Abstract for THASL 2020 for Oral presentation

Abstract#01

Alan Chuncharunee

Department of Medicine,Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Downstaging hepatocellular carcinoma to the Milan Criteria yields similar post-transplant outcomes to tumors within the Milan Criteria: A systematic review and meta-analysis study

Introduction: Hepatocellular carcinoma (HCC) is one of the most common indications for liver transplantation (LT). According to the EASL-EORTC guideline, LT in HCC that exceeds the Milan Criteria (MC) but was successfully downstaged (DS) to meet the MC are showed to have similar outcomes to those within the MC, however this assertion is still lacking the support of high-level studies. This systematic review and meta-analysis study was performed to compare the survival and recurrence outcomes between the DS and those within the MC to provide further evidence in support of this aspect of the current guideline.

Methods: Studies were identified from MEDLINE and SCOPUS since inception to August, 2019. Two independent screened titles, abstracts, and full articles to ensure relevance and eligibility. Data regarding disease-free survival and overall survival, along with the number of patients at risk, AFP level and downstaging protocol was extracted. This data was then converted to individual patient data and a Kaplan-Meier (KM) curve was constructed. A log-rank test and cox regression were applied to compare between both groups.

Results: 1201 studies were identified, 9 cohorts met the inclusion criteria (population of DS vs. those within the MC = 449 vs. 2039). The 1-, 3- and 5-year overall survival probabilities after LT were 86.3%,73.9% and 62.7% for the DS, and 81.6%, 72.5% and 66.4% for those within the MC. The pooled HR (95%CI) was 1.08(0.89-1.33;p-value=0.40) indicating a non-significant difference in risk of death between these two groups. Likewise, disease-free survival probabilities at 1-,3- and 5-year after transplant were very similar, i.e. 85.4%,73.0% and 64.0% in the DS group and 87.8%, 77.9% and 69.6% in those within the MC with HR of 1.21(0.59-1.46;p-value=0.37).

Conclusion: Applying the DS protocol for HCC exceeding the MC into the LT program is proven to provide promising post-transplant outcomes, overall survival and disease-free survival comparable to LT in HCC within the MC.

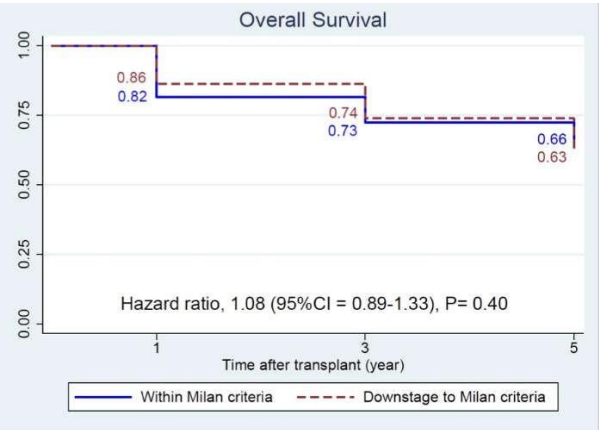


Fig 1: Kaplan Meier curve of overall survival

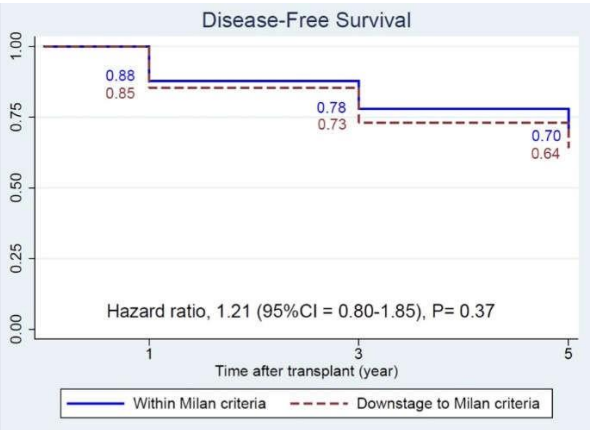


Fig 2: Kaplan Meier curve of disease-free survival

Abstract#02

Amorn Sankhaanurak

Department of Internal Medicine, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

Effect of simplifying protein counting tool and educational intervention on the nutritional status of patient with cirrhosis: A randomized clinical trial

Introduction: Protein-calorie malnutrition (PCM) is common problem in cirrhotic patients, and is associated with an increased morbidity and mortality. Diet plays a key role as a nutritional therapy in chronic liver disease. However, most of cirrhotic patients are not received the adequate nutrition counseling from their physicians and very few patients have access to a registered dietician.

