■ Sat-085 ■

The Usefulness of CTP Class and HVPG Model in Low and Intermediate MELD Era

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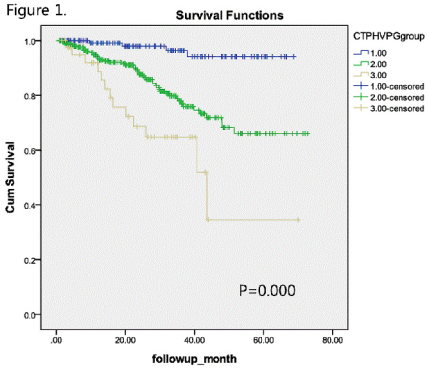
Background/Aims: We investigated the usefulness of Child-Turcotte-Pugh (CTP) plus hepatic vein pressure gradient (HVPG) model for stratifying prediction of long-term survival in low and intermediate model for end-stage liver disease (MELD) era. **Methods:** Of 1,025 patients with liver cirrhosis, we excluded critically ill cases and those with MELD scores ≧ 15. The data of 494 patients were subsequently collected between 2008 and 2013. We determined the CTP score as follows: score 1 (CTP class A), score 2 (CTP class B), and score 3 (CTP class C). We also determined the HVPG score as follows: score 1 (HVPG <13 mmHg), score 2 (13 mmHg ≦ HVPG <21 mmHg), and score 3 (HVPG ≧ 21). We determined subgroups using the sum of the CTP and HVPG scores as follows: CTP+HVPG score 2 as group 1, CTP+HVPG scores 3 and 4 as group 2, and CTP+HVPG score 5 and 6 as group 3. **Results:** According to CTP+HVPG score, the cumulative survival rate decreased significantly as the CTP+HVPG score increased, as shown in the Figure 1 (P=0.000). The mortality rates increased significantly according to CTP+HVPG score in patients with in low and intermediate MELD score (Group 2 [hazard ratio, HR=4.97] (P =0.004)), (Group 3 [HR=8.84] (P =0.001)). In the comparison between two groups (group 1 vs. 2, 2 vs. 3, and 1 vs. 3), the cumulative survival rate was significantly different between groups 1 and 2, between groups 2 and 3, and between groups 1 and 3 (P=0.000, 0.021, and 0.000, respectively). **Conclusions:** In low and intermediate MELD era, the calculation of the combined score using CTP plus HVPG model can help stratify the long-term prognosis. Also, in compensated and decompensated cirrhosis, the combined score has a discrimination value in prediction of long-term survival.

Figure 1.



■ Sat-086 ■

Optimal selection of sedative during endoscopy in cirrhotic patients to avoid hepatic encephalopathy

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Background/Aims: The indiscriminate use of sedative drug during endoscopy can pose a risk of minimal hepatic encephalopathy (MHE) in patients with liver cirrhosis. However, it has not been studied yet which drugs are safest and most inviting on these patients. The aim of this study is to evaluate which one among midazolam, propofol, or combination therapy, was the least likely to cause complications including MHE by using Stroop application in cirrhotic patients. **Methods:** This randomized prospective study included consecutive 32 patients who underwent upper GI endoscopy at tertiary hospitals in Korea. Patients were randomly assigned to one of three groups, midazolam, propofol, or combination group, and underwent Stroop test before endoscopy, and 2 hours after the completion of endoscopy. The vital signs was checked before and after the drug administration and the patient / physician / nurse satisfaction was scored after endoscopy. **Results:** Mean age of the patients was 54.0 ± 9.30 years and 81.3% were male. Fifteen patients (46.9%) were child-pugh class A, and 17 (53.1%) were child-pugh class B or C. Alcohol was the most common etiology (21, 65.6%)(Table 1). Patients did not show significant changes in Ontime, Offtime on Stroop test before and after drug administration, and there was no significant difference between the three treatment groups (Table 2). Also, there was no significant vital sign changes after drug use in all groups. However, with respect to subjective indicators, the satisfaction scores of patient and nursing staff was higher in the combined group than in the other two groups, and time to recovery was shorter in propofol than other groups (Table 3). **Conclusions:** In patients with cirrhosis, sedative endoscopy using midazolam, propofol, or combination therapy is relatively safe, and was not associated with increased risk of MHE. However, since there is subjective satisfaction or recovery time difference among sedative agents, it should be considered according to each individual patient.

