

# LIVER STIFFNESS IMPROVEMENT IN SUBJECTS WITH ADVANCED CHRONIC HEPATITIS C TREATED WITH DIRECT ANTIVIRAL AGENTS

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## BACKGROUND

## RESULTS

- In chronic hepatitis C (CHC) patients, sustained virologic response (SVR) has been associated with improvement of liver stiffness (LS). Transient Elastography (TE; Fibroscan) is an accurate surrogate marker of liver fibrosis, by measuring liver stiffness (LS).
- Data regarding LS performance in patients treated with direct-acting antivirals (DAAs) are still limited.

- Baseline demographic and clinical characteristics of enrolled patients are listed in table 1.
- 68 patients were included in this preliminary analysis (64% were males, mean age was  $66.8 \pm 10.2$  ys., 86% were cirrhotics and 54% had body mass index  $\geq 25$  kg/m<sup>2</sup>).
- Our patients received: simeprevir/sofosbuvir $\pm$ ribavirin [n=37], sofosbuvir +ribavirin [n=3], paritaprevir/ritonavir/ombitasvir/dasabuvir $\pm$ ribavirin [n=16], ledipasvir/sofosbuvir [n=1].
- Overall, LS declined from  $22,2 \pm 11,05$  kPa (range 9,5-48,9) to  $17,5 \pm 10,09$  kPa (range 4,7-63,9) after treatment with mean absolute and relative changes in LS of -4,7 kPa and -19,8%, respectively ( $p < 0.001$ ).
- In patients with F3 fibrosis, LS decreased from  $10,4 \pm 0,57$  kPa to  $7,3 \pm 1,7$  kPa with mean absolute and relative changes in LS of -3.1 kPa and -30%, respectively ( $p < 0.001$ ).
- Similarly, in F4 patients it decreased from  $24,06 \pm 10,7$  kPa to  $19,1 \pm 9,9$  kPa with mean absolute and relative changes in LS of -4,9 kPa and -27,8% ( $p < 0.001$ ).
- Fibrosis stage decreased in 11 F4 patients (F4 to F3: 6, to F2: 4, and to F1: 1). In 8 F3 patients, fibrosis decreased to F2 (no.=5) and to F1 (no.=3). Figure 2.
- In the univariate analysis, only APRI (AST/Platelet Ratio Index), albumin and platelets at baseline were associated with improvement in LS ( $p = 0.003$ ,  $< 0.001$  and  $0.036$ , respectively).
- Only albumin was associated with LS improvement in multivariate analysis ( $p < 0.001$ ).

## OBJECTIVES

We aimed to assess the changes of LS measurements in CHC patients with advanced fibrosis/cirrhosis who achieved SVR 12 weeks (SVR12) after treatment cessation.

## MATERIALS & METHODS

- This is an ongoing study, in which 157 consecutive CHC patients who received DAA treatment between February and October 2015 were enrolled. A total of 68 patients achieved SVR12 by November 2015 and were analyzed.
- LS measurements were assessed by TE [FibroScan® 502; Echosense] before and 12 weeks after discontinuation of DAA treatment.
- Staging of fibrosis was defined as: F3 (9.5-12.4 kPa) and F4 ( $\geq 12.5$  kPa)

Figure 1: Enrolled patients and their outcomes

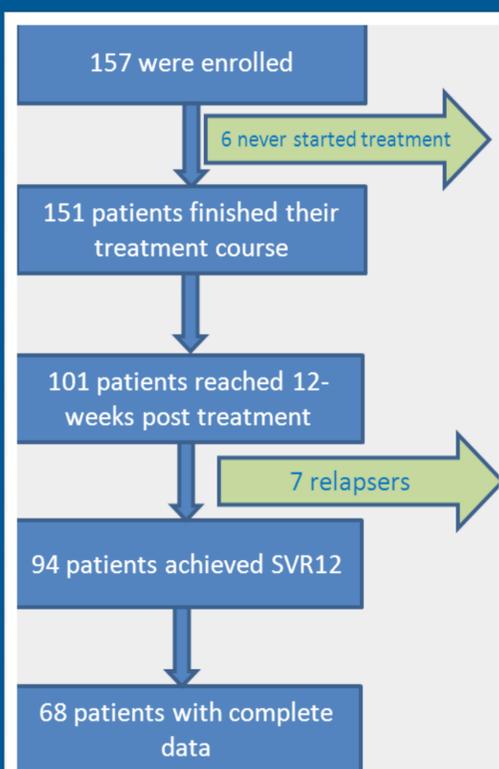
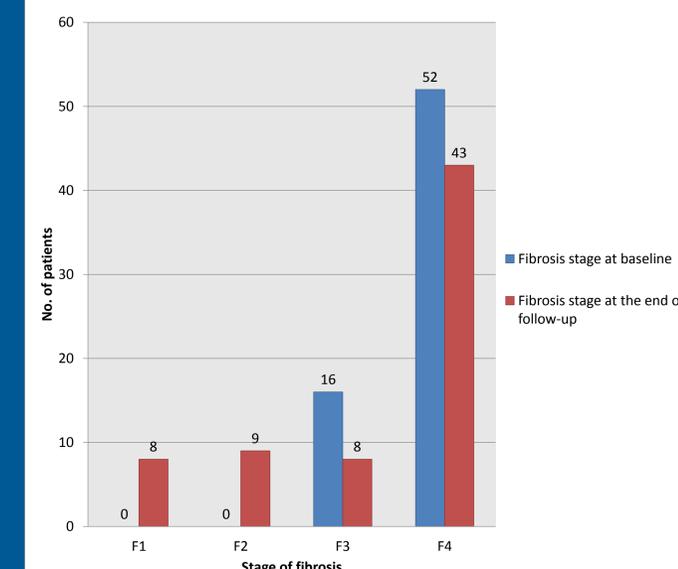


Table 1: Baseline demographic and clinical characteristics of enrolled patients

characteristics	Number=68
<b>Males</b>	40
<b>Age (mean<math>\pm</math>SD)</b>	66.8 $\pm$ 10.2 ys
<b>BMI</b>	25.6 $\pm$ 3.3
<b>Fibrosis</b>	
F3	16
F4	52
<b>Previous treatment</b>	
Naïve	38
Experienced	30
<b>Genotype</b>	
GT1a	6
GT1b	47
GT2	4
GT3	7
GT4	4
<b>Therapy</b>	
Sofosbuvir+Simeprevir	37
Sofosbuvir+Ledipasvir	1
Sofosbuvir	3
Paritaprevir/r+ Ombitasvir+Dasabuvir	11
	16

Figure 2: Changes in fibrosis stage according to liver stiffness measurement using FibroScan



## CONCLUSIONS

Our preliminary data suggest that:

- CHC patients with advanced fibrosis/cirrhosis who were successfully treated with DAAs can achieve a significant improvement in liver stiffness within 12 weeks after treatment cessation and irrespective of HCV genotype, type of treatment, BMI or liver enzymes.
- Presumably, this rapid decrease of stiffness is the result of a decreased inflammation rather than an actual change of fibrosis stage.
- Long-term follow up period is definitely warranted to investigate to what extent liver stiffness may improve.

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