EFFECT OF LIVER FIBROSIS STAGE AND DAA TREATMENT UPON RISK OF CVD EVENTS IN ERCHIVES

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CROI 2019
Seattle, WA
Presentation: *0570*

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BACKGROUND

- Hepatitis C virus (HCV) infection is associated with a higher risk of cardiovascular disease (CVD) events.
- Treatment with directly acting antiviral (DAA) regimens has been shown to reduce this risk in most, but not all studies.
- How liver fibrosis stage affects risk of incidence CVD events ***after treatment with DAA regimens*** is unknown. We undertook this study to determine the effect of baseline liver fibrosis stage upon the risk of incident CVD events in DAA-treated HCV infected persons, and compare it with untreated and those treated with older pegylated interferon-based (PEG) regimens.

OBJECTIVES

- To determine the effect of baseline liver fibrosis stage upon the risk of incident CVD events in DAA-treated HCV infected persons, and compare it with untreated and those treated with older pegylated interferon-based (PEG) regimens.

METHODS

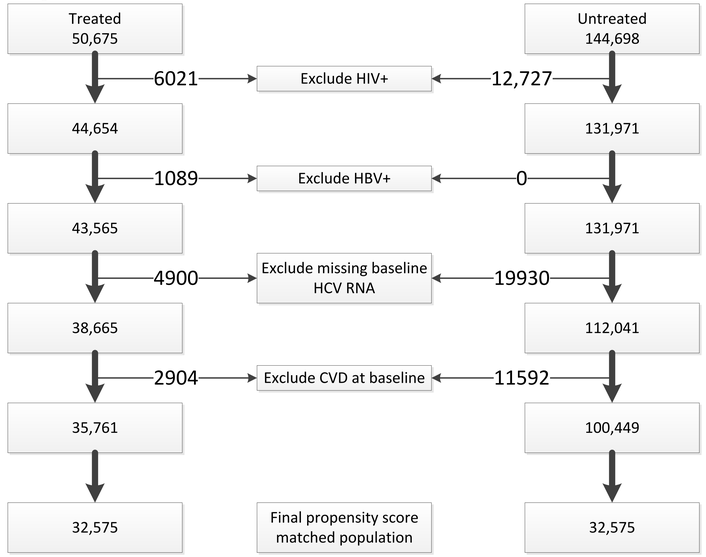
- We used the Electronically Retrieved Cohort of HCV Infected Veterans (ERCHIVES), a well-established national cohort of HCV infected Veterans
- Within ERCHIVES we identified all persons treated for HCV for >=7 weeks and propensity-score matched group who never received HCV treatment
- We excluded those with HIV, HBV and previously diagnosed CVD
- Incidence rate (per 1,000 person-years) and risk factors for CVD events (Cox proportional hazards analysis) were stratified by liver fibrosis stage
- Liver fibrosis stage was determined by FIB-4 score
- CVD events were identified using ICD-9CM/ICD-10 codes
- Kaplan-Meier plots were generated to show and compare CVD-free survival by fibrosis stage and treatment regimen.

RESULTS

- A total 32,575 treated and same number of propensity-score matched untreated persons met our inclusion criteria and were included in the final dataset

RESULTS

Study flow sheet

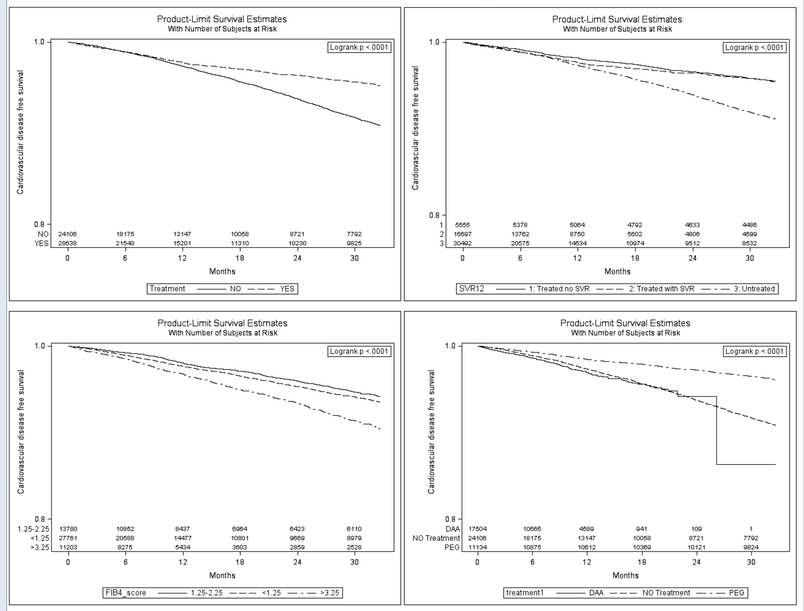


Baseline characteristics

	Treated N=32575	Untreated N=32575	p-value
Age in years, median (IQR)	58.6(53.5, 63.2)	57.5(53.1, 62.1)	<0.01
Race, %			0.48
White	56.1	56.6	
Black	26.8	26.6	
Hispanic	3.7	3.6	
Others/unknown	13.4	13.2	
Sex, % male	96.4	96.4	0.98
Smoking, %			0.72
Never	17.6	17.8	
Former	23.6	26.7	
Current	58.8	58.5	
Body mass index, % >30 kg/m^2	31.4	32.7	<0.01
Median FIB-4 score	1.95(1.33, 3.20)	1.70(1.18, 2.87)	<0.01
Lipids, median (IQR) mg/dL			
Total cholesterol	165.8(149.5,180.0)	163.0(141.0,186.0)	<0.01
Non-HDL cholesterol	119.0(103.0, 133.5)	115.73(95.0, 138.1)	<0.01
HDL	45.0(39.1,51.1)	43.50(35.5,54.0)	<0.01
FIB-4 score:			<0.01
<1.25	21.5	21.3	
1.26-3.25	54.1	49.8	
>3.25	24.4	28.9	
Diabetes, %	16.2	16.2	0.95
Hypertension, %	32.9	32.8	0.69
HCV RNA, $\log_{10}$ IU/ml, median (IQR)	5.8(5.1, 6.4)	5.6(5.1, 6.2)	<0.01
ACE-I/ARB use, %	3.5	3.7	0.28
Statin use, %	29.8	30.6	0.04
Sustained virologic response, %	75.05(16993/22643)	-	

RESULTS

Kaplan-Meier curves demonstrating CVD free survival



Incidence rate for CVD events by baseline FIB-4 score

	Incidence rate (95% CI) per 1,000 patient years of follow up		Difference in incidence rate (Untreated minus Treated)
	TREATED	UNTREATED	
FIB-4 < 1.25	19.3 (17.2,21.4)	25.6 (23.8,27.5)	6.3
FIB-4 1.26 – 3.25	19.9 (18.4,21.5)	33.2 (31.2,35.1)	13.3
FIB-4 > 3.25	24.5 (21.5,27.6)	44 (39.6,48.3)	19.5

CONCLUSIONS

- Risk of CVD among HCV infected persons is higher with increasing liver fibrosis stage.
- Treatment reduces the risk of incident CVD events at all fibrosis stages, with highest benefit in those with most advanced fibrosis.
- HCV infected persons with more advanced liver fibrosis should be targeted for treatment to reduce future risk of CVD events.

Acknowledgments:

This material is the result of work supported with resources and the use of facilities at the VA Pittsburgh Healthcare System and the central data repositories maintained by the VA Information Resource Center, including the National Patient Care Database, Decisions Support System Database and Pharmacy Benefits Management Database. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs.