing carcinogenesis, cumulative cancer incidence rates after initiation of DAA therapies were calculated in those with and without a medical history of hepatocellular carcinoma (HCC). Results: The subjects were 174 patients. The subjects included patients with chronic hepatitis (n = 113) and liver cirrhosis (n = 61) including sixteen 16 patients who had a medical
history of HCC. P-3-P levels significantly decreased over time ($P < 0.01$). The LFI values also significantly decreased over time ($P < 0.05$). HCC occurred in 78 patients, and the cumulative cancer incidence rates were 4.1% at 1 year and 7.2% at 2 years. The cumulative cancer incidence rates in patients without a history of HCC were 0.8% at 1 year and 0.8% at 2 years, and, in those with a history of HCC, were 26.6% at 1 year and 47.6% at 2 years. A medical history of HCC was a significant factor for HCC development ($P < 0.0001$). **Conclusion:** Successful viral clearance by DAA therapies leads to improvement of hepatic fibrogenesis. In addition, carcinogenesis is suppressed in the case of no medical history of hepatocarcinoma.

### P-0744 Factors predicting short-term mortality in cirrhotic patients with infections other than spontaneous bacterial peritonitis

**Authors:** VARUN TADKALKAR; KRISHNADAS DEVADAS; RAJENDRA GUNJAL; S SREEJAYA  
**Affiliation:** Department of Gastroenterology, Government Medical College, Thiruvananthapuram, India

**Background and Aims:** Infections other than SBP represent more than two thirds of the infections in patients with cirrhosis. This study aimed at assessing risk factors for short-term mortality among cirrhotic patients having non-SBP infections. **Methods:** This cross-sectional study included cirrhotic patients who were admitted with non-SBP infections from August 2015 to February 2017, and data was analysed in relation to type of infection, culture positivity, presence of AKI and encephalopathy, hospital mortality, and 30-day mortality. **Results:** One hundred and fifty-three patients were analysed. The main etiology of cirrhosis was alcohol, and 71% of cases were Child C. UTI (38.6%) was the most common non-SBP infection followed by Cellulitis and Pneumonia. E. coli was the most common organism isolated in urine culture and blood culture. AKI, type 1 HRS, and ACLF (CANONIC) developed in 44.4%, 3.9%, and 24.8% of patients, respectively. Overall hospital mortality and 30-day mortality was 26.8% and 43.1%, respectively. Hospital Mortality was higher in patients having Pneumonia (54.4%), and spontaneous bacteremia (60%). On univariate analysis, Pneumonia, female sex, Hepatic encephalopathy, AKI, Hypotenatremia, WBC, BUN, total bilirubin, serum creatinine, INR, CHILD C status, ACLF, and MELD were significantly associated with mortality. Using logistic regression, Hepatic encephalopathy ($P = 0.0001$) and elevated BUN (0.004) emerged as significant risk factors for hospital mortality, and Pneumonia ($P = 0.016$) Hepatic encephalopathy ($P = 0.0001$), and MELD score ($P = 0.003$) were significant risk factors for 30-day mortality. **Conclusion:** Pneumonia has worse prognosis among non-SBP infections. Presence of hepatic encephalopathy and renal dysfunction leads to poor outcome in patients with cirrhosis having infections.

### P-0755 Comparison of real-time shear wave elastography with various noninvasive serum markers for assessing liver fibrosis in chronic viral hepatitis

**Authors:** JAE GON LEE[1]; JOO HYUN SOHN[1]; JAE YOON JEONG[1]; YEON WON PARK[1]; DAE WON JEON[2]; YONGSOO KIM[3]  
**Affiliations:** [1]Department of Internal Medicine, Hanyang University Guri Hospital, Hanyang University College of Medicine, Guri, [2]Department of Internal Medicine, Hanyang University Hospital, Hanyang University College of Medicine, Seoul; and [3]Department of Radiology, Hanyang University Guri Hospital, Hanyang University College of Medicine, Guri, Korea

**Aim:** To investigate the diagnostic accuracy of liver fibrosis using liver stiffness measurement (LSM) by real-time shear wave elastography (SWE) in patients with chronic viral hepatitis and to compare the diagnostic performance of SWE with serum liver fibrosis markers. **Methods:** We consecutively analyzed 92 patients with chronic viral hepatitis (45 with hepatitis B, 46 with hepatitis C and 1 with hepatitis B+C). Liver fibrosis was staged from F0 to F4 according to the Batts and Ludwig scoring system. The accuracy of prediction for liver fibrosis for SWE, hyaluronic acid (HA), type 4 collagen, AST to Platelet Ratio Index (APRI), FIB-4, Forns index and red cell volume distribution width-to-platelet ratio (RPR) was analyzed using receiver operator curve (ROC) analysis. **Results:** There were 10, 30, 20, and 32 patients at stages F0-1, F2, F3, and F4, respectively. The overall diagnostic accuracies of LSM and serum markers, as determined by the area under ROC, were LSM = 0.909, APRI = 0.810, FIB-4 = 0.768, type IV collagen = 0.763, Forns index = 0.750, RPR 0.717 and HA = 0.712 and for predicting significant fibrosis ($\geq F2$); LSM = 0.861, type IV collagen = 0.804, HA = 0.801, RPR = 0.770, Forns index = 0.768, FIB-4 = 0.767, and APRI = 0.728 for predicting advanced fibrosis ($\geq F3$); and LSM = 0.860, Forns index = 0.822, HA = 0.817, FIB-4 = 0.816, RPR = 0.799, type IV collagen = 0.783, and APRI = 0.723 for predicting cirrhosis ($\geq F4$). LSM was superior to HA ($P = 0.029$) and Forns index ($P = 0.049$) for predicting significant fibrosis, and to APRI for predicting advanced fibrosis ($P = 0.011$) and cirrhosis ($P = 0.011$). **Conclusion:** SWE was the most accurate method to predict the degree of liver fibrosis in patients with chronic viral hepatitis. Also, the majority of six liver fibrosis markers were comparable to SWE to assess liver fibrosis.

### P-0757 Chronic kidney disease progression in chronic hepatitis B patients receiving tenofovir disoproxil fumarate or entecavir: A territory-wide study

**Authors:** TERRY CHEUK-FUNG YIP[1,2]; VINCENT WAI-SUN WONG[1,2,3]; YEE-KIT TSE[1,2]; GRACE LAI-HUNG WONG[1,2,3]  
**Affiliations:** [1]Institute of Digestive Disease, and [2]Department of Medicine and Therapeutics, and [3]State Key Laboratory of Digestive Disease, The Chinese University of Hong Kong, Hong Kong

**Background:** Previous studies showed that tenofovir disoproxil fumarate (TDF) use is associated with minor deterioration in renal function in a small proportion of patients, but the data are limited by small sample size and the exclusion of patients with existing chronic kidney disease (CKD). We studied the risk of CKD progression in a territory-wide cohort of patients with chronic hepatitis B (CHB) treated with TDF or entecavir (ETV). **Methods:** All CHB patients who had received ETV or TDF from January 2005 to December 2016 were retrieved from the Clinical Data Analysis and Reporting System of the Hospital Authority, Hong Kong.
Demographic data, comorbidities, serial creatinine, and other laboratory results were collected. Estimated glomerular filtration rate (eGFR) were determined by the CKD Epidemiology Collaboration equation, and classified into five CKD stages. The impact of ETV and TDF treatment on CKD progression, defined as an increase of at least one CKD stage, were compared. Results: A total of 32, 091 ETV or TDF-treated CHB patients were identified; 29, 599 (92.2%) were first treated by ETV while 2,492 (7.8%) received TDF initially. During a median (interquartile range) follow-up of 22 (8–50) months, 767 TDF-treated patients (30.8%) and 9,816 ETV-treated patients (33.2%) had CKD progression. The annual median (95% confidence interval [CI]) decline in eGFR were 1.66 (1.47 – – 1.84) and 1.23 (1.18 – – 1.28) ml/min/1.73 m² in the TDF and ETV-treated patients, respectively (P = 0.007). TDF use as compared with ETV treatment (adjusted hazard ratio 1.23, 95% CI 1.14 – – 1.33; P < 0.001), diabetes mellitus (1.20, 1.14 – – 1.26; P < 0.001), and hypertension (1.28, 1.22 – – 1.34; P < 0.001) were associated with increased risk of CKD progression after adjustment of age, sex, and baseline results. Conclusion: TDF treatment in CHB patients with higher risk of CKD progression than ETV treatment. Closer monitoring of renal function is recommended for CHB patients with diabetes mellitus or hypertension.

