



# Medium-Term Effects of DAA Therapy on HVPG in Patients With HCV-associated Cirrhosis

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**Abstract # 646**

## Background and Aim

- In patients with compensated cirrhosis, hepatic venous pressure gradient (HVPG) is the most accurate predictor of liver-related outcomes<sup>1</sup>. Moreover, HVPG in addition to the MELD score has been independently associated with survival in patients with decompensated cirrhosis<sup>2</sup>.
- Little is known about the effects of therapy with direct-acting antivirals (DAA) against HCV on HVPG in patients with HCV-related liver cirrhosis.
- We assessed changes in HVPG following sustained viral response (SVR) after DAA therapy in HCV monoinfected patients and HIV/HCV coinfectd patients with cirrhosis

- Ripoll C, et al. *Gastroenterology*. 2007; 133:481-488
- Ripoll C, et al. *Hepatology* 2005, 42(4):793-801.

## Inclusion criteria

- Advanced cirrhosis defined by any of the following criteria:
  - History of liver decompensation
    - Ascites, bleeding esophageal varices, hepatic encephalopathy, Porto-pulmonary hypertension, severe bacterial infection
  - Child-Pugh-Turcotte (CPT) score > 6
  - Liver stiffness ≥ 25 kPa
- Initiation of all-oral DAA therapy between Jan-Dec 2015.
- Achievement of SVR.
- HVPG determination at baseline showing clinically significant portal hypertension (CSPH): HVPG ≥ 10 mmHg
- HVPG determination 48 weeks after SVR
- No therapy with non-selective β-blockers initiated during the study period.
- Signing of informed consent.