Methods: An open, randomized clinical trial was conducted at GI clinic from November 2018 to November 2019. After a short period of nutrition counseling, participants were randomly assigned to the intervention group who received simplified protein counting tool and the control group. The outcomes were nutritional status: serum albumin, transferrin, CTP score, MELD score, Patient-Generated Subjective Global Assessment score (PG-SGA) and protein counting skill at 3 and 6 months.

Results: A total of 53 patients, 15(53.6%) of intervention group and 13(52%) of control group had albumin improvement at 3 months. Protein counting skill archived in 13(46.4%) in the intervention group compared with 9(36.0%) in the control group *(P=0.578)*. Among 22 patients (41.5%) who complete protein counting record were statistically significant improvement of albumin (*P<0.001*), CTP score (*P<0.001*), MELD score (*P=0.047*), and PG-SGA (*P=0.005*) at 3 months. More than 60% of patients in both groups had significant albumin improvement at 6 months compare to baseline.

Conclusion: Simplifying protein counting tool can improve protein counting skill. Nutrition advice may encourage the cirrhotic patient to have adequate protein intake to maintain the good nutritional status.

Figure 1. Box plot of serum albumin level by CTP score in control and intervention group

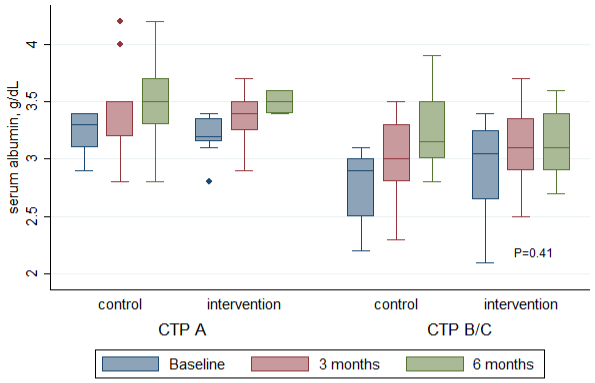
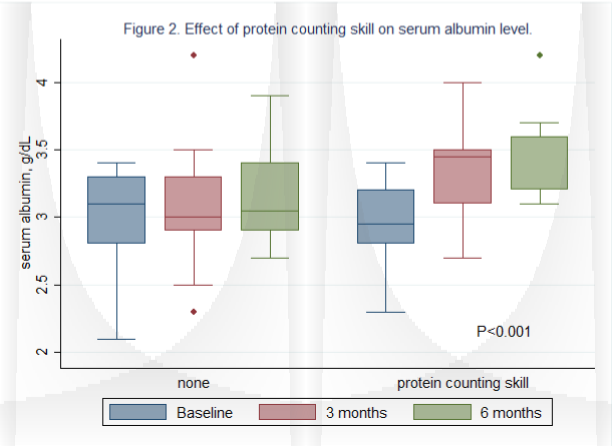


Figure 2. Effect of protein counting skill on serum albumin level.



Abstract#03

Anuchit Suksamai

Division of Gastroenterology and Hepatology, Department of Medicine, Phramongkutklao Hospital and College of Medicine

Urine TIMP2.IGFBP7 as a predictor for hemodynamic effect and kidney injury in decompensated cirrhosis receiving abdominal paracentesis

Introduction: Decompensated cirrhosis are likely to increase the risk of renal failure which the mortality rate is increase. Evidence suggests that novel biomarkers, urine tissue inhibitor of metalloproteinases-2 (TIMP-2) and insulin-like growth factor-binding protein 7 (IGFBP7) can predict acute kidney injury in various conditions but no data in cirrhosis. The aims of this study are to determine the usefulness of urine TIMP-2 and IGFBP7 in prediction of kidney disease progression, hemodynamic outcomes, hospitalization and 90-day mortality in decompensated cirrhotic patients receiving abdominal paracentesis.

Methods: A randomized, prospective cohort study was performed during December 2018 to December 2019. All outpatient decompensated cirrhosis were enrolled and randomized into 3 liters and 5 liters of abdominal paracentesis groups. Clinical data and laboratory values were evaluated. Urine TIMP-2, IGFBP7 and creatinine were collected before and after abdominal paracentesis. Objective outcomes were followed within 90 days.