# P-0766 Using T-ACE Beads for embolization therapy of hepatoma

Authors: JUI-WEN KANG[1]; YI-SHENG LIU[2]; YEN-CHENG CHIU[1]; HUNG-WEN TSAI[3]; YIHYJYH LIN[4]; YAN-SHEN SHAN[4]; HONG-MING TSAI[2]; XI-ZHANG LIN[1]; CHIUNG-YU CHEN[1]

Affiliation: Departments of [1] Internal Medicine, [2] Radiology, [3] Pathology, [4] Surgery, National Cheng Kung University, Tainan, Taiwan

Background: Transcatheter arterial chemoembolization (TACE) is an important treatment for patients with intermediate-stage hepatoma. We developed a kind of T-ACE Beads that can be used as the emboli and had tested its safety in animal study. We conducted a clinical trial to investigate the safety of T-ACE beads in either treatment naïve or experienced hepatoma patients. Methods: Our T-ACE Beads are made of intravascular injectable pharmaceutical excipients, an alginate-gelatin based biodegradable microspheres, size 100 to 250 μm. Inclusion criteria was patients diagnosed as hepatoma, BCLC stage B, with tumor size 3–6 cm. After TACE, serial image study (CT scan or MRI) and blood tests were arranged at out-patient clinic for 3 months. The response of treatment is evaluated according to mRECIST criteria. Results: 13 Thirteen patients were screened and one was excluded due to neutropenia. 12 Twelve patients received embolization with T-ACE beads. One patient withdrew at 1 month after embolization because patient decided to receive curative local ablation due to partial response. Mild hepatitis was observed after TACE but return to baseline in one week. No liver decompensation developed at the end of follow up. For target lesion evaluation, 3 three patients have CR (complete response) at the end of follow up. 4 Four patients have PR (partial response). 2 Two patients have SD (stable disease). 2 Two patients have PD (progressive disease). For overall response evaluation, 2/3/3/4 patients have CR/PR/SD/PD. Conclusions: Treating hepatoma patients with T-ACE Beads are is safe and has some effects. Further clinical trials, and loading appropriate chemotherapeutic agents are needed to evaluate its clinical value.

# P-0786 Expression of PTTG1 in patients with hepatocellular carcinoma

Authors: YUNWEI GUO; XIANYI LIN; JIEYING XUAN

Affiliation: Department of Gastroenterology, Third Affiliated Hospital of Sun Yat-Sen University, Guangzhou, 510630, China

Background: Pituitary tumor trans-forming gene (PTTG) is a kind of proto-oncogene, and its expression is related to sister chromatid separation, angiogenesis, tumor metastasis and spread, and so on. In the current study, the expression of PTTG1 was investigated in liver tissue of patients with hepatocellular carcinoma (HCC). Methods: The expression of PTTG1 in tumor and paratumor tissues was detected by immunohistochemistry in 60 patients with HCC, and was detected using western blotting and RT-PCR in 15 patients with HCC. The expression of PTTG1 in normal liver tissue of patients with liver hemangiomia during the same period was assayed as a control. Statistical data were expressed as median (interquartile range). Results: Immunohistochemistry showed that PTTG1 positive staining is mainly seen in cytoplasm and can also be seen in nucleus. The staining intensity of PTTG1 in tumor tissues was higher than that of paratumor tissues, while the staining intensity of PTTG1 in paratumor tissues was higher than that of normal liver tissues (both P < 0.001). The result of western blotting revealed that PTTG1 protein level in HCC tumor and paratumor tissues was up-regulated compared with that of normal liver tissues (both P < 0.05). The result of RT - PCR showed that the relative PTTG1 mRNA level was 3.64 (3.53) in tumor tissues, statistically higher than 0.80 (0.58) in paratumor tissues and 1.00 (1.13) in normal liver tissues (both P < 0.05). Conclusion: The protein and mRNA expression of PTTG1 were both up-regulated in the tumor tissue of patients with HCC, suggesting PTTG1 might involve in the development of HCC.

# P-0787 Relationship of PTTG and tumor progression in patients with hepatocellular carcinoma

Authors: YUNWEI GUO; XIANYI LIN; JIEYING XUAN

Affiliation: Department of Gastroenterology, Third Affiliated Hospital of Sun Yat-Sen University, Guangzhou, 510630, China

Background: Pituitary tumor trans-forming gene (PTTG) is a kind of proto-oncogene and is related to tumor development and metastasis. In the current study, the relationship of PTTG1 and tumor progression in patients with hepatocellular carcinoma (HCC) was investigated. Methods: The expression of PTTG1 was detected by immunohistochemical staining in 60 patients with HCC. The relationship between PTTG1 and clinical data was analyzed. Different PTTG1-positive grades of tumor tissues were used for univariate and multivariate survival analysis to investigate the effect of PTTG1 expression on short-term survival of HCC patients. Results: The PTTG1-positive staining rate in tumor and paratumor tissues were was higher than that of normal liver tissues (both P < 0.001). HCC patients with PTTG1-positive cells ≤ 70% in tumor tissues had higher proportion of spontaneous rupture or intratumoral hemorrhage of the tumor compared with those with PTTG1-positive cells > 70% ( P < 0.05). Compared with high differentiated tumor, the percentage of nuclear PTTG1 expression was higher in poorly differentiated hepatocellular carcinoma (P < 0.05). PTTG1-positive cells < 5% in paracancer tissues had lower serum a-L-fucosidase level, smaller tumor volume, and earlier clinical stage compared with those PTTG1-positive cells ≥ 5% (all P < 0.05). Univariate and multivariate survival analysis revealed that different PTTG1-positive grades of tumor tissues was not related to the short-term survival rate of HCC patients (all P > 0.05).

Conclusion: Up-regulation of PTTG1 in tumor and paratumor tissue indicates relative severe situation of HCC but is not associated with short-term survival rate in patients with HCC.
**# P-0803 Carnitine palmitoyl transferase 1 a (CPT1a) deficiency: A rare cause of severe non-alcoholic fatty liver disease (NAFLD) in an adult patient**

**Author:** PRASIT PHOWTHONGKUM  
**Affiliation:** Department of Medicine, Chulalongkorn University, Thailand  

NAFLD becomes a more prevalent cause of liver disease in Asians. Inborn errors of metabolism (IEM) are rare causes of NAFLD and mostly present in infancy or childhood. We report an adult patient with severe NAFLD with CPT1a deficiency, a rare fatty acid oxidation disorder (FAOD). Physicians should be aware that IEM can first be present in adulthood. A 29 years-old woman was healthy until she developed progressive cholestasis jaundice and weight loss at five 5 months of pregnancy when she was 21 years old. She was diagnosed with Grave’s disease and underwent thyroidectomy. Her electrolytes were consistent with renal tubular acidosis (RTA). Her cholestasis was subsided without definite diagnosis. Six years later, she was admitted to the hospital with severe progressive cholestasis. The investigations revealed that she had acute pancreatitis. She had massive hepatosplenomegaly; therefore, she underwent a liver biopsy that showed more than ninety per cents90% macro-vesicular fatty liver. PAS stain was negative. Her jaundice was improved a few months later when it was worsening again co-occurred with E. coli bacteremia. Jaundice and hepatosplenomegaly were completely disappeared at 6six months. Liver disease worsen intermitently with intercurrent illness raised the suspicion of FAOD. Plasma carnitine (C0) and acylcarnitine profile performed with tandem mass spectrometry were sent. Increased C0 of 58.74 μmol/l (5.55—20.88) with markedly low levels of long-chain FA consistent with CPT1a deficiency was found. RTA was a known association with this FAOD. To our knowledge, this is the first adult patient with CPT1a deficiency present with severe NAFLD during seve inter-current illness or high physiologic demand (pregnancy). Molecular diagnosis is pending. Medium chain triglycerides was were instigated as it was shown to ameliorate the liver and kidney problems in patients with CPT1a deficiency.

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**# P-0804 Systematic review and meta-analysis: Prevalence of small intestinal bacterial overgrowth in chronic liver disease**

**Authors:** AYESHA SHAH[1,2,3]; ERIN SHANAHAN[1,2,3]; PEGAH GHASEMI[2]; GRAEME A MACDONALD[1,2,3]; LINDA FLETCHER[1,2]; MARK MORRISON[1,4,5]; MIKE JONES[3]; GERALD HOLTMANN[1,2,3]  
**Affiliations:** [1]The University of Queensland, Faculty of Medicine, [2]Department of Gastroenterology & and Hepatology, Princess Alexandra Hospital, Brisbane; and [3]Translational Research Institute, and [4]University of Queensland, Diamantina Institute, Microbial Biology and Metagenomics, QLD and [5]Macquarie University, Department of Psychology, Sydney, NSW, Australia  

**Introduction:** Gut microbiota “dysbiosis,” small intestinal bacterial overgrowth (SIBO), and bacterial translocation have been implicated as relevant factors for the progression of chronic liver disease (CLD). Thus, we aimed to assess and compare the prevalence of SIBO in patients with CLD and controls.  

**Material and Methods:** Using the search terms “small intestinal bacterial overgrowth (SIBO)” and “chronic liver disease (CLD),” or “cirrhosis,” 19 case-control studies that met inclusion criteria were identified. Relevant data were extracted to calculate prevalence rates and 95% Confidence Intervals (CI) of SIBO in CLD and controls. **Results:** Final dataset included 1,000 adult patients with CLD (715 with established cirrhosis) and 488 controls. For diagnosing SIBO, fifteen 15 studies employed breath tests, five studies utilised utilized culture methods and one used quantitative PCR. Across all diagnostic methods, the prevalence of SIBO in patients with CLD was increased by 7-fold (Figure 1) at 38.9 % (95% CI 36.9–42.0) versus 9.8 % (95% CI 7.5–12.8) in controls. Using breath tests, the prevalence of SIBO in CLD was 35.8% (95% CI 32.6–39.1) versus 8.0% (95% CI 5.7–11.0) in controls, whereas using culture techniques, the prevalence was 68.3% (95% CI 59.62–76.0) in patients with CLD versus 7.94% (95% CI 3.44–12.73) in controls. **Conclusions:** Irrespective of diagnostic modality, and prevalence of SIBO is significantly increased in patients with CLD as compared to with controls. Culture-based techniques diagnosed a higher prevalence of SIBO in CLD, suggesting breath tests may underestimate the overall prevalence rates. Thus, further studies need to explore the role of intestinal dysbiosis in CLD.