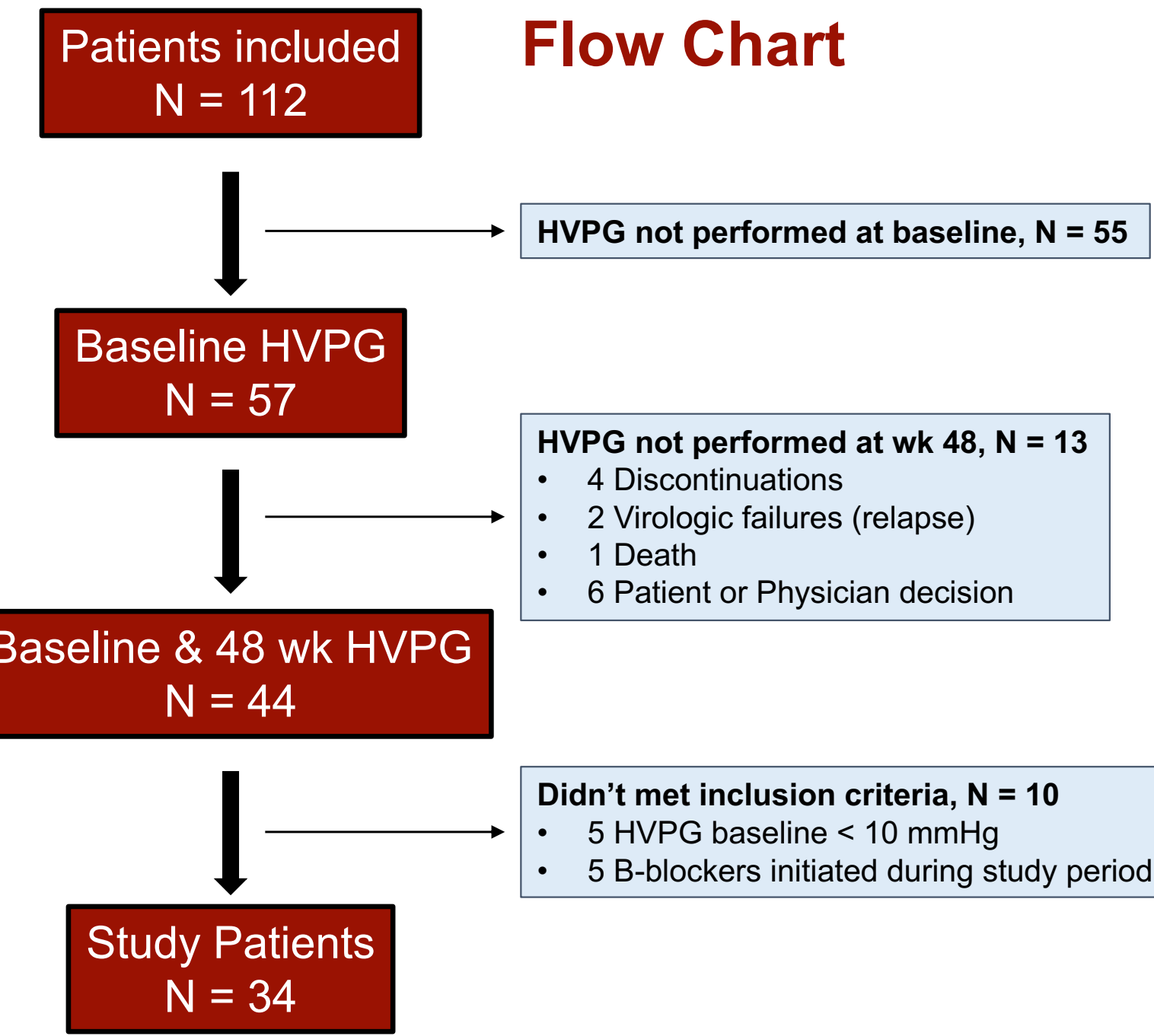
## Outcomes

### Primary outcome

- Decrease in HVPG to < 10 mmHg

### Secondary outcomes

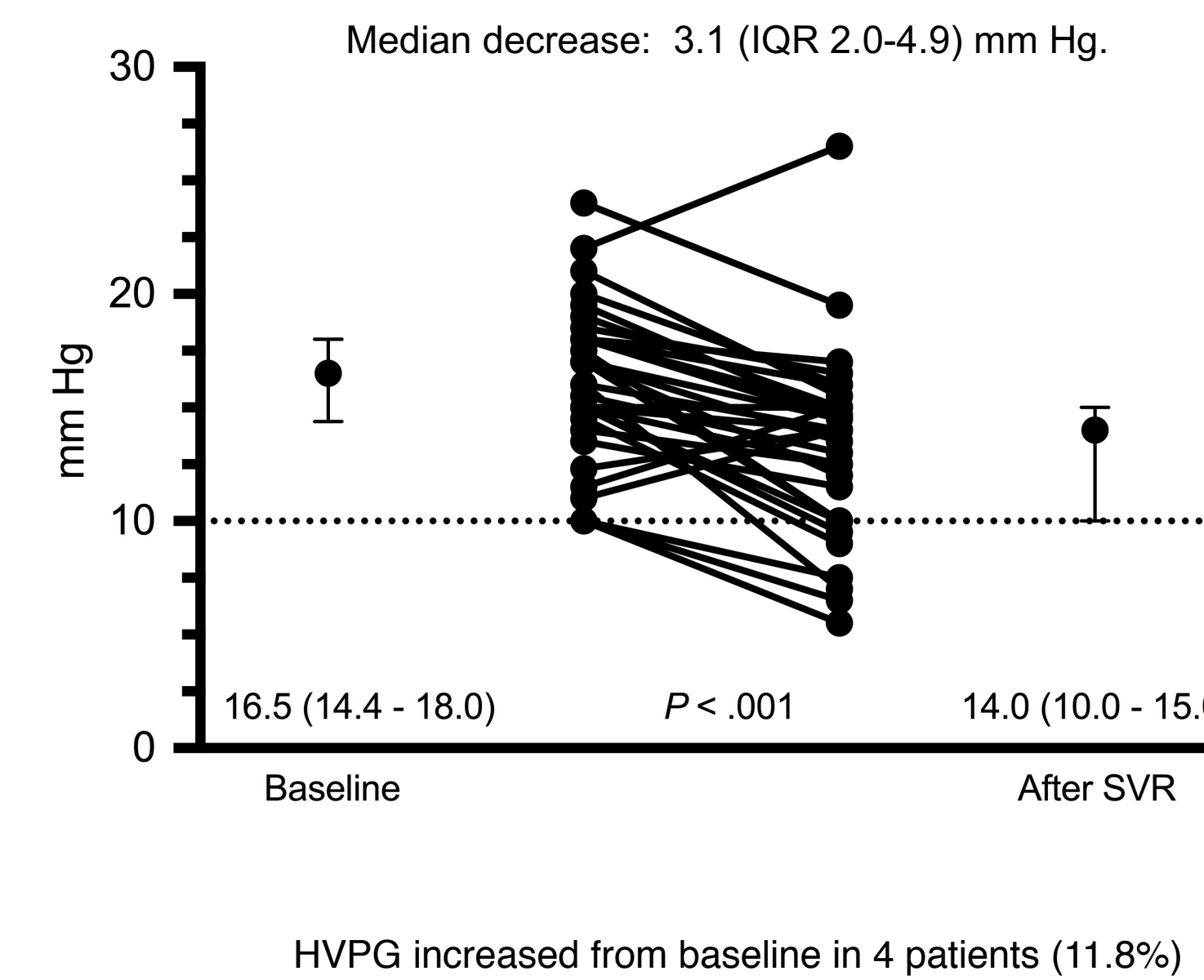
- Clinically significant decrease in HVPG<sup>1\*</sup>
  - For compensated cirrhosis
    - Without esophageal varices: an HVPG < 10 mmHg
    - With esophageal varices: decrease ≥ 10% in HVPG
  - For decompensated cirrhosis
    - Decrease ≥ 20% in HVPG, or
    - HVPG < 12 mm Hg



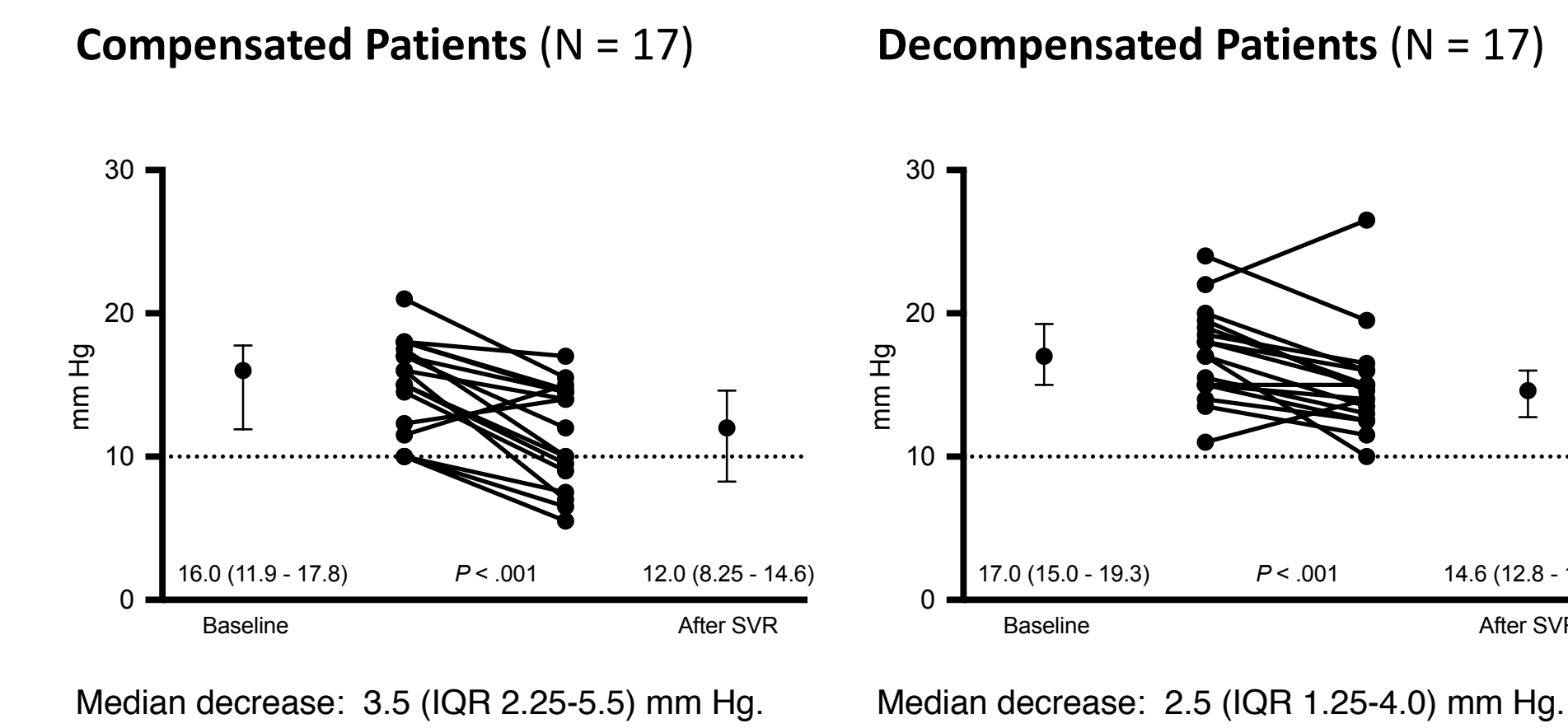
## Patients characteristics

	Compensated cirrhosis N = 17	Decompensated cirrhosis N = 17	Total N = 34	P
Age - y	52.3 (49.8 - 54.5)	53.8 (50.3 - 64)	53.1 (50.4 - 60.2)	.278
Male sex	11 (64.7)	11 (64.7)	22 (64.7)	.1.0
BMI	25.1 (23.2 - 28.3)	25.4 (22.8 - 30.5)	25.3 (22.9 - 28.5)	.803
HIV infection	13 (76.5)	8 (47.1)	21 (61.)	.157
Alcohol > 50 g/d - never	11 (64.7)	9 (52.9)	20 (58.8)	.171
Methadone use	1 (5.9)	1 (5.9)	2 (5.9)	.1.0
Statins use	4 (23.5)	0 (0)	4 (11.8)	.033
Prior anti-HCV therapy	6 (35.3)	12 (70.6)	18 (52.9)	.039
HCV genotype				.038
• 1a	5 (29.4)	4 (23.5)	9 (26.5)	
• 1b	7 (41.2)	6 (35.3)	13 (38.2)	
• 2	0 (0)	1 (5.9)	1 (2.9)	
• 3	2 (11.8)	2 (11.8)	4 (11.8)	
• 4	3 (17.6)	3 (17.6)	6 (17.6)	
• Unknown	0 (0)	1 (5.9)	1 (2.9)	
Log10 HCV-RNA - IU/mL	6.2 (5.8 - 6.7)	5.8 (5.3 - 6.4)	6.0 (5.6 - 6.7)	.072
Platelet count - 10 <sup>9</sup> /L	87 (56 - 105)	67 (46 - 95)	75 (53 - 103)	.221
Albumin <3.5 - g/dL	4 (30.8)	4 (19.0)	8 (23.5)	.434
CPT score	5 (5 - 5)	6.5 (5 - 8)	5 (5 - 6.5)	<.001
MELD score	8 (7 - 9.8)	12 (7.3 - 13)	8 (7 - 12)	.010
Liver stiffness - kPa	32.8 (19.3 - 42.2)	36.6 (20.7 - 51.4)	34.3 (20.8 - 48.4)	.358
HVPG - mmHg	16.0 (11.9 - 17.8)	17.0 (15.0 - 19.3)	16.5 (14.4 - 18.0)	.108