Results: A total of 68 cirrhotic patients were enrolled during study period. Thirty-three patients were eligible for analysis. Seventeen patients were in 3 liters group and 16 patients were in 5 liters group. Five of these patients died within 90 days of follow-up, comprised of 27 males (82%). The mean of MELD score was 12.8$\pm$4.8. Most of these patients were CTP B with the mean of CTP score was 8.9$\pm$1.2. Rising urine TIMP-2 and TIMP-2.IGFBP7 were shown in patients within 5 liters group for 50% ($p = 0.001$) and 43.8% ($p = 0.017$), respectively. Rising urine TIMP-2.IGFBP7/Cr was predicted rapid decline of GFR ($p=0.031$), 90-day admission ($p=0.042$) and hemodynamic change ($P=0.048$). Rising urine TIMP-2.IGFBP7/Cr and hemodynamic event could depicted if ascites volume per bodyweight was 0.063 ml/kg, likelihood ratio was 2.7 and 2.2, respectively.

Conclusion: Urine TIMP-2.IGFBP7 can predicted hemodynamic change, rapid decline of GFR and admission within 90 days in decompensated liver cirrhosis. Kidney injury could occur even less than 5 liters of ascites release in decompensated cirrhosis was performed. The ascites volume per bodyweight ratio of less than 0.063 ml/kg could be safe for renal outcome. The nation clinical registration number was TCTR20191116003.

Abstract#04

Kawin Tangvoraphonkchai

Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Diagnostic Performance of Fibrotest/Actitest for Staging Significant Liver Fibrosis in Thai Chronic Hepatitis C Patients

Introduction: Chronic hepatitis C viral (HCV) infection remains a major critical challenge in Thailand.Clinical management requires diagnostic significant liver fibrosis. Fibrotest/Actitest is a novel non-invasive testing for alternative liver biopsy. There are limited studies of the testing in Thailand.

Objective: To demonstrate the diagnostic performance to predict significant fibrosis (METAVIR stage ≥ F2) using Fibrotest/Actitest compared to liver biopsy in HCV patients.

Materials and Methods: The study prospectively enrolled 100 HCV patients, who underwent liver biopsy. Fibrotest/Actitest was done in the same day. Liver histology was evaluated using the METAVIR scoring system. Diagnostic stat was calculated and evaluated for the best cut-off values of patients with METAVIR fibrosis F ≥ 2.

Results: The AUROC for Fibrotest/Actitest was 0.74 (0.64 - 0.83) and the best cut-off was ≥ 0.44 for prediction significant fibrosis (F ≥ 2) in Thai Chronic hepatitis C viral infection patients with sensitivity, specificity, PPV, and NPV as 75.4% (63.1% – 85.2%), 71.4 (53.7 –85.4), 83.1 (71.0 – 91.6) and 61 (44.5 – 75.8), respectively. This cut-off was more accuracy than the international cut-off (≥ 0.49) and improved sensitivity, PPV and NPV for prediction significant fibrosis in Thai chronic HCV infection.

Conclusions: Fibrotest/Actitest addresses a critical need for management of chronic HCV infection. Cut-off ≥ 0.44 was a predictor of the significant fibrosis (F2) and acceptable diagnostic performance.