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**# P-0810 Involvement of PNPLA3 function for hepatic lipids metabolism through XBP1 and modulation of endoplasmic reticulum stress in mice**

**Authors:** SHO NAGANO[1]; MASAFUMI ONO[1]; TSUNEHIRO OCHI[1]; KENSUKE MUNEKAGE[1]; YUKARI YANO[1]; HIROSHI MIZUTA[1]; MITSUNARI OGASAWARA[1]; AKIRA HIROSE[1]; YASUKO NOZAKI[1]; NOBUTO OKAMOTO[1]; SHINJI WASKI[1]; JUDE A OBEN[2,3]; TOSHIJI SAIBARA[1]  
**Affiliations:** [1]Department of Gastroenterology and Hepatology, Kochi Medical School, Kochi, Japan; [2]Institute for Liver and Digestive Health, Royal Free Hospital, University College London; and [3]Department of Gastroenterology & and Hepatology, Guy’s and St. Thomas’ Hospital, London, United Kingdom  

**Background:** Nonalcoholic steatohepatitis (NASH) is the major cause of chronic liver disease worldwide. Endoplasmic reticulum (ER) stress is considered to be an important pathological characteristic in NASH. A sequence variation (II48M) in the patatin-like phospholipase domain-containing protein 3/adiponutrin (PNPLA3) gene is known to be associated with the development of NASH. However, PNPLA3 deficient has been considered to not be associated with fatty liver disease. To clarify, therefore, the role of PNPLA3 in liver, we established PNPLA3 knockout (KO) mice and investigated the phenotypes and involved factors under ER stress. **Methods:** ER stress was induced by intra-peritoneal injection with tunicamycin or with saline at 0 and 24 hours in KO and C57BL/6 (WT) mice. At 48 hours after the starting of treatment, blood and liver samples were studied. **Results:** Hepatic steatosis and triglyceride content were
remarkably increased in WT mice than in KO mice under ER stress. The hepatic palmitate/oleate ratio was significantly higher originally in KO mice than in WT mice. Moreover, the expression of stearoyl-CoA desaturase-1 (SCD1) in KO mice under ER stress was decreased further than that in WT mice. Expression of ER stress markers X-box binding protein 1 (XBP1) and ERdj4 was increased in WT mice but not in KO mice under ER stress. **Conclusions:** We first demonstrated the hepatic phenotype of PNPLA3 deficient under ER stress. Our observations would indicate that PNPLA3 has an important role in hepatic fatty acid metabolism and triglyceride accumulation through XBP1 under ER stress.

**# P-0812 Sorafenib-related hand and foot syndrome as an effect predictor in hepatocellular carcinoma patients**

**Authors:** MASANORI OCHI; ATSUSHI OKAWARA; NOBUSHIGE KAKINOKI; TOSHIRO KAMOSHIDA; SHINGI HIRAI

**Affiliation:** Department of Gastroenterology, Hitachi General Hospital, Ibaraki, Japan

**Background:** Sorafenib frequently causes hand and foot syndrome (HFS). However, only a few reports have been published on the effects of sorafenib on hepatocellular carcinoma. We have established a system to collaborate with pharmacists in order to take measures against HFS in patients receiving sorafenib. **Methods:** Grade 1 or higher skin disorders were regarded as the presence of HFS, while Grade 0 was regarded as the absence of HFS. The therapeutic effects of sorafenib were examined based on the presence or absence of HFS in 37 Child-Pugh A and Performance Status 0 patients who received multidisciplinary treatment (e.g., TACE) between May 2009 and March 2017. **Results:** Grade 1 or higher HFS was present in 21 cases (57%), and HFS was absent in 16 cases (43%). The median administration period of sorafenib in all cases was 2.1 months. The median administration periods in the groups with and without HFS were 2.7 and 1.2 months, respectively (P = 0.005). A survival analysis by the Kaplan-Meier method showed a median survival time of 5.2 months in all cases. The median survival times in the groups with and without HFS were 7.8 and 3.0 months, respectively (P < 0.001). A multivariate analysis revealed HFS (hazard ratio, 0.30; P < 0.05) and the administration period (hazard ratio, 0.45; P < 0.05) to be significant prognostic factors. **Conclusion:** HFS served as a predictor of the effects of sorafenib on hepatocellular carcinoma. We have established a system to collaborate with pharmacists in order to take measures against HFS in patients receiving sorafenib. In the present study, this system may have facilitated the longest administration period and improved prognosis.

**# P-0813 Two cases of non-cirrhotic primary biliary cirrhosis with complicating hepatocellular carcinoma**

**Authors:** AYUMI SUGIURA; SATORU JOSHITA; YUKI YAMASHITA; YU HIHARA; NAOYUKI FUJIMORI; TOMOO YAMAZAKI; YASUHIRO MARUYAMA; SOUICHIRO SHIBATA; YUKI ICHIKAWA; TAKEFUMI KIMURA; TETSUYA ITO; MICHIHARU KOMATSU; TAKEJI UMEMURA; AKIHIRO MATSUMOTO; EJI TANAKA

**Affiliation:** Department of Gastroenterology, Shinshu University School of Medicine, Matsumoto, Japan

**Background:** Primary biliary cholangitis (PBC) is a chronic progressive liver disease predominantly affecting women that damages intrahepatic small bile ducts by autoimmune mechanisms. Some patients with PBC progress to liver cirrhosis, which can become complicated in rare cases with hepatocellular carcinoma (HCC). The predisposition factors for HCC are unclear in the clinical setting, although several reports have implicated the development to cirrhosis in PBC. We herein describe two PBC cases becoming complicated with HCC in a non-cirrhotic stage. **Case 1** was a 61-year-old woman who was treated for liver dysfunction and finally diagnosed as having PBC by anti-mitochondrial antibody (AMA) positivity. Despite a response to UDCA, a hypochoic mass lesion of 20 mm was detected in the right lobe by abdominal ultrasonography at the age of 80 years. Complicating HCC was diagnosed based on elevated levels of tumor markers such as alpha-fetoprotein (33.0 ng/mL) and protein induced by vitamin K absence or antagonist II (45 mAU/mL) along with imaging confirmation by computed tomography (CT). Transcatheter arterial chemo embolization (TACE) therapy did not prevent a recurrence, and she died at 82 years of age. A liver specimen at autopsy revealed Scheuer stage III PBC but multiple dissemination of HCC throughout the liver. **Case 2** was a 72-year-old woman who was diagnosed as having PBC by AMA positivity and Scheuer stage III cholestasis by laparoscopic liver biopsy. Complicating HCC appeared following UDCA therapy for 10 years. CT and laboratory findings indicated that she was in a non-cirrhotic stage at HCC diagnosis. Her lesions are currently under control by means of TACE therapy. **Conclusion:** Clinicians should bear in mind that patients with an advanced but non-cirrhotic stage of PBC may become complicated with HCC. Further studies are needed to clarify the risk factors of HCC development in patients with non-cirrhotic PBC.

**# P-0841 The assessment cardiovascular risk in the Thai non-alcoholic steatohepatitis patients with Thai CV risk score**

**Author:** THANONGSAK CHAOJIN

**Affiliation:** Department of Internal Medicine, Songkhla Hospital, Thailand

**Background:** The Non-alcoholic fatty liver disease (NAFLD) is associated with increasing risk of cardiovascular disease. We determined the cardiovascular risk in the Thai non-alcoholic steatohepatitis patients with Thai CV risk score and evaluated risk factors. **Aim:** The purpose of this study is to use Thai CV risk score for detecting cardiovascular risk in NAFLD patients and to identify the predictive factors. **Methods:** We conducted a prospective study of patients who are known in NAFLD. Clinical, and biological parameters and liver stiffness measurement were evaluated on the same day. The estimated 10-year risk of cardiovascular disease were was calculated by Thai CV risk score. **Results:** A total of 101 patients were identified (45 men [44.5 %], 56 women 55.5 %). Mean aged 55 years; type 2 diabetes 14.8%; hypertension 30.6%; smoking 14.8%. The Cardiovascular risk score was 60.4%, 27.7%, and 11.9% for low, intermediate, and high risk. The factors associated with high cardiovascular risks were sex, P = 0.035; age, P = 0.0001; smoking, P = 0.011; hypertension, P = 0.0001; and diabetes, P = 0.001. Liver stiffness level was not associated with cardiovascular risk, P = 0.027. **Conclusion:** The NAFLD were a significant higher risk cardiovascular disease. Factors associated with high cardiovascular risk were sex, age, smoking, HT, and diabetes. Assessment of cardiovascular risk in NAFLD patients may be helpful for cardiovascular risk stratification.
# P-0861 Clinical predictors of advanced fibrosis in patient with non-alcoholic fatty liver disease (NAFLD)

**Authors:** W SIUA[1,2]; M ANDIGANIB[1,2]; A FRASERA[1,2]; B VIJAYANA[1,2]; L MCLEMANA[1,2]; S ENGLISHA[1,2]; A MUKHOPADHYAA[1,2]

**Affiliation:** [1]Aberdeen Royal Infirmary, and [2]University of Aberdeen, UK

**Background:** AFLD is a spectrum of disease, and patients with advanced fibrosis are at increased risk of cardiovascular and liver–related deaths. Our retrospective study aims to examine the clinical and biochemical predictors of advanced fibrosis.