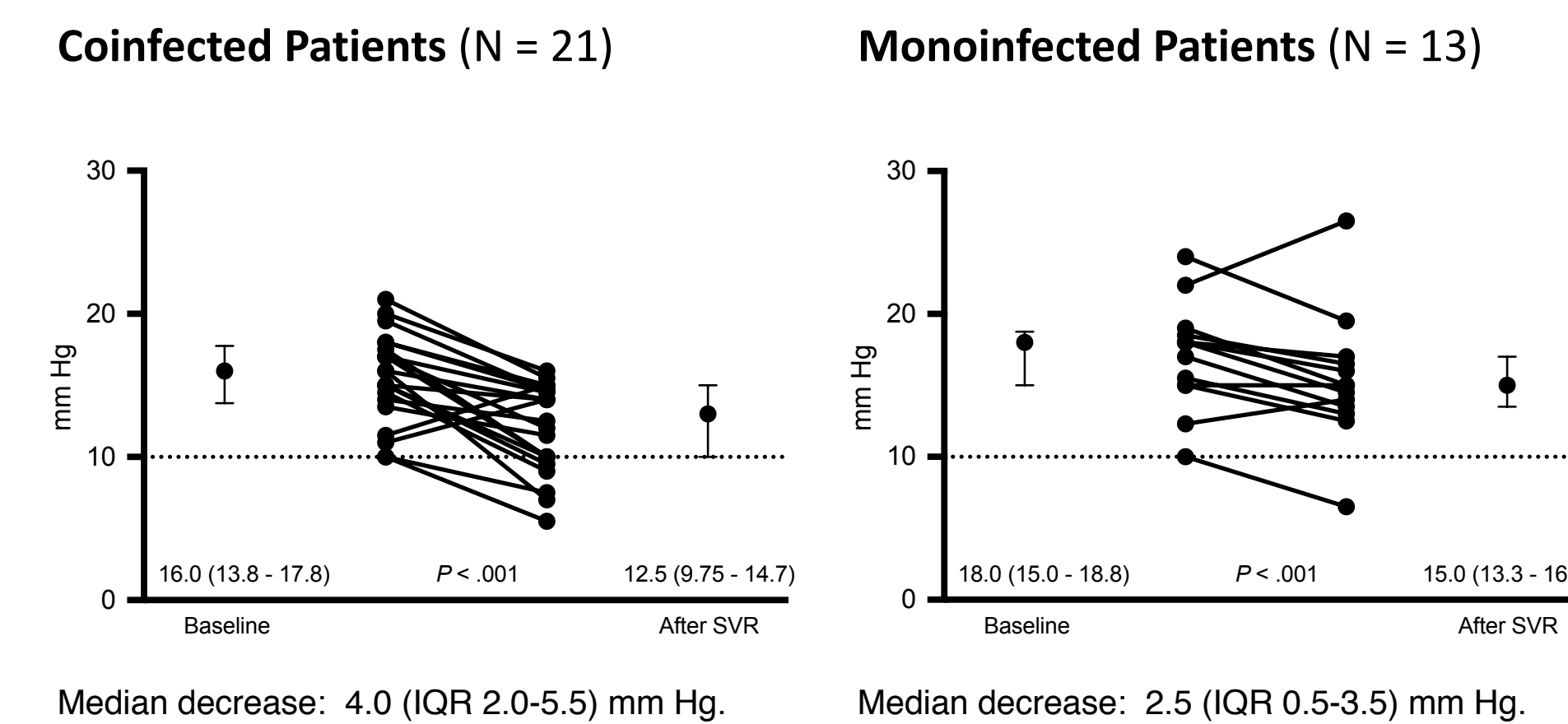
## HVPG at baseline and after SVR All patients