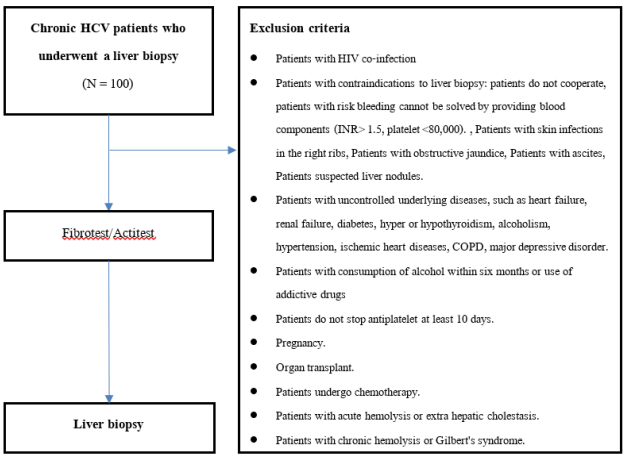


Fig 1. Study flow

Table 1. Baseline characteristics of the 43 patients

Characteristics	Values
Male : Female	67 : 33
Age (years)	51.0 (8.3)
Underlying disease	
None	76 (76)
Diabetes mellitus	11 (11)
Hypertension	12 (12)
Other	2 (2)
Hemoglobin (g/dl)	13.8 (1.4)
Platelet count (10^3/mm^3)	192.5 (56.5)
Creatinine (mg/dl)	0.9 (0.2)
Albumin (g/dl)	4.4 (0.4)
Total bilirubin (mg/dl)	0.7 (0.3)
ALT (U/L)	73.2 (54.8)
AST (U/L)	63.6 (43.3)
ALP (U/L)	90.0 (36.8)
INR	1.0 (0.1)
HCV Viral load (IU/ml)	4,032,315 (5,919,394)
HCV genotypes	
1A	15 (15)
1B	17 (17)
3	40 (40)
6	28 (28)
Fibrosis score (METAVIR)	
F0	7 (7)
F1	28 (28)
F2	33 (33)
F3	17 (17)
F4	15 (15)

Data are expressed as mean (standard deviation) or number (%)
ALT = alanine aminotransferase, AST = aspartate aminotransferase, ALP = alkaline phosphatase, INR = international normalized ratio

Table 2. Values of Fibrotest/Actitest at each stage of liver fibrosis by liver biopsy

Fibrosis score (Liver biopsy)	Number	Fibrotest/Actitest, mean (SD)
F0	7	0.26 (0.20)
F1	28	0.37 (0.21)
F2	33	0.58 (0.25)
F3	17	0.71 (0.28)
F4	15	0.64 (0.27)

SD = standard deviation

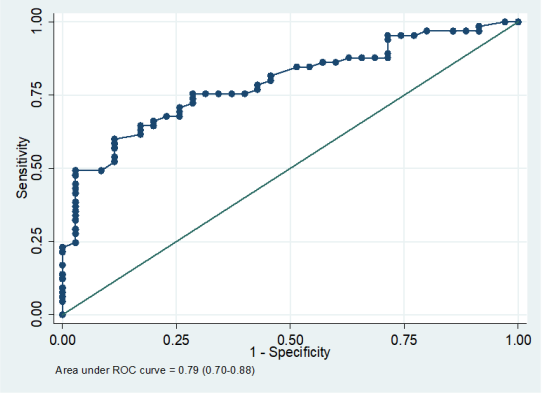


Fig 2. Receiver operating characteristic curve for significant fibrosis (≥F2) measurement using Fibrotest/Actitest.

Abstract#05

Nattida Sribuathong

Division of Gastroenterology, Rajavithi Hospital, Bangkok, Thailand

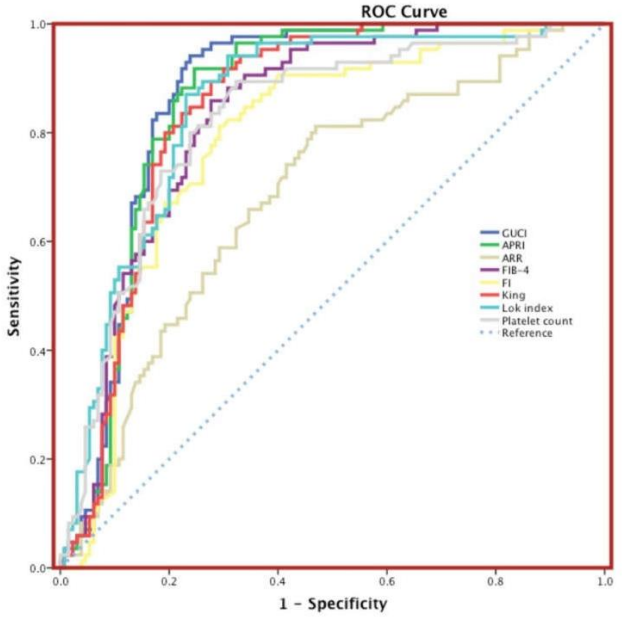
Performance of Non-invasive Liver Fibrosis Tests in Predicting Variceal Bleeding Among Patients with Upper Gastrointestinal Bleeding

Introduction: Various non-invasive liver fibrosis tests (NIFTs) have been studied aiming to predict the degree of liver fibrosis and the presence of esophageal varices in patients with cirrhosis. However, the use of NIFTs to predict variceal bleeding (VB) in the setting of upper gastrointestinal bleeding (UGIB) remains unexplored. This study aimed to evaluate the performance of NIFTs in predicting VB as a cause of bleeding in patients with UGIB.