**Methods:** 905 Nine hundred and five patients with NAFLD underwent fibroscan at Aberdeen Royal Infirmary from March 2013 to November 2016. 417 Four hundred and seventeen patients with liver stiffness measurement (LSM) > 7 kPa underwent electronic medical record reviews. Clinical, radiological, and biochemical data were collected. Data included in the study are within 1 year from the date of the fibroscan. Patients were split into two groups according to their fibroscan results as follows: LSM 7.1 to 12 kPa (represents mild to moderate fibrosis) and LSM > 12 kPa (represents severe fibrosis/cirrhosis).

**Results:** The mean and standard deviation of each clinical parameter is calculated for continuous variables, and categorical variables are shown as percentages. Comparisons between groups are made using the Mann–Whitney tTest for continuous variables and Chi-Square tTest for categorical variables.

**Discussion:** Our study has confirmed that some components of metabolic syndrome are associated with advanced fibrosis in patients with NAFLD. Patients with poorly controlled diabetes and obesity are highly associated with advanced fibrosis while triglycerides and high-density lipoprotein have little correlation. Serum total cholesterol is interestingly inversely associated with severe fibrosis. Hypercholesterolaemia and presence of splenomegaly on ultrasound may be non-invasive markers of advanced fibrosis and can potentially complement the NAFLD fibrosis score.

| Type of Patients | LSM 7.1 to 12 kPa | LSM >12 kPa | P value |
|------------------|-----------------|-----------|--------|
| Number of Patients | 174 | 243 | <0.001 |
| Type II Diabetes | 67/174 (39%) | 155/243 (64%) | <0.001 |
| Gender (% of Male) | 106/174 (61%) | 137/243 (56%) | 0.35 |
| Splenomegaly on ultrasound | 30/144(21%) | 93/224 (42%) | <0.001 |
| Age | 57 ± 6 | 62 ± 13 | 0.006 |
| BMI kg/m² | 33 ± 6 | 35 ± 7 | 0.002 |
| ALT U/L | 74 ± 63 | 60 ± 43 | 0.001 |
| AST U/L | 55 ± 40 | 56 ± 40 | 0.356 |
| Platelet x10⁶/L | 236 ± 73 | 188 ± 75 | <0.001 |
| Bilirubin umol/L | 13 ± 1 | 14 ± 10 | 0.01 |
| INR | 1.1 ± 0.4 | 1.2 ± 0.4 | <0.001 |
| Sodium mmol/l | 140 ± 2 | 140 ± 3 | 0.113 |
| Creatinine umol/l | 75 ± 19 | 72 ± 23 | 0.025 |
| Total Cholesterol mmol/l | 5 ± 1.3 | 4.5 ± 1.2 | <0.001 |
| High-density lipoprotein (HDL) mmol/l | 1.3 ± 0.4 | 1.2 ± 0.4 | 0.87 |
| Triglycerides mmol/l | 2.5 ± 1.6 | 2.3 ± 1.7 | 0.128 |
| Albumin g/L | 41 ± 4 | 39 ± 5 | <0.001 |
| HbA1C mmol/mol | 53 ± 21 | 60 ± 22 | 0.002 |
| NAFLD score | -0.96 ±1.64 | 0.69 ±1.58 | <0.001 |
| AST to Platelet Ratio Index (APRI) | 0.62 ± 0.49 | 0.89 ± 0.91 | <0.001 |

# P-0881 Clinical chronic hepatitis C: Direct acting antiviral-drug treatment and the Peg-IFNα2a low-dose, device of individual medical treatment for elderly patients, paying attention to insulin resistance and carcinogenic prevention

**Authors:** MASAHIKO SUGANO; TAKAKO MATSUNO

**Affiliation:** Sugano Internal Medicine Clinic, Himeji-City, Japan

**Background:** There are many elderly patients with higher risk for HCC at our clinic. Hepatitis C treatment is likely to interferon-free-therapy (DAA). In spite of the high SVR rate, all instances are difficult to regard as adaptation of DAA by side effects, taking compliance, and the medical expenses. In addition, Peg-IFNα2a Low-dose therapy is also introduced from the viewpoint of carcinogenic prevention. We have investigated the safety and efficacy of these treatments in comparison of each other.

**Method:** 27 Twenty-seven patients were introduced to DAA-Thrapy. Only 4 four examples are for each of Gr1,2 in Sofosbuvir. The effects and side effects are considered with 10 examples of Daclatasvir/ Asunaprevir (Group-D: 69 years. old, M/F = 3/7), 9 nine cases of Ombitasvir/Paritaprevir/Ritonavir (Gr-O: 61, 7/2) and 18 examples of Peg-IFNα2a (Gr-I: 65, 9/9). Side effects like fatigue, alopecia, appetite loss, depression, and cold symptoms were scored (0—3). 

**Result:** Gr-D (HCV-RNA 6.0 logIU/mL) was vVirus-disappearance: 4W:5 cases, 8W:7, 12W:8, 20W:9, and SVR:70% (7/10); ALT: bBefore 30.6 IU/L / aAfter 16.9, AFP: 13.5/4.1, HOMA-R: 2.1/1.6, M2BPGI: 2.98/2.02, Liver Fibrosis Index 2.31/ 2.18, 4 four examples rise transiently in T-Bil (> 0.2). Gr-O (5.1) was vVirus-disappearance: 4W:7, 8W:9, 12W:9, and SVR: 100% (6/6); 56.6/17.6, 8.0/3.3, 1.8/1.5, 3.68/ 1.81, 2.04/ 2.04, 6 rise T-Bil. Gr-I (5.3) vVirus-negative-rate was 50% (24W), 50(48), 40(96), 33(144), 33(192), and SVR: 60% (6/10 cessation cases). 

**Side Effects:** They are fatigue (Gr-D:1.0/Gr-O:0.56/Gr-I:1.0), appetite loss (0.70/0.56/0.72), alopecia (0.20/0.0/0.39), depression (0.30/0.33/0.33), and cold symptoms (0.80/0.89/0.33). The former two were higher in Gr-D and Gr-I. They are eczema (50%/56/68), eruption (63/56/70), stomatitis (24W), 50(48), 40(96), 33(144), 33(192), and SVR: 100% (6/10 cessation cases).
(13/0/28), insomnia (0/25/22), and energy fall (0/13/6). Additionally, Gr-D is 50 % of increase of body weight and abdominal fullness is 56 % for Gr-O. Conclusion: Gr-O is early virus negative-ization. It also has a higher SVR rate than Gr-D, which improves HOMA-R. There is a different tendency about side effects in the two groups. Gr-I is not strong in side effects. Therefore, it is easy to be used for outpatients with each crowd, and ALT, AFP, and HOMA-R is are also improved. When taking compliance is also considered, IFN-α is also regarded as one of the choices.

**# P-0895 The correlation between triglyceride levels and steatosis degree using controlled attenuation parameter on nonalcoholic fatty liver disease patients**

**Authors:** ANGGILIA STEPHANIE[1]; RINO A GANI[2]; DYAH PURNAMASARI[3]; HAMZAH SHATRI[4]

**Affiliations:** [1]Internal Medicine Department, [2]Hepatobiliary Division, and [3]Endocrine and Metabolic Division; and [4]Clinical Epidemiology Unit, Internal Medicine Department Faculty of Medicine University of Indonesia-RSUPN Dr. Cipto Mangunkusumo, Jakarta, Indonesia

**Background:** NAFLD presents as the most common cause of elevated liver enzymes and cirrhosis nowadays. Triglyceride, a primary component in steatotic cell, is known to be associated with NAFLD. However, correlation between the triglyceride levels in serum and steatosis degree, has not yet understood. This is the first study in Indonesia using Controlled Attenuation Parameter (CAP) in NAFLD patients. We aim to find correlation between a simple test, triglyceride level, with a quantitative CAP value, and also gain optimal cut-off point of triglyceride for predicting moderate to severe NAFLD.

**Methods:** A cross-sectional study on adult NAFLD patient, recruited consecutively in outpatient for four months, excluding cirrhosis. Diagnosis of NAFLD using ultrasound. Steatosis degree was assessed using CAP in Fibroscan®. Triglyceride tests using fasting blood samples. The correlation between triglyceride levels with CAP values were analyzed by Pearson test.

**Results:** Sixty-two NAFLD subjects, with a median age of 55 (range 21–78) years. Median value of BMI was 26.1 (range 19–38) kg/m², mean for waist circumference was 96.6 (SD: 8.49) cm. Mean for triglyceride was 160.3 (SD: 65.5) mg/dL, and CAP value was 268.5 (SD: 46.8) dB/m. Central obesity found in as many as 94.8% of subject. Comorbidities such as hypertension, type 2 diabetes, and metabolic syndrome was found at 46.8%, 54.8%, and 72.6%, respectively. In this study, we found a weak correlation between triglyceride values and CAP (r = 0.272; P = 0.033). From the ROC, we find that the capability of predicting steatosis degree was not good enough (AUC 0.66, 95% CI 0.48 to 0.83). Therefore, cut-off point of TG was not assessed.

**Conclusion:** There is a weak correlation between triglyceride levels and degree of steatosis in patients with NAFLD. Triglyceride level cannot be used solely for assessment of steatosis degree. Controlled Attenuation Parameter; NAFLD; Triglyceride.