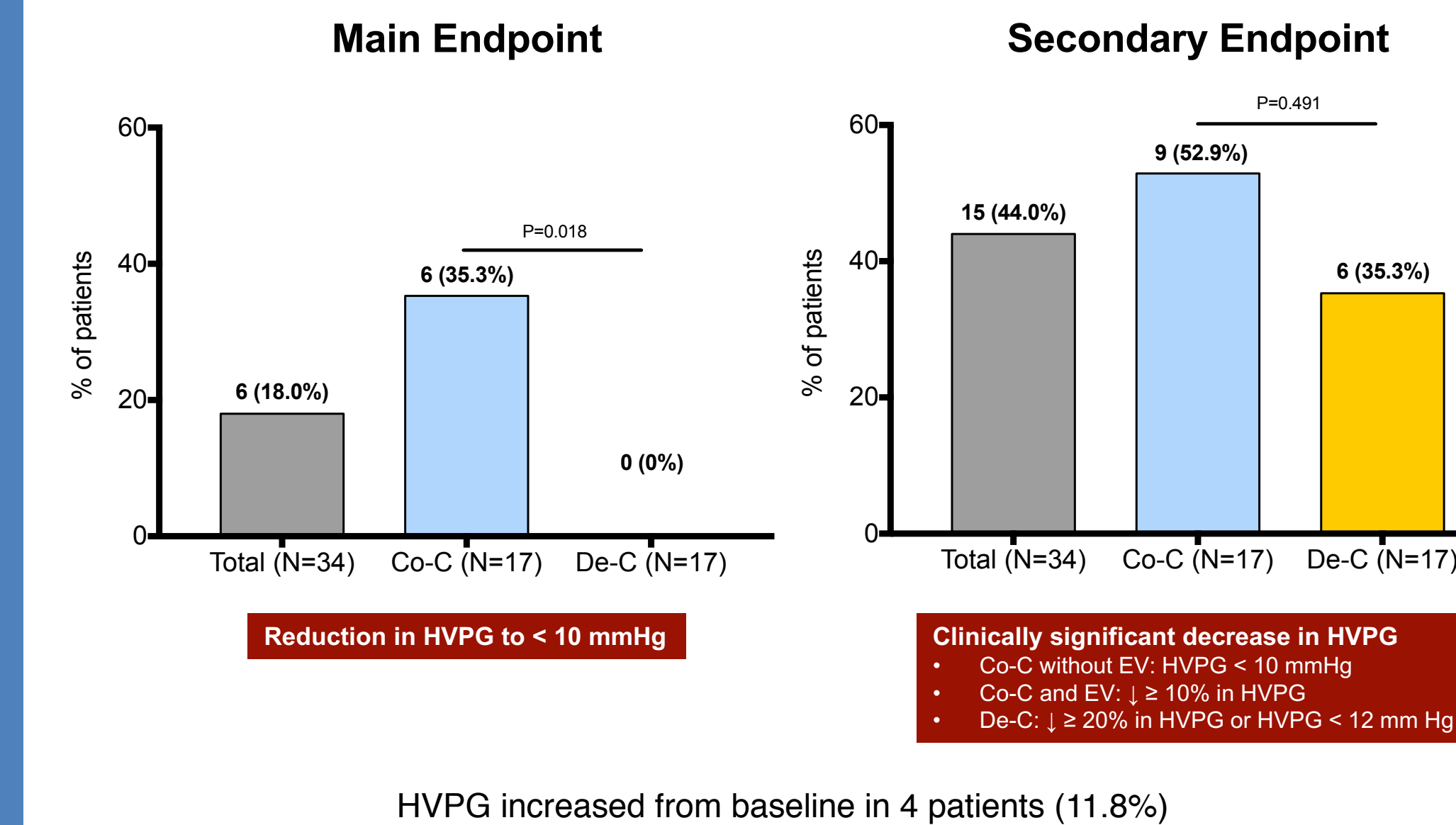
## HVPG at baseline and after SVR Decompensated vs Compensated