Methods: Consecutive patients presented with UGIB who underwent esophagogastroduodenoscopy (EGD), between June 2018 and August 2019 at Rajavithi Hospital, Bangkok, were prospectively enrolled. Baseline clinical/lab characteristics and NIFTs, including APRI, ARR, FIB-4, Fibrosis Index, Lok Index, GUCI, and King's score, were evaluated.

Results: A total of 215 patients with UGIB were included: mean age was 56.4 years, mean Glasgow-Blatchford score was 9.8 and 39.5% were VB. In the overall analysis, the AUCs of NIFTs for predicting VB ranged between 0.686 and 0.867. GUCI and APRI (both at the cut-off of 0.5) showed best performance in predicting VB with sensitivity of 95.3% and 90.6%, and specificity of 73.1% and 75.4%, respectively. In patients without known cirrhosis (n=132), the AUCs of GUCI and APRI in predicting VB were 0.860 and 0.895 respectively

Conclusions: GUCI and APRI scores have good performance in predicting VB in patients presenting with UGIB regardless of known cirrhosis status. They may be helpful to select patients for prompt administration of vasoactive agents, antibiotics and urgent EGD.



	GUCI	APRI	ARR	FIB-4	FI	Kings	Lok	Platelet
AUC	0.867	0.857	0.686	0.830	0.788	0.846	0.850	0.823
95%CI	0.817-0.918	0.805-0.909	0.614-0.758	0.776-0.885	0.726-0.851	0.793-0.899	0.797-0.903	0.765-0.881
Cut-off	0.5	0.5	1.2	1.8	3.2	11.5	0.85	190000
Sensitivity	95.3%	90.6%	84.7%	91.8%	78.8%	91.8%	90.6%	89.4%
Specificity	73.1%	75.4%	38.5%	60.8%	71.5%	70.0%	70.8%	65.4%
PPV	69.8%	70.6%	47.4%	60.5%	64.4%	66.7%	67.0%	62.8%
NPV	96.0%	92.5%	79.4%	91.9%	83.8%	92.0%	92.0%	90.4%
+ LR	3.54	3.68	1.38	2.34	2.77	3.06	3.1	2.58
- LR	15.53	8	2.51	7.38	3.38	8.5	7.52	6.18
Accuracy	81.9%	81.4%	56.7%	73.0%	74.4%	78.6%	78.6%	74.9%

Abstract#06

Onuma Sattayalertyanyong

Division of Gastroenterology, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University

High clinical relapse with low HBsAg clearance after stopping tenofovir or entecavir in chronic hepatitis B, HBeAg negative patients

Introduction: Treatment of chronic hepatitis B, HBeAg negative with nucleos(t)ide analogues (NA) has very low rate of HBsAg clearance. Recent studies found that NA stopping will lead to more rapid HBsAg clearance and safe, especially in non-cirrhotic patients.

Objectives: To evaluate the effect of discontinuation of tenofovir (TDF) or entecavir (ETV) in non-cirrhotic chronic hepatitis B, HBeAg negative patients (CHB) on HBsAg clearance and to investigate predictors of virological and clinical relapse (VR, CR) and safety of NAs withdrawal.

Methods: CHB patients who had been treated with TDF or ETV with continued viral suppression > 3 years were included, TDF discontinued (TDF-D), ETV discontinued (ETV-D) groups compared NA continued group NA-continue).

Results: There were 86 patients as shown in table 1. HBsAg loss found in 3 cases in TDF-D which was not significant from ETV-D. Cumulative VR was found 21 and 2 cases in TDF-D and ETV-D, respectively (Fig.1). CR was found 14 cases in only TDF-D group within 12 weeks after TDF withdrawal. In TDF-D group, 4 cases had severe ALT flares, 2 required admission and one death (table 2). Significant predictors of VR and CR were TDF withdrawal and qHBsAg >200 IU/mL at the time of withdrawal.

Conclusions: NA withdrawal commonly results in VR and CR, especially TDF. Some result in early and more severe CR leads to hepatic decompensation. HBsAg loss was found in 3 cases in TDF-D group, all of them had low qHBsAg before TDF withdrawal. TDF withdrawal is not advised unless very close monitoring.

Table 1 Baseline characteristics

Variables	Total (n= 86)	Discontinue (n=60)		Continue (n=26) (TDF=14,ETV=12)	*P* value
		TDF-D (n=38)	ETV-D (n=22)		
Age, years (mean± SD)	60.2±10	59.3±10.3	60.3±9.5	61.5±10	0.78
Male sex, n(%)	56 (65.1)	25 (65.8)	14 (63.6)	17(65.4)	0.99
Treatment duration, years (mean±SD)	11.2±3.4	10.9±3.4	11.5±2.7	12.5±3.6	0.23
ALT, U/L (mean±SD)	21.6±8.7	23.1±9.4	21±8.4	20.1±7.7	0.38
HBsAg, log_{10} IU/ml (median(P25-P75))	2.7(1.9-3.3)	2.7(1.8-3.3)	2.6(1.9-3.2)	2.7(2-3.3)	0.96
TE, kPa (mean±SD)	5.6±1.9	5.4±1.4	6±2	5.5±2.5	0.49
Liver fibrosis before treatment (F0/F1/F2) (n)	12/37/11	2/20/3	4/8/5	6/9/3	0.11

TDF, tenofovir; ETV, entecavir; ALT, alanine aminotransferase; TE, Transient elastography

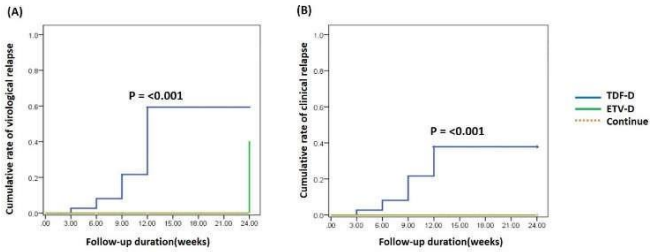


Fig1. Comparison the cumulative rate of virological relapse(A) and clinical relapse(B) between discontinue tenofovir(TDF-D), discontinue entercavir(ETV-D) and continue groups.

Table 2 Safety profile up to week 24

N(%)	TDF-D	ETV-D	Continue	*P* value
Grade 1	9(23.7)	3(13.6)	0	NS
Grade 2	2(5.3)	0	0	NS
Grade 3	5(13.2)	1(4.5)	0	NS
Grade 4	4(10.5)	0	0	NS
Hospital admission	2(5.3)	0	0	NS
Hepatic decompensation	1(2.6)	0	0	NS
Liver failure	1(2.6)	0	0	NS
Death	1(2.6)	0	0	NS
Total	22(57.9)	5(22.7)	0	<0.001

Grading severity was according to common terminology criteria for adverse event V3 ,2006
TDF, tenofovir isoproxil fumurate; ETV, entercavir; TDF-D, discontinue TDF; ETV-D, discontinue ETV; NS, non-significant
*P <0.05

Abstract#07

Panot Sainamthip
Division of Medical Oncology, Phramongkutklao Hospital, College of Medicine

Dexamethasone prophylaxis of postembolization syndrome after transcatheter arterial chemoembolization : A randomized, double-blind, placebo controlled study

Background and aims: Postembolization syndrome is the most frequent adverse event of transcatheter arterial chemoembolization (TACE) in patients with hepatocellular carcinoma.

Objectives: We evaluated single dose of dexamethasone efficacy at preventing postembolization syndrome.

Materials & Methods: This study include patients with HCC without macrovascular invasion who had a Child–Pugh score of A or B and no distant metastasis. Patients were randomly assigned to either a dexamethasone 8 mg intravenous single dose one hour prior to TACE or a placebo (saline). The primary outcome was a negative result of post-embolization syndrome (PES), which was defined as score ≤ 2 of Southwest oncology group toxicity coding (SWOG) toxicity criteria. Secondary end point was duration of admission between two groups.

Results: From September 2017 to October 2019, 100 patients were randomly assigned 1:1. Under intention-to-treat analysis, 49 patients were randomly assigned to the dexamethasone group and 51 to the placebo. Both groups were comparable for baseline characteristics. The negative PES rate was greater with dexamethasone group than placebo group (65.3% vs. 37.3%; p = 0.005). Mean SWOG PES was 2.14 (95% CI 1.41-2.8) versus 3.71 (95% CI 2.97-4.45) between dexamethasone group and placebo group respectively. More than grade 2 fever was higher in placebo group (49.1% vs 18.4%; P <0.001).The patients with ≥1 grade Common Terminology Criteria for Adverse Events (version 4.0) incidence of pain, nausea and vomiting were 56%, 51%, and 19% in the placebo group and 36%, 30%, and 14% in the dexamethasone regimen, respectively. The median duration of admission were 4 days (IQR 3-7 days) in patients receiving the placebo same as those receiving the dexamethasone group (IQR 3-5 days; P=0.245). In Dexamethasone group, patients had more than grade 3 hyperglycemia higher than placebo group but not statistically significant (22.4% vs 15.7%; P =0.743). The dexamethasone regimen was generally well tolerated by HCC patients including those with hepatitis B virus infection and those with well-controlled diabetes mellitus.