**# P-0938 Comparing the BCLC and HKLC staging systems in the management of hepatocellular carcinoma in a tertiary centre in Malaysia**

**Authors:** SUMITRA ROPINI KARUTHAN[1]; WAH KHEONG CHAN[2]; PENG SOON KOH[3]; KARUTHAN CHINNA[4]

**Affiliation:** [1]Faculty of Medicine, [2]Gastroenterology and Hepatology Unit, Department of Medicine, Faculty of Medicine [3]HPB Unit, Department of Surgery, Faculty of Medicine, [4]Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

**Background:** Hepatocellular carcinoma (HCC) is the second leading cause of cancer-related mortality worldwide. The Barcelona Clinic Liver Cancer (BCLC) staging system is widely used in the management of HCC. However, a recent study showed that the Hong Kong Liver Cancer (HKLC) staging system is superior compared with the BCLC system in identifying subsets of patients for more aggressive treatments.

**Objective:** The objective of this study was to compare these two staging systems in a tertiary centre in Malaysia.

**Methods:** This was a retrospective review of all newly diagnosed HCC cases at the University of Malaya Medical Center between 2011 and 2014. Patients were staged according to the BCLC and HKLC staging systems. The Kaplan–Meier curve was used to analyze the survival times, and the log-log rank test was used to compare survival times between stages. To test the agreement between the two staging systems, weighted kappa was used.

**Results:** Data for 190 patients were analyzed (mean age 61.7 ± 12.3 years old, 73.2% male). The most common etiology was chronic hepatitis B infection, and 62.1% of patients had liver cirrhosis at the time of presentation. Although the survival times were significantly different across the stages (P-value < 0.05 using either staging systems), there was a lack of agreement between the BCLC and HKLC staging systems (weighted kappa = 0.519, 95% CI 0.449−0.589). In pairwise comparisons between the 5 stages of BCLC and HKLC staging systems, there was significant difference in the median survival times in BCLC Stage A versus HKLC Stage 2 and BCLC Stage C versus HKLC Stage 4 (P-value < 0.05).

**Conclusion:** There is lack of agreement between the two staging systems with significant difference in the median survival times observed between BCLC Stage A versus HKLC Stage 2 and BCLC Stage C versus HKLC Stage 4.
# P-0941 Does diabetes increase the risk of hepatocellular carcinoma after hepatitis B surface antigen (HBsAg) seroclearance? A territory-wide study of 4,568 patients

Authors: TERRY YIP-CHEUK FUNG[1,2]; HENRY LIK-YUEN CHAN[1,2,3]; VINCENT WAI-SUN WONG[1,2,3]; YEE-KIT TSE[1,2]; GRACE LAI-HUNG WONG[1,2,3]

Affiliations: [1]Institute of Digestive Disease, and [2]Department of Medicine and Therapeutics, and [3]State Key Laboratory of Digestive Disease, The Chinese University of Hong Kong, Hong Kong

Background: In patients with chronic hepatitis B (CHB), the presence of diabetes mellitus (DM) is associated with a 2.5-fold increase in the risk of hepatocellular carcinoma (HCC). This territory-wide study evaluated the risk of HCC after hepatitis B surface antigen (HBsAg) seroclearance and the impact of DM on HCC development. Methods: All CHB patients who have cleared HBsAg from January 2000 to August 2016 were retrieved from Hospital Authority, Hong Kong. The age at HBsAg seroclearance, gender, diagnosis codes of DM, medication, and subsequent development of HCC were captured and analyzed. The presence of DM was defined by the diagnosis codes and/or any exposure to anti-diabetic agents. Results: A total of 4,568 patients with HBsAg seroclearance were identified. At a median (interquartile range) follow-up of 3.4 (1.5–5.0) years, 54 patients developed HCC; the cumulative incidence of HCC at 1, 3, and 5 years were 0.9% (95% confidence interval [CI] 0.6–1.2%), 1.3% (1.0–1.7%), and 1.5% (1.1–1.9%), respectively. Among 1,221 patients (26.7%) with DM, 22 (1.8%) developed HCC; the 5-year cumulative incidence of HCC in patients with and without DM were 2.5% (95% CI 1.6–3.9%) and 1.1% (0.8–1.6%), respectively (log-rank test, P = 0.012) (hazard ratio [HR] 1.98, 95% CI 1.15–3.41; P = 0.014). In the subgroup of patients with DM, the use of statins (HR 0.36, 95% CI 0.15–0.89; P = 0.026), but not metformin (HR 1.30, 95% CI 0.44–3.84; P = 0.635), was associated with a reduced risk of HCC development. Conclusion: The risk of HCC may still persist in CHB patients who achieved HBsAg seroclearance, with the presence of DM as a risk factor. The use of statins among patients with DM is associated with a lower risk of HCC development.

# P-0942 The effect of dDactlasvir and sSofosbuvir with or without ribavirin on liver function in patients with no liver fibrosis and advanced liver cirrhosis patients

Authors: AMAL SHAMMARI[1]; MOHAMMED ALGHAMDI[2]; NAWAF ALZAKARY[2]

Affiliation: [1]Department of preventive medicine, King Fahad Military Medical Complex, and [2]King Fahad Military Medical Complex Dhahran, Saudi Arabia

Introduction: In this study, we are looking at the effect of dDactlasvir and sofosbuvir with or without ribavirin on liver function in patients with no liver fibrosis and advanced liver cirrhosis patients. Methods: This study included 18 patients with HCV infection. They received dactlasvir 60 mg once daily, pan-genetic NS5A inhibitor, IL28B genoln combination with sofosbuvir 400 mg once daily, NS5B inhibitor, and / or ribavirin at 500 mg/day for 12 weeks. Total and direct bilirubin, Alanine Aminotransferase (ALT), and Aspartate Aminotransferase (AST) before treatment, 4, 8, and 12 weeks after initiating treatment and 4 weeks post treatment were collected and observed. Results: 18 Eighteen patients were recruited: 50% males and 50% females. About 50% of patients had no or mild liver fibrosis, and 50% were cirrhotic.; 16% genotype 1, 5.5% genotype 1A, 11.1% genotype 1B, 5.5% genotype 3, and 61.1% genotype 4; 39% treatment—experienced and 61% were treatment—naive. Total bilirubin mean values are 13.85, 18.42, 11.42, 11.57, and 10.14 Umol/L at baseline, 4, 8, and 12 weeks after starting the treatment and 4 weeks post treatment in the treatment naive group in comparison to 11.22, 13.13, 9.09, 9.45, and 6.63 Umol/L in the treatment experienced group. However, this elevation is not significantly associated with previous treatment. P-value is 0.046. Direct bilirubin is elevated in advanced liver cirrhosis (Fibroscan 3 and 4). It is significantly increased after 8 weeks of starting the treatment (P-value 0.031). Meanwhile, AST and ALT mean values were gradually decreasing from baseline to 4 weeks post treatment. Conclusion: Total bilirubin was the highest value at base line in both groups. Further increase is observed in the first 8 weeks of treatment, mainly in dDactlasvir. However, it comes to reduction after the completion of treatment.

# P-0952 Aptamers against the serum of AFP-negative hepatoma: Selection, diagnostic evaluation, and target protein capture and proteomic analysis

Authors: TING WANG; KUN-HE ZHANG; PIAO-PING HU; QIN-SI WAN; ZENG-YONG HUANG; PAN ZHANG; DE-QIANG HUANG; NONG-HUA LV

Affiliation: Department of Gastroenterology, The First Affiliated Hospital of Nanchang University, Jiangxi Institute of Gastroenterology & and Hepatology, Nanchang, China

Background/Aims: The diagnosis of alpha-fetoprotein-negative primary hepatic carcinoma (ANHC) is a big challenge. Aptamers are nucleic acid ligands of biological molecules, which are selected by systematic evolution of ligands by exponential enrichment (SELEX) and valuable in molecular detection and biomarker discovery. In this study, we selected specific aptamers against ANHC serum, evaluated their diagnostic values, and captured and analyzed their protein targets in serum. Methods: Aptamers against ANHC serum were selected by subtractive-SELEX, and their specificities were evaluated by 12% polyacrylamide gel electrophoresis (PAGE), and their diagnostic values were evaluated by aptamer-based single tube triple serum fluorescence detection method. Aptamer targets were captured based on magnetic bead isolation method and analyzed by proteomic approach. This research has been approved by the Ethical Committee of the First Affiliated Hospital of Nanchang University. Results: We successfully isolated 120 ANHC aptamers after 6 rounds of positive selection followed by 2 rounds of negative selection. Some aptamers showed stronger binding bands with sera of ANHC than that of liver cirrhosis (LC), chronic hepatitis (CH), and normal controls (NC) in PAGE. Three aptamers were analyzed in 703 cases of ANHC, LC, CH, and NC in PAGE. The AUROC of 0.713–0.933 for diagnosing ANHC. The AUROCs of models established by combining the three aptamers for diagnosing ANHC were higher than 0.95, with sensitivity, specificity, and accuracy all more than 90%. We successfully captured 45 serum target proteins expressed only in ANHC serum by the three aptamers, and proteomic analyses showed that they are mainly extracellular molecules with binding functions and most of them are cancer-related proteins, indicating that some of them may be potential serum biomarkers of ANHC. Conclusion: We successfully selected a group of aptamers against ANHC serum with good diagnostic value, and found that some of their serum target proteins are potential biomarkers of ANHC. Keywords: AFP-negative primary hepatic carcinoma; Aptamer; SELEX; Diagnostic value; Target protein capture; Proteomic analysis
# P-0953 Diagnostic value of Glypican-3 aptamers for primary hepatic carcinoma

**Authors:** TING WANG; PAN ZHANG; KUN-HE ZHANG; FEI-BING LUO; QIN-SI WAN; FANG-LI HAN; HAI-LIANG YUAN; DE-QIANG HUANG; NONG-HUA LV

**Affiliation:** Department of Gastroenterology, The First Affiliated Hospital of Nanchang University, Jiangxi Institute of Gastroenterology & and Hepatology, Nanchang, China

**Background/Aims:** Glypican-3 (GPC3) is specifically expressed in primary hepatic carcinoma (PHC) tissue and could release into blood as a potential biomarker for the diagnosis of PHC. Previously, we selected a group of aptamers against GPC3. The present study was to evaluate their diagnostic value for PHC.

