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Changes of liver stiffness score in CHC patients who obtained the sustained virologic response

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Background/Aims: Liver stiffness (LS) measurement by transient elastography (Fibroscan[®]) is a non-invasive method for assessing the stage of liver fibrosis and many studies have validated the reliability in chronic hepatitis C (CHC) patients. The goal of direct-acting antivirals (DAA) treatment in patients with CHC is to obtain the sustained virologic response (SVR). It has not been reported that the SVR affects the LS score. The aims of this study were to evaluate the changes of LS score before and after DAA treatment in patients who obtained the SVR. **Methods:** From October 2014 to February 2017, we retrospectively analyzed 49 patients who obtained the SVR after treatment with DAA and underwent transient elastography before and after treatment. Baseline characteristics were collected for sex, age, HCV genotype, treatment regimens and HCV RNA. We evaluated the mean LS score and the change before and after treatment. We have identified baseline factors that affect LS score changes. **Results:** Male was 25 patients (51%) and mean age was 60 years. Thirty-one patients were genotype 1 and 18 patients were genotype 2. Mean HCV RNA was 1,886,200 IU/mL. Treatment regimens were daclatasvir+asunaprevir (28 patients, 58.1%), sofosbuvir+ribavirin (18 patients, 36.7%) and ledipasvir/sofosbuvir (3 patients, 6.2%). Mean LS score was 13.1 kPa before treatment and 27 patients (55.1%) had LS score of 11 or higher and 22 patients (44.9%) had less than 11. Forty-two patients (85%) decreased LS score after SVR. Mean LS score was 9.5kPa after treatment. Mean change of LS score was 3.5 kPa (95% CI 2.0~5.0). There were no significant changes in LS score according to sex, age, genotype, therapeutic agent, HCV RNA before treatment. The LS score changes of patients with LS score 11 or higher (5.5 kPa, 95% CI 3.1~8.0) before treatment was significantly higher than that of patients with a score of less than 11 (1.0 kPa, 95% CI 0.2~1.7) ($p=0.002$). **Conclusions:** In this study, the LS score decreased in 85% of patients with SVR after DAA treatment, and the mean decrease was 3.5 kPa. There was more significant decrease of the LS score in patients with the higher baseline LS score.

Table 1. Baseline Characteristics

Variables	N=49
Sex	
Male	25 (51%)
Female	24 (49%)
Age	60 ± 9.5
Genotype	
Type 1	31 (63.2%)
Type 2	18 (36.8%)
Therapy regimen	
DCV-ASV	28 (57.1%)
Sof+R	18 (36.7%)
Harvoni	3 (6.2%)
WBC	5.8 ± 2.0 (k/uL)
Hb	13.8 ± 1.4 (g/dL)
PLT	162 ± 52.9 (k/uL)
AST	83 ± 84 (IU/L)
ALT	82 ± 82 (IU/L)
T-bilirubin	0.9 ± 0.4 (mg/dL)
Alb	4.2 ± 0.4 (g/dL)
HCV RNA	1,886,200 ± 1,935,833 (IU/mL)
Fibroscan	13.1 ± 8.7 kPa
< 11.0 kPa	22 (44.9%)
≥ 11.0 kPa	27 (55.1%)

Table 2. LS differences after DAA therapy

	Post-Pre LS (95% CI)	P-value
Sex		
Male	3.48 (1.4~5.7)	0.948
Female	3.5 (1.4~5.7)	
Age		
<65	2.9 (1.1~4.7)	0.226
≥65	3.5 (2.0~5.0)	
Genotype		
Type 1	4.3 (2.4~6.3)	0.137
Type 2	2.0 (-0.3~4.4)	
Therapy regimen		
DCV-ASV	4.1 (1.9~6.2)	0.237
Sof+R	2.0 (-0.3~4.4)	
Harvoni	6.7 (2.7~10.7)	
AST		0.952
ALT		0.758
T-bilirubin		0.110
HCV RNA		0.215
Fibroscan		
< 11.0 kPa	1.0 (0.2~1.7)	0.002
≥ 11.0 kPa	5.5 (3.1~8.0)	