Conclusions: Single dose dexamethasone was more effective than the placebo and should be implement to become standard of care at preventing post-embolization syndrome (PES) in patients with HCC.

Abstract#08

Ratchapong Laiwatthanapaisan

Division of Gastroenterology, Department of Medicine, Rajavithi Hospital

Validation of the Baveno VI Criteria and the Expanded Baveno VI Criteria to Predict Esophageal Varices (EV) in Patients with Compensated Cirrhosis

Introduction: Previously, international guidelines have recommended upper endoscopy (EGD) for EV screening in all patients with cirrhosis, however EGD is expensive and sometimes unpleasant for patients; thus, non-invasive predictors for EV may be helpful. Recently, the Baveno VI criteria (platelet count >150,000 and a liver stiffness measurement (LSM) <20 kPa) and the Expanded-Baveno VI criteria (platelet count >110,000 and a LSM <25 kPa) were proposed to predict cirrhotic patients with a low risk to have significant EV as to circumvent the need for screening EGD. We aimed to validate the performance of both criteria to predict varices needing treatment (VNT) in Thai cirrhotic population.

Methods: This cross-sectional study was performed at Rajavithi hospital between Jan 2019 and Jan 2020. Consecutive patients with compensated cirrhosis who underwent EGD for EV screening were enrolled. Blood tests and LSM (by Fibroscan®) were performed within 1 month from EGD. Patients who had EV bleeding, EV endoscopic treatments, hepatocellular carcinoma, liver decompensation, LSM <10 kPa, and/or had been on beta blockers were excluded.

Results: A total of 90 patients were included; 60% were male with the mean age of 55.3 (±10.6) years. The most common etiology of cirrhosis was hepatitis C virus (46.7%) and 93.3% were Child-Pugh A cirrhosis. The prevalence of VNT was 37.8%. The Baveno VI criteria had a sensitivity 88.9%, specificity 62.2% , PPV 70.2%, NPV 84.8% and accuracy 75.6%. The Baveno VI criteria would potentially spare 44.4% EGD with a risk of missing VNT of 5.6%. While the Expanded-Baveno VI criteria had a sensitivity 69.8%, specificity 74.5%, PPV 71.4%, NPV 72.9% and accuracy 72.2%. The Expanded-Baveno VI criteria would potentially spare 55.5% EGD with a risk of missing VNT of 14.4%.

Conclusion: The Baveno VI criteria had a good performance in predicting VNT in patients with compensated cirrhosis which would help us to avoid unnecessary EGD. Although, the Expanded-Baveno VI criteria could spare more EGD but the risk of missing VNT should also be considered.

Performance of criteria	Sensitivity (%)	Specificity (%)	PPV(%)	NPV(%)	Accuracy (%)	Spared Endoscope	Miss VNT(n,%)
The Bavino criteria	88.9	62.2	70.2	84.8	75.6	44.4	5(5.6)
The Expanded Bavino criteria	69.8	74.5	71.4	72.9	72.2	55.5	13(14.4)

Abstract#09

Suvikrom Chattammanat

Department of Medicine, Faculty of Medicine, Siriraj Hospital,Mahidol University, Bangkok, Thailand

Genetic Variation in Patatin-like phospholipase domain containing 3 and the Risk of Nonalcoholic Fatty Liver Disease and Cardiac Arrhythmia: Mendelian Randomization Analysis

Introduction: The causal relationship between nonalcoholic fatty liver disease (NAFLD) and cardiac arrhythmia, a risk factor for sudden cardiac death, is currently unknown. Mendelian randomization uses genetic variants in nonexperimental data to make causal inferences regarding the effect of an exposure on an outcome. We therefore used mendelian randomization analysis to explore the causal relationship between NAFLD and cardiac arrhythmia in patients with metabolic syndrome.

Methods: Four-hundred and fifty-six patients with metabolic syndrome according to NCEP ATP III criteria were prospectively enrolled during 2019-2020. Computerized electrocardiograms were performed for analysis and quantification of intervals (PR, QRS, QT) and amplitude parameters. NAFLD was diagnosed by transient elastography using the controlled attenuation parameter >248 dB/m in the absence of other liver diseases. *PNPLA3* rs738409 was genotyped using real-time PCR protocol based on *Taq*Man assays.