**Methods:** Serum specimens and clinical data were randomly collected from patients with PHC (n = 144), liver cirrhosis (LC) (n = 158), chronic hepatitis (CH) (n = 126), and normal control (NC) (n = 100) in the First Affiliated Hospital of Nanchang University. Serum fluorescence intensities before and after aptamers were measured by aptamer-based single tube triple serum fluorescence method we developed previously. Serum GPC3 level was detected by ELISA. The areas under the receiver operating characteristic curves (AUROCs) were used to evaluate their diagnostic value for PHC. This research has been approved by the Ethical Committee of the First Affiliated Hospital of Nanchang University.

**Results:** The AUROCs of two aptamers (AP-GPC3-13 and AP-GPC3-27) for differentiating PHC from non-PHC were about 0.75 with single fluorescence indicator and 0.9 with multiple fluorescence indicators. The combination of the two aptamers showed more powerful for diagnosing PHC than that with single aptamer, with AUROC, specificity, specificity, and accuracy all more than 0.9. In 55 cases of small PHC (≤ 3 cm), the positive rates of the two aptamers in single and combination analysis were 63.6%, 49.1%, and 74.5%, respectively, higher than that of AFP (43.6%). In 68 cases of AFP-negative PHC, the positive rates of the two aptamers in single and combination analysis were 70.6%, 69.1%, and 83.8%, respectively. However, the AUROC of GPC3 detected by ELISA was 0.575, and other tumor markers (CEA, CA125, CA19-9) were not significant for PHC diagnosis.

**Conclusion:** GPC3 aptamers are valuable for the diagnosis of PHC and superior to serum GPC3 and AFP, especially in aptamers combination.

**Keywords:** Aptamer; Primary hepatic carcinoma; Diagnosis; Glypican-3; Fluorescence; Serum

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# P-0958 Generic sofosbuvir-based therapy is associated with high response rate in patients with hepatitis C virus infection in a real-life scenario

**Authors:** SWATANTRA GUPTA; GYANRANJAN ROUT; RAHUL; SHEKHAR; GYAN RANJAN; ASHISH; BAIBASWATA NAYAK; SAURABH KEDIA; SHALIMAR

**Affiliation:** Department of Gastroenterology, All India Institute of Medical Sciences, New Delhi, India

**Background & Objectives:** Standard of care for hepatitis C virus (HCV) infection is Sofosbuvir-based therapies. Various drugs used in combination include Peginterferon, Daclatasvir, Ledipasvir, and Ribavirin. Multiple generic brands are available in India. We aimed to assess the outcomes of generic Sofosbuvir-based therapy in a real clinical life scenario.

**Methods:** Consecutive HCV patients treated with sofosbuvir-based regimens were included. Detailed clinical, demographical profile, laboratory parameters, and prior therapies received were noted. The combination and duration of therapy of drugs was as per the AASLD guidelines for management of HCV infection. End of treatment response and sustained virological response (SVR) at 12 weeks were documented. The surveillance of primary hepatic carcinoma (PHC) occurrence in patients with liver cirrhosis is a challenge, especially in the early stage of PHC. The present study was to distinguish patients with PHC (group LCC) from that without PHC (group LC) by using serum fluorescence combined with conventional laboratory tests. Methods: The serum specimens and clinical data of patients with PHC were collected. The autofluorescence and nucleic acid-related fluorescence (after adding EvaGreen) were measured in each serum specimen. The area under the receiver operating characteristic curve (AUROC) was used to evaluate the value of serum fluorescence and clinical indicators alone and combination (by logistic stepwise regression modeling) for distinguishing the patients with PHC from that without PHC.

**Results:** The average age of LCC group (n = 132) was significantly higher than that of LC group (n = 330) (54.4 ± 11.1 vs. 50.8 ± 12.0, P = 0.03). All indicators of autofluorescence and nucleic acid-related fluorescence significantly differed between two groups (P = 0.000–0.036). Single fluorescence indicators were not valuable for differentiating LC from LCC (AUROCs 0.554–0.623), but the combination of 5 five indicators could increase AUROC to 0.766. The AUROC of combination of fluorescence indicators with serum AFP and age was higher than that with single AFP (0.898, 95% CI 0.865–0.930 vs. 0.818, 95% CI 0.771–0.865). The AUROC of combination of fluorescence indicators with liver function tests and age was higher than that with liver function tests alone (0.853, 95% CI 0.814–0.893 vs. 0.784, 95% CI 0.737–0.832). The AUROC of combination of fluorescence indicators with AFP, age, and liver function tests was 0.917 (95% CI 0.888–0.947), with sensitivity, specificity, and accuracy 80.9%, 87.9%, and 85.9%, and the positive rates were 68.4% (26/38), 61.4% (35/57), and 69.2% (36/52) in small (≤ <3 cm), AFP-negative (AFP < 20 ng/ml), and PHCs in BCLC stage A.

**Conclusion:** Serum fluorescence combined with conventional laboratory tests is valuable for diagnosing liver cirrhosis complicated with primary hepatic carcinoma.

**Keywords:** Liver cirrhosis; Primary hepatic carcinoma; Serum autofluorescence; Nucleic acid-related serum fluorescence; Diagnosis
Drug-induced liver injury is considered as one of the most common adverse drug reactions among patients taking anti-tuberculosis drugs. Several hepatoprotectants have been evaluated in preventing anti-tuberculosis drug-induced liver injury (AT-DILI). Most studies are small and limited, and no drug is proven to significantly prevent AT-DILI. Silymarin, a traditional herbal drug extracted from Silybum marianum, has been used as a hepatoprotectant that has been shown to prevent AT-DILI in several animal studies. Recent treatment trials in humans, have conflicting results. The objective of this study is to evaluate the hepatoprotective effect of Silymarin in preventing drug-induced liver injury in adult patients being treated with anti-tuberculosis drugs. A comprehensive search of Medline (via Pubmed), the Cochrane Library, Science Direct, Biomed Central, and EMBASE was performed for English-language literature about Silymarin and AT-DILI from inception to November 2016. The papers were filtered using predefined inclusion and exclusion criteria. Included studies were randomized controlled trials comparing Silymarin to placebo in preventing the development of AT-DILI in adults diagnosed with Tuberculosis who are to receive the standard anti-TB regimen. Three papers were identified and included in this meta-analysis. The sample comprised a pooled total of 494 patients, of which 244 and 250 patients took Silymarin and placebo, respectively. The difference between Silymarin and placebo groups in incidence of AT-DILI in adult patients with tuberculosis was not statistically significant (RR = 1.04; 95% CI = 0.34–3.23; P = 0.03). Results show significant heterogeneity, which were attributed to differences in AT-DILI definitions, frequency, and duration of laboratory monitoring, duration of hepatoprotectant treatment, and small sample sizes. The difference in incidence of other adverse events was also not significant between Silymarin and placebo groups (RR = 1.07; 95% CI = 0.84–1.37; P = 0.02). While Silymarin has an acceptable safety profile, available evidence from limited studies suggest that it exhibits no significant hepatoprotective effect against anti-Tuberculosis drug-related liver injury.

**# P-0967 Silymarin for prevention of anti-Tuberculosis drug-induced liver injury: Aa meta-analysis**

**Authors:** GERALDINE CLAIRE O FLORO; ADRIAN MANUEL FAUSTO; MARIEL DIANNE VELASCO; JENIS EMMANUEL CAMENFORTE; MARK ANTHONY DE LUSONG

**Affiliation:** Section of Gastroenterology, Department of Medicine, University of the Philippines—Philippine General Hospital

**# P-0990 Uncertain association between Tenofovir and eGFR reduction in patients with chronic hepatitis B**

**Authors:** KWANG IL SEO; BYUNG CHUL YUN; SANG U K LEE; BYUNG HOON HAN; EUN TAEK PARK; JIN WOOK LEE; SEO A E HAN; DOHYEONG LEE; SUNG JUN KIM

**Affiliation:** Department of Internal Medicine, Kosin University College of Medicine, Busan, Korea

**Aims:** Tenofovir disoproxil fumarate (TDF) is known to be associated with nephrotoxicity in patients with human immunodeficiency virus (HIV). TDF is a potent antiviral agent to treat chronic hepatitis B (CHB) infections, and the prescription has been increased rapidly in worldwide. Intermittently, nephrotoxicities due to TDF in CHB patients were reported in some cases. Therefore, we have been interested in the real-life incidence of renal toxicity in CHB patients treated with TDF.