## HVPG at baseline and after SVR Coinfected vs Monoinfected



## Study endpoints

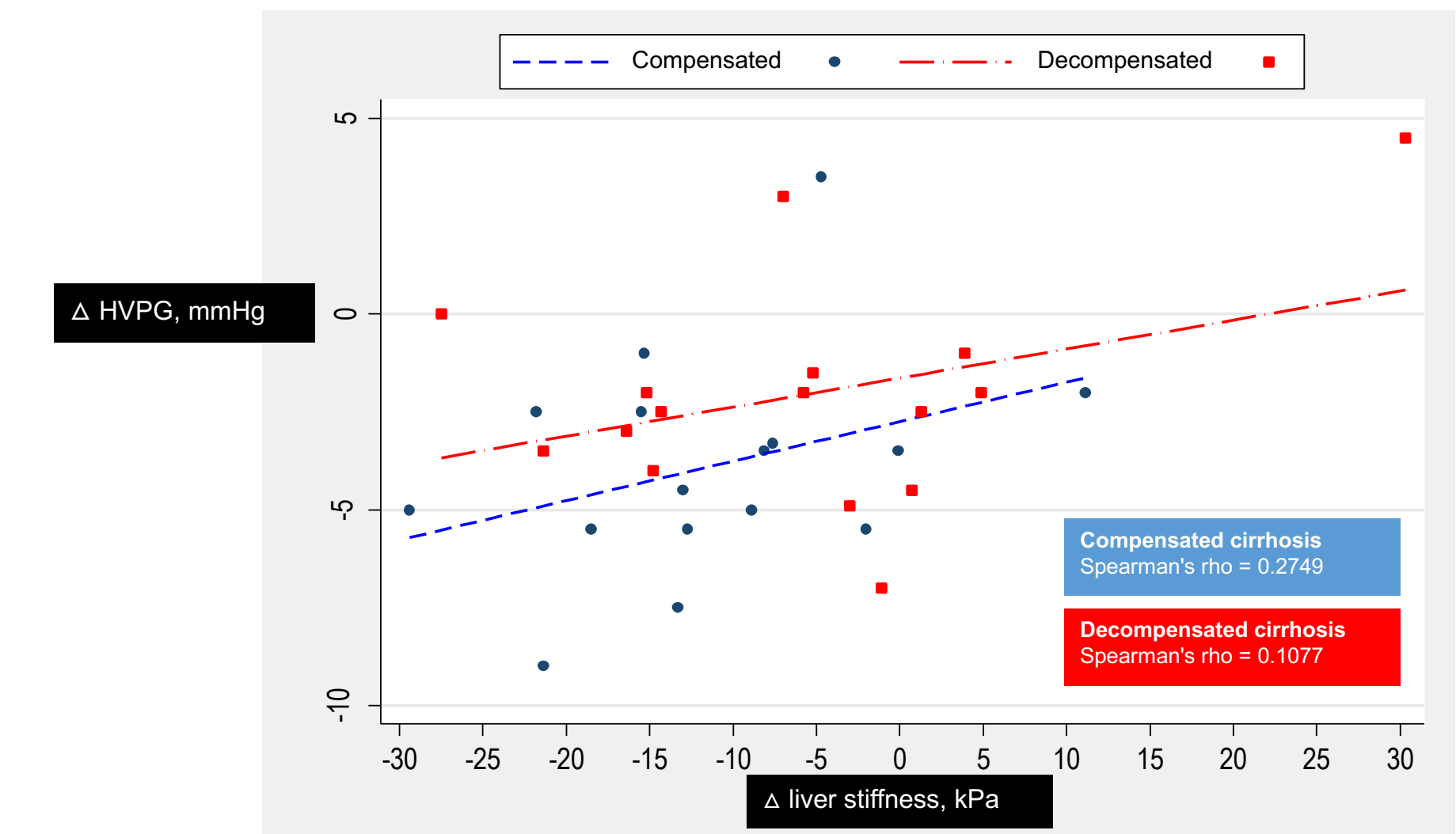


## Baseline variables associated with outcomes (Univariate logistic regression analysis\*)

	Primary endpoint OR (95% CI)	P	Secondary endpoint OR (95% CI)	P
Age	0.95 (0.83 - 1.08)	.446	1.00 (0.91 - 1.09)	.945
Male sex	1.11 (0.17 - 7.17)	.912	1.17 (0.28 - 4.84)	.832
BMI	0.89 (0.69 - 1.16)	.404	0.92 (0.76 - 1.1)	.356
HIV infection	3.75 (0.39 - 36.43)	.255	2.48 (0.58 - 10.62)	.223
Decompensated liver disease	-	-	0.49 (0.12 - 1.92)	.303
Alcohol > 50 g/d - never	1.55 (0.26 - 9.08)	.630	0.56 (0.14 - 2.26)	.411
Methadone	-	-	1.29 (0.07 - 22.42)	.863
Statins	27.00 (2.09 - 348.66)	.012	-	-
Prior anti-HCV therapy	0.13 (0.01 - 1.26)	.078	1.03 (0.27 - 3.99)	.968
Log10 HCV-RNA	14.45 (1.23 - 170.4)	.034	3.84 (1.03 - 14.29)	.045
Platelet count ≥ 100 10 <sup>9</sup> /L	9.20 (1.30 - 64.9)	.026	1.88 (0.40 - 8.74)	.423
Albumin > 3.5 g/dL	-	-	1.43 (0.28 - 7.26)	.667
MELD score	0.63 (0.36 - 1.10)	.105	0.89 (0.67 - 1.18)	.412
Liver stiffness	1.01 (0.95 - 1.06)	.855	0.98 (0.93 - 1.02)	.320
HVPG	0.60 (0.41 - 0.89)	.012	0.91 (0.74 - 1.12)	.378

\*The low number of events for the primary and secondary endpoints (6 and 15, respectively) make it non-advisable to carry-out multivariate analysis

## Correlations between changes in HVPG and liver stiffness



## Conclusions

- Our findings suggest that, in the medium term, SVR after DAA therapy in patients with liver cirrhosis and clinically significant portal hypertension is associated with a decrease in HVPG that may reduce to some extent the risk of liver complications or death in less than 50% of the patients
- However, the frequent persistence of clinically significant portal hypertension despite SVR, especially in patients with a more advanced disease, indicates a persistent risk of decompensation.
- The correlation between change in liver stiffness and reduction in HVPG was very weak, meaning that transient elastography may not be an accurate method to estimate changes in HVPG following SVR in this group of patients