Results: Overall, 64.7% and 42.5% of recruited individuals presented with NAFLD and cardiac arrhythmia, respectively. The *PNPLA3* G allele was present in 52.2% of individuals. The *PNPLA3* variant was significantly associated with NAFLD (OR 1.81,95%CI 1.07-3.06) but not with cardiac arrhythmia (OR 1.07,95%CI 0.74-1.55). Cardiac arrhythmia was not statistically associated with NAFLD (OR 1.03,95%CI 0.70-1.52). Premature ventricular complexes were significantly associated with NAFLD (OR 0.176,95%CI 0.04-0.88) but not with *PNPLA3* variant (OR 0.92,95%CI 0.23-3.70). Atrial fibrillation and QTc prolongation were not significantly associated with NAFLD (OR 0.27,95%CI 0.05-1.48 and OR 1.22,95%CI 0.65-2.28, respectively) and *PNPLA3* variant (OR 0.91,95%CI 0.18-4.58 and OR 0.73,95%CI 0.40-1.30, respectively).

Conclusions: Our results indicate no causal association between NAFLD and cardiac arrhythmia using Mendelian randomization approach in a population of metabolic syndrome.

Abstract#10

Thananya Jinato

Chulalongkorn University

Improvement of gut microbiota diversity and composition in patients with HCV mono-infection and HCV/HIV co-infection treated with direct acting antivirals

Background and Objectives: Alteration of gut microbiota has been linked to the pathogenesis of several liver disorders including chronic hepatitis C virus (HCV) infection. However, little is known about the influence of HCV therapy with direct-acting antivirals (DAAs) on the gut microbiota composition. The aim of this study was to compare gut microbiota diversity and composition in patients with HCV mono-infection and HCV/HIV co-infection before and after treatment with DAAs.

Methods: Patients with HCV genotype 1, who received the combination of grazoprevir and elbasvir for 12-16 weeks in a clinical trial, were included. Fecal specimens were collected from patients at baseline and at week 12 after completing the therapy. Gut microbial compositions were analyzed using 16S ribosomal RNA sequencing (V3-V4) by Illumina MiSeq sequencing platform. Bioinformatics analyses were performed by ZymoBIOMICS® targeted sequencing service for microbiome analysis. Comparisons between groups as well as between baseline and post-treatment were performed.

Results: This study included 62 patients with HCV mono-infection (group I) and 24 patients with co-infection (group II). Sustained virological response (SVR12) rates in the respective groups were 98.4% (61/62) and 95.8% (23/24). Pre-treatment bacterial communities in the patient groups were less diverse and distinct from those of healthy controls (Figure 1). Compared with group I, group II showed comparable microbial alpha-diversity but displayed declined *Firmicutes/Bacteroidetes* ratio. The improvement of microbial dysbiosis was observed in responders achieving SVR12 across fibrosis stages but was not found in non-responders (Figure 2). Responders with low degree of fibrosis exhibited a recovery in alpha-diversity to level comparable with healthy controls. Reciprocal alterations of increased beneficial bacteria (e.g. *Parabacteroides*, *Subdoligranulum*) and reduced pathogenic bacteria (*Eubacterium*) were also observed in responders (Figure 3).

Conclusions: Our study indicates short-term effect of DAAs in restoration of microbial dysbiosis. This favorable change in gut microbiota profiles after viral eradication could potentially contribute towards the reduction of hepatic and extra-hepatic complications among infected individuals.

Figure 1

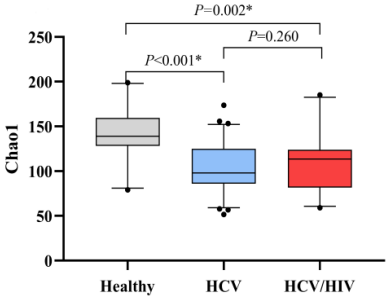


Figure 2

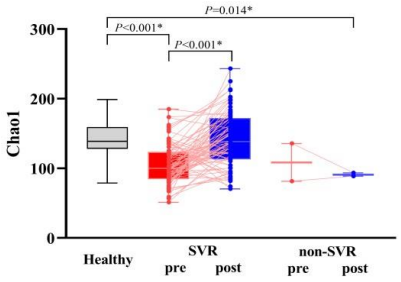


Figure 3