**Methods:** From January 2012 to December 2014, medical records of patients who had been treated with TDF or entecavir (ETV) in Kosin University Gospel Hospital were reviewed retrospectively, focused on the estimated GFR (eGFR) reduction. Patients with CHB treated for 30 days or less, and 45 patients without follow-up creatinine level were excluded. The following patients were also excluded : baseline eGFR < 60 (ml/min/1.73 m²) patients (n = 9), polycystic kidney disease (n = 1), decreased eGFR due to aggravating factor (n = 17). Among 198 patients, 99 received TDF and 99 ETV. In 18 patients, eGFR was reduced by more than 30% compared to with baseline. Half of them treated with TDF and the other half with ETV. Baseline eGFR (P = 0.006) and age (P = 0.015) were significantly correlated with eGFR reduction. The presence of LC (P = 0.684), nNon-selective beta blocker (P = 0.309), type of antiviral agents (P = 0.927), and BMI (P = 0.965) were not associated with the eGFR reduction. Subgroup analysis of CKD stage 2 (60 < eGFR < 90) or older than 60 years did not show any significant association between antiviral agents and eGFR reduction. More than 30% reduction of eGFR was observed in 9% CHB patients receiving antiviral agents. Baseline eGFR and age were significantly correlated with eGFR reduction. There was no significant correlation between the type of antiviral agents (TDF of ETV) and the increase in renal function.

**Conclusions:** There was no significant correlation between the type of antiviral agents (TDF of ETV) and the decrease in renal function.
# P-1016 SPADERE: BGHMC spectrum of alcoholic liver disease (ALD) among patients enrolled at Baguio General Hospital and Medical Center Substance Abuse-use Disorder and Treatment Unit (BGHMC-SUDOTRU): A prevalence study

Authors: JONATHAN VIERNES; MARIE ELLEAINE VELASQUEZ
Affiliation: Department of Internal Medicine, Baguio General Hospital and Medical Center, Baguio City, Philippines

Background: BGHMC-SUDOTRU caters to patients requiring rehabilitation for alcoholic dependence and abuse. It serves as a rehabilitation center of patients from Baguio and nearby provinces. To date, no studies are available describing the clinicino-epidemiologic profile and prevalence of ALD among these patients, hence, the conceptualization of this research. Association with viral hepatitis also needs to be studied. Objective: This study aimed to determine the prevalence of alcoholic liver disease among alcoholic patients enrolled at BGHMC-SUDOTRU from July to September 2016. Methods: This is a prospective, cross-sectional study involving patients ≥ 19 years-old enrolled from July to September 2016. Patients managed for other drug or substance abuse were excluded. Interview was performed after informed consent was taken. Laboratory parameters (AST, ALT, HBsAg, anti-HCV) were determined and liver ultrasound was performed using IBM-SPSS. Results: 25 Twenty-five male alcoholic patients were enrolled. Mean alcohol consumption was 117 ± 66 grams, and the mean duration of alcohol intake of 24.3 ± 10 years. About 32% (n = 8) has alcoholic fatty liver, 4% (n = 1) has alcoholic liver cirrhosis, and 4% (n = 1) has alcoholic hepatitis, resulting to an over-all prevalence of ALD at 40%. The amount and duration of alcohol intake were not significant. The mean AST/ALT ratio was 1.21 ± 1 with alcoholic hepatitis having the highest AST/ALT ratio (4.71). AST and ALT of the patients across the spectrum were significantly different with alcoholic hepatitis having the highest AST and ALT. Hepatitis C was found in 1 one patient who was cirrhotic and another patient had hepatitis B but found to have normal liver by ultrasound. Conclusion: The prevalence of ALD among SUDOTRU patients is 40%. Amount and duration of alcohol intake did not differ between the spectrum of ALD. The liver transaminases were significantly higher in alcoholic hepatitis.

# P-1024 Can bile cast nephropathy progress in patients with liver failure: clue from PAX2 and epithelial mesenchymal transition markers in kidneys: An autopsy study

Authors: RITAMBHRA NADA[1]; C MURALIDARAN[1]; ASHWANI KUMAR[1]; SUVRADEEP MITRA[1]; AJAY DUSEJA[3]; VIVEK KUMAR[2]; K L GUPTA[2]; R K VASISHTA[1]; Y K CHAWLA[3]
Affiliation: [1]Departments of Histopathology, [2]Nephrology, [3]Hepatology, Post Graduate Institute of Medical Education and Research, Chandigarh, India

Background: Bile cast nephropathy (BCN) can cause acute kidney injury (AKI) in patients with acute liver failure (ALF), acute on chronic liver failure (ACLF), and chronic liver failure (CLF). Whether renal injury due to BCN will cause further renal damage is a matter of concern in patients with liver failure. We studied the tubular epithelial reaction in terms of dedifferentiation with potential to recovery using immune-histochemical re-expression of PAX2 and cytokeratin 8/18 and observed epithelial mesenchymal transition (EMT) using expression of vimentin, SMA, to predict ensuing renal fibrosis in patients with liver failure.

Methods: Autopsy cases of ALF (n = 6), ACLF (n = 14), and CLF (n = 5) were screened for evidence of BCN. IHC expression of PAX2, cytokeratin 8/18, vimentin, and SMA were analysed and compared with a control group (10 autopsy cases without renal or liver dysfunction). Dedifferentiation was defined with expression of PAX2 in areas other than collecting ducts and stronger intensity of CK8/18 in proximal tubules in comparison to distal tubules. Results: All patients with BCN (n = 6, ALF-1, ACLF-4, CLD -1) had kidney injury ([mean serum creatinine 5.2 mg/dl, 3.2–8.2 mg/dl]). All patients with BCN showed nuclear PAX2 and CK 8/18 in proximal tubular epithelial cells (TEC). In control group, CK8/18 was seen only in distal convoluted tubule, PAX2 in collecting ducts and parietal podocytes. TEC did not show expression of SMA or vimentin (EMT phenotype). There was no difference in expression of these IHC amongst patients with ALF, ACLF, or CLF. Conclusion: PAX2 and CK8/18 re-expression is a significant finding in BCN, which indicates initiation of repair processes. Absence of EMT phenotype in patients with liver failure indicates non-progression of renal fibrosis.

# P-1021 Pharmacological and non-pharmacological treatment improves quality of life in patients with nonalcoholic fatty liver disease (NAFLD)

Authors: MUKESH K RANJAN[1]; AJAY DUSEJA[2]; SANDEEP GROVER[3]; SUNIL TANEJA[2]; RADHA K DHIMAN[2]; YOGESH CHAWLA[2]
Affiliation: [1]Departments of Internal Medicine, [2]Hepatology, [3]Psychiatry, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Background: Quality of life (QOL) is affected in patients with nonalcoholic fatty liver disease (NAFLD). There is no data on improvement of QOL with pharmacological treatment in these patients. Present study assessed the QOL in patients with NAFLD before and after pharmacological and non-pharmacological treatment. Methods: One hundred patients with diagnosis of NAFLD on ultrasound were included in the prospective study after a written informed consent. Study had the approval of the Institute’s Ethics Committee. Patients were treated for 6 months with either life style modifications alone (n = 75, no NASH) or life style modifications + vitamin E (800 U/daily) ([n = 25, NASH based on liver stiffness measurement > 7 kPa]). Chronic liver disease questionnaire (CLDQ), impact of weight on quality of life-literate version (IWQOL-Lite), health health-promoting life style profile II (HPLP II) and body weight, and image and self self-esteem evaluation (B-WISE) scores were used to assess the improvement in QOL after treatment. Results: Baseline QOL was affected in 69 (69%) and 95 (95%) patients as assessed by CLDQ and HPLP II scores, which improved to 20% and 64% patients respectively after treatment. Overweight/obese patients and those with NASH had worse baseline QOL. After treatment, QOL improved from 4.63 ± 0.69 to 5.39 ± 0.52 (P < 0.001) in CLDQ, 2.10 ± 0.24 to 2.43 ± 0.22 (P < 0.001) in HPLP II, 1.89 ± 0.83 to 1.60 ± 0.62 (P < 0.001) in IWQOL-lite, and from 1.61 ± 0.23 to 1.71 ± 0.26 (P < 0.001) in B-WISE questionnaire. As per CLDQ and IWQOL-lite scores, improvement in QOL was significantly more in the overweight/obese patients who were able to reduce body weight. None of the scores showed any difference in the improvement of QOL between patients managed with lifestyle modifications alone and lifestyle style modifications + vitamin E. Conclusion: QOL is affected in majority of the patients with NAFLD which improves significantly after six 6 months of pharmacological and non-pharmacological treatment.
# P-1032 Safety and efficacy of sofosbuvir based regimen on patients with end stage renal disease: A single centre experience
Authors: CHINMAY BERA[1]; PRATIK DAS[2]; SANDIP PAL[1]
Affiliation: [1]Department of Gastroenterology, [2]Nephrology, RN Tagore International Institute of Cardiac Sciences, Kolkata, India

Introduction: Prevalence of chronic hepatitis C (CHC) is significantly higher in patients with end-stage renal disease, particularly those receiving haemodialysis. There are very few studies available to prove the safety and efficacy of sofosbuvir-based regimen for treatment of CHC in patients with ESRD. This is a single centre experience of using sofosbuvir-based therapy in patients with ESRD. Methods: Twenty-five patients with ESRD receiving haemodialysis were given sofosbuvir-based regimens after obtaining informed consent. Sofosbuvir (400 mg on alternate days) and daclatasvir (60 mg once daily) were given irrespective of genotypes. Duration of therapy was 24 weeks for patients with evidence of cirrhosis (n = 5) and 12 weeks for those without cirrhosis. Results: Twenty-five patients (12 males) aged 35 ± 22 (mean ± SD) years received sofosbuvir-based therapy between December, 2015 and December, 2016. Eighteen patients had genotype 3, six had genotype 1, and one had genotype 4. Baseline RNA level was 6.40 ± 0.57 log (mean ± SD). Five patients had imaging and endoscopic evidence of cirrhosis. Sixteen (64%) patients achieved sustained virological response (SVR12). Six patients achieved end of therapy response (ETR), and SVR12 is yet to be evaluated. Two patients were lost to follow up. One patient discontinued therapy due to development of extensive skin rash. Relapse was not seen in any of these patients and echocardiographic monitoring was not done. Conclusion: Sofosbuvir-based regimen found to be safe and effective in this small cohort of patients with ESRD and CHC. Further studies with drug levels measurements along with close monitoring of the side effects are needed for stronger recommendation.

# P-1045 Assessment of malnutrition by anthropometric methods and their correlation with outcome in patients with cirrhosis of liver
Authors: RAJENDRA GUNJAL; KRISHNADAS DEVADAS; VARUN TADKALKAR
Affiliation: Department of Medical Gastroenterology, Government medical college, Thiruvananthapuram, India

Background and Aims: Malnutrition is a quite common but frequently overlooked problem among patients with cirrhosis of liver. Malnourished cirrhotic patients have a higher rate of complications and an overall increased mortality. Subjective global assessment (SGA) has been considered as gold standard for the clinical assessment of malnutrition in these patients. This study used anthropometric methods of assessing malnutrition and correlated with clinical outcomes. Methods: This prospective study evaluated malnutrition by SGA, handgrip strength (HG), triceps skinfold thickness (TSF), mid-arm muscle circumference (MAMC) in outpatients with cirrhosis (n = 175), and healthy control group (n = 508) from January 2016 to August 2016 at Trivandrum Medical College and were followed over 6 months for incidence of major complications such as uncontrolled ascites, variceal bleed, hepatic encephalopathy, spontaneous bacterial peritonitis, and hepatorenal syndrome, and death. TSF, MAMC, HG below the 5th fifth percentile of healthy controls were considered as abnormal. Severity of cirrhosis was assessed by Child-Pugh score. Results: Among 175 patients with cirrhosis, 89 were Child-Pugh A and 86 were Child-Pugh B. Most common etiology was alcohol (58%). Prevalences of malnutrition were 47.4% by SGA, 19.4% by TSF, 26.3% by MAMC, and 66.3% by HG. HG method has sensitivity, specificity, positive predictive value, negative predictive value, and diagnostic accuracy of 69.9%, 37%, 50%, 57.6%, and 53.5%, respectively. Major complications were seen in 54.3% over 6 months, and the most common complication was variceal bleed. Mortality was 7.5% over 6 months. HG is the only method, which predicted a major complication among malnourished patients (P = 0.024). No significant differences were found by any method regarding mortality. Conclusions: HG was superior TSF, MAMC as well as, and SGA in the assessment of malnutrition in cirrhotic outpatients. HG was the only method which that predicted a significant clinical outcome over 6 months in malnourished cirrhotic patients.

# P-1055 Liver changes on ischemic injury reperfusion due to femoral artery ligation of New Zealand White Rabbit
Authors: S MAULANISA; Y MOENADJAT
Affiliation: Cipto Mangunkusumo Hospital, Indonesia

Objective: To investigate indirect impact of ischemia reperfusion injury of liver due to femoral artery ligation of New Zealand White Rabbit. Methods: This experimental study was conducted April to December 2015 using eleven New Zealand White Rabbis, and consist of three control animals and eight experimental animals. In the experimental group, the ligation was done on right common femoral artery for four hours, and then the ligation was released for eight hours. Then we performed laparotomy, and liver was taken. Liver was divided from the central, midzonal, and peripheral zone for histopathological examination. Biochemical examination was performed using malondialdehyde (MDA) and HIF-1α. For liver function examination, we performed enzyme transaminase and bilirubin examination of blood serum, and the variables were compared with rabbits without ischemic treatment. Statistical significance is found when P < 0.05. Results: Histomorphological changes of liver in the experimental group mostly found are sinusoidal dilatation. There was no statistically significant difference between the three liver zones with in P central = 0.06, P medial = 0.051, and P periiler = 0.160. MDA levels showed a significant increase in the experimental group on liver tissue (P = 0.012), indicating the presence of oxidative stress due to ischemia reperfusion injury. The difference in HIF-1α levels between experimental groups and controls with the largest difference is 0.665 ng / ml. Conclusions: Ischemia-reperfusion injury of the ligation femoral artery causes indirect impact of liver damage such as histomorphological changes and oxidative stress of hepatic cells.

# P-1056 Changes of liver fibrosis parameters after daclatasvir plus asunaprevir therapy in genotype 1b chronic hepatitis C Korean patients
Authors: WONSEOK KANG; DONG HYUN SINN; GEUM-YOUN GWAK; YONG-HAN PAIK; MOON SEOK CHOI; JOON HYEOK LEE; KWANG CHEOL KOH; SEUNG WOON PAIK
Affiliation: Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul 06351, South Korea

Background/Aims: We assessed the impact of sustained virological response (SVR12) on liver stiffness among genotype 1b CHC Korean patients who were treated with 24 weeks of daclatasvir and asunaprevir (DCV/ASV) therapy. Methods: Between July 2015 and July 2016, a total of 228 patients with genotype 1b chronic HCV infection were prospectively enrolled and underwent screening for the presence of HCV NS5A
P-1058 Efficacy and safety of ledipasvir/sofosbuvir therapy in HCV genotype 1 Korean patients
Authors: WONSEOK KANG; DONG HYUN SINN; GEUM-YOUN GWAK; YONG-HAN PAIK; MOON SEOK CHOI; JOON HYEOK LEE; KWANG CHEOL KOH; SEUNG WOON PAIK
Affiliation: Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul 06351, South Korea

Backgrounds/Aims: Ledipasvir/sofosbuvir therapy has demonstrated potent antiviral activity in patients with genotype 1 chronic hepatitis C virus (HCV) infection. Here, we assessed the efficacy and safety of ledipasvir/sofosbuvir therapy in a real-life cohort of Korean patients with genotype 1 chronic HCV infection. We also aimed to study whether successful antiviral therapy results in improvement of liver fibrosis parameters.

Methods: Between February 2016 and December 2016, a total of 39 patients with genotype 1 chronic HCV infection were retrospectively enrolled at Samsung Medical Center, Seoul, Korea. Clinical and laboratory findings including liver fibrosis parameters such as APRI and FIB-4 were collected at baseline and 12 weeks after completion of treatment. Results: Of 39 patients, 2 patients (5.1%) had genotype 1a and 37 (94.9%) had genotype 1b chronic HCV infection. Eighteen patients (46.2%) were treatment-naïve and 22 (56.4%) were treatment-experienced, including 2 patients who failed previous direct-acting antiviral treatment. Eight patients (20.5%) had cirrhosis. SVR12 was achieved in 39 patients (SVR12 100%). No serious adverse events were observed. A significant improvement of liver fibrosis parameters after achieving SVR12 was demonstrated by APRI and FIB-4 indices (1.532 vs. 0.6351, P < 0.001 and 5.392 vs. 3.553, P < 0.01, respectively).

Conclusions: Ledipasvir/sofosbuvir therapy has demonstrated high efficacy and safety for both treatment-naïve and treatment-experienced patients with HCV genotype 1 infection, including those who had previous exposure to other direct-acting antiviral agents. A significant improvement of liver fibrosis status was shown after achieving SVR12.

# P-1074 The cost effectiveness of rifaximin in hepatic encephalopathy is strongly influenced by quality of life improvements
Authors: JIANYI CALVIN KOH; KIERON LIM; DAN YOCK YOUNG

Background and Aim: Hepatic encephalopathy (HE) is a costly complication of chronic liver disease, and its therapy, mostly inpatient derives considerable morbidity and costs for such patients. Rifaximin has been shown in several studies to be cost-effective in the treatment of hepatic encephalopathy in France but not the United States. Patients with on rifaximin have reported significant improvements in quality of life (QOL) scores. The aim of this study is to models the cost effectiveness of rifaximin in hepatic encephalopathy, when factoring in QOL gains.

Methods: A Markov approach was developed with the base case of rifaximin use concomitantly with lactulose with patients that have experienced 2 two previous HE events. 2 Two models were evaluated: Model 1 where the utility of patients without overt HE in both arms having similar QOL, and Model 2 patients without HE on rifaximin had better QOL. Results and Discussion: For Model 1, using the base-case analyses and a willingness-to-pay threshold of SGD 65,000/QALY, the strategy of lactulose monotherapy is undominated (Table 1). Adding regular rifaximin to this group of patients, although prevents hepatic encephalopathy and subsequent costs of inpatient hospitalization, does not come out as a cost-effective strategy. For Model 2, adding regular rifaximin to lactulose is a cost-effective strategy with an ICER at SGD 44,072.71/QALY. Although in the base case (Model 1), rifaximin is not cost effective, but if its effect on improving the baseline QOL of cirrhotic patients (Model2) is taken into account, it then becomes cost cost-effective. Conclusion: This model suggests that rather than all recurrent HE patients, a targeted approach for patients might be a better use of limited healthcare resources, such as patients with minimal HE where the HE, although mild, poses a significant impact on the patient’s functioning and QOL.