Table 1. Baseline characteristics of enrolled patients

Characteristics	All (N=41)	Midazolam (N=14)	Propofol (N=14)	Combination (N=13)	P
Demographics					
Age (years)	53.29 ± 9.79	48.85 ± 10.07	54.28 ± 1.14	57.0 ± 8.10	0.084
Sex (male)	33 (80.5)	10 (71.4)	12 (85.7)	11 (84.6)	0.572
ASA class					0.927
I	16 (39.0)	5 (35.7)	6 (42.9)	5 (38.5)	
II	25 (61.0)	9 (64.3)	8 (57.1)	8 (61.5)	
Education level					0.292
Low-educated	8 (19.5)	3 (21.4)	1 (7.1)	4 (30.8)	
High-educated	33 (80.5)	11 (78.6)	13 (92.9)	9 (69.2)	
Etiology					0.453
HBV	12 (29.3)	4 (28.6)	2 (14.3)	6 (46.2)	
HCV	1 (2.4)	0 (0)	0 (0)	1 (7.7)	
Alcohol	24 (58.5)	9 (64.3)	10 (71.4)	5 (38.5)	
Others	4 (9.7)	1 (7.1)	2 (14.2)	1 (7.7)	
Liver function					
Ascites					0.501
None	21 (52.1)	8 (57.1)	7 (50.0)	6 (46.2)	
Mild to moderate	13 (31.7)	4 (28.6)	3 (21.4)	6 (46.2)	
Severe	7 (17.1)	2 (14.3)	4 (28.6)	1 (7.7)	
MELD score	10.74 ± 4.03	11.28 ± 4.65	11.87 ± 4.26	8.93 ± 2.39	0.139
Child-Pugh class					0.542
Class A	19 (46.3)	5 (35.7)	6 (42.9)	8 (61.5)	
Class B	22 (53.7)	9 (64.3)	8 (57.2)	5 (38.5)	
Endoscopic findings					
Esophageal varices	35 (85.4)	13 (92.9)	13 (92.9)	9 (69.2)	0.108
Gastric varices	9 (22.0)	1 (7.1)	4 (28.6)	4 (30.8)	0.254
Sedative drug					
Midazolam (mg)	1.7 ± 1.4	3.0 ± 0.8	0	2.2 ± 0.6	<0.001
Propofol (mg)	25.3 ± 23.6	0	44.5 ± 15.1	31.9 ± 19.8	<0.001

Table 2. Results of stroop test

Outcomes	All (N=41)	Midazolam (N=14)	Propofol (N=14)	Combination (N=13)	P
Off-time (ms)					
Pre	86.4 ± 33.5	80.0 ± 22.1	83.7 ± 38.4	96.2 ± 38.0	0.435
Post	84.5 ± 36.4	87.9 ± 51.4	78.3 ± 26.8	87.4 ± 26.9	0.748
Δ Post-Pre	-1.9 ± 36.0	7.9 ± 38.7	-5.4 ± 41.1	-8.8 ± 26.3	0.449
On-time (ms)					
Pre	113.9 ± 62.8	103.1 ± 36.0	118.3 ± 92.2	120.9 ± 48.2	0.735
Post	133.6 ± 153.9	90.8 ± 28.2	175.3 ± 252.0	134.8 ± 71.3	0.357
Δ Post-Pre	19.7 ± 157.1	-12.2 ± 34.7	57.0 ± 262.8	13.9 ± 57.3	0.511
Off-time + On-time (ms)					
Pre	200.4 ± 90.6	183.1 ± 53.4	202.0 ± 125.0	217.2 ± 81.9	0.631
Post	218.1 ± 161.7	178.8 ± 253.7	253.7 ± 255.2	222.3 ± 87.5	0.481
Δ Post-Pre	17.7 ± 165.8	-4.3 ± 52.3	51.6 ± 274.9	5.0 ± 68.6	0.646

Table 3. Subjective satisfaction measurement

Outcomes	All (N=41)	Midazolam (N=14)	Propofol (N=14)	Combination (N=13)	P
Time-to-recovery (min)	18.0 ± 12.6	24.2 ± 14.5	14.7 ± 11.6	14.9 ± 9.3	0.071
Doctors (points/10)					
Overall satisfaction	7.9 ± 1.4	7.6 ± 1.2	7.6 ± 1.7	8.6 ± 0.8	0.115
Nurses (points/10)					
Overall satisfaction	7.5 ± 1.4	7.2 ± 1.3	7.2 ± 1.7	8.0 ± 1.1	0.237
Patients (points/10)					
Overall satisfaction	8.4 ± 2.5	8.5 ± 2.8	8.2 ± 2.7	8.6 ± 2.0	0.889
Recall of pain or discomfort	1.6 ± 2.6	1.2 ± 2.5	2.6 ± 3.3	1.0 ± 1.6	0.231
Awakening	4.2 ± 4.1	3.3 ± 3.8	7.6 ± 3.3	1.4 ± 2.8	<0.001
Memory	4.5 ± 4.4	3.2 ± 4.1	7.3 ± 3.5	2.7 ± 4.3	0.009