

Hepatitis C virus eradication by direct-acting antiviral agents improves carotid atherosclerosis in patients with severe liver fibrosis.

[J Hepatol.](#) 2018 Mar 2.

National Center for Biotechnology Information

<https://www.ncbi.nlm.nih.gov/pubmed/29505844>

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Abstract

BACKGROUND AND AIMS:

Recent studies suggest an association between hepatitis C virus (HCV) infection and cardiovascular damage, including carotid atherosclerosis, with a possible effect of HCV clearance on cardiovascular outcomes. We aimed to examine whether HCV eradication by direct-acting antiviral agents (DAA) improves carotid atherosclerosis in HCV-infected patients with advanced fibrosis/compensated cirrhosis.

MATERIALS AND METHODS:

One hundred eighty-two consecutive patients with HCV and advanced fibrosis or compensated cirrhosis were evaluated. All patients underwent DAA-based antiviral therapy according to AISF/EASL guidelines. Intima-media thickness (IMT), carotid thickening (IMT ≥ 1 mm) and carotid plaques, defined as focal thickening of ≥ 1.5 mm at the level of the common carotid, were evaluated by ultrasonography (US) at baseline and 9-12 months after the end of therapy. Fifty-six percent of patients were male, mean age 63.1 ± 10.4 years, and 65.9% had compensated cirrhosis. One in five had diabetes, 14.3% were obese, 41.8% had arterial hypertension and 35.2% were smokers. At baseline, mean IMT was 0.94 ± 0.29 mm, 42.8% had IMT ≥ 1 mm, and 42.8% had carotid plaques.

RESULTS:

All patients achieved a 12-week sustained virological response. IMT significantly decreased from baseline to follow-up (0.94 ± 0.29 mm vs. 0.81 ± 0.27 , $p < 0.001$). Consistently, a significant reduction in the prevalence of patients with carotid thickening from baseline to follow-up was observed (42.8% vs. 17%, $p < 0.001$), while no changes were reported for carotid plaques (42.8% vs. 47.8%, $p = 0.34$). These results were confirmed in subgroups of patients stratified for cardiovascular risk factors and liver disease severity.

CONCLUSION:

HCV eradication by DAA improves carotid atherosclerosis in patients with severe fibrosis with or without additional metabolic risk factors. The impact of this improvement in the atherosclerotic burden in terms of reduction of major cardiovascular outcomes is worth investigating in the long term.

LAY SUMMARY:

Hepatitis C virus eradication by direct-acting antiviral agents improves carotid atherosclerosis in patients with advanced fibrosis/compensated cirrhosis. The improvement in intima-media thickness and carotid thickening was confirmed after stratification for severity of liver disease and cardiovascular risk factors. Hepatitis C virus eradication by direct-acting antiviral agents also lead to improvement in glucose homeostasis and increased cholesterol levels.

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KEYWORDS:

Atherosclerosis; DAA; HCV; SVR