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10TH IAS CONFERENCE ON HIV SCIENCE

Mexico City, Mexico 21-24 July 2019

EuroSIDA

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HCV reinfection among HIV/HCV co-infected individuals in Europe

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on behalf of the EuroSIDA study group

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Presenter Disclosure Information

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disclosed no conflict of interest.

Background

- In the absence of a vaccine against HCV, those who have been cured are still at risk of reinfection
- The overall risk is generally low, however reinfection is of particular concern among HIV co-infected people (PWID and HIV positive MSM), and HIV negative MSM on PrEP[1,2]
- While Directly Acting Antivirals (DAAs) can clear HCV in nearly all HIV/HCV co-infected individuals, high rates of reinfection may hamper efforts to eliminate HCV in these populations[3]
- Important to describe the prevalence of reinfection, and how this varies depending on risk group and region

[1]Simmons B. Clin Infect Dis. 2015;62(6):683–94. [2]Ingiliz P. J Hepatol. 2017;66(2):282–7. [3]Virlogeux V. BMC Med. 2017;15(1):1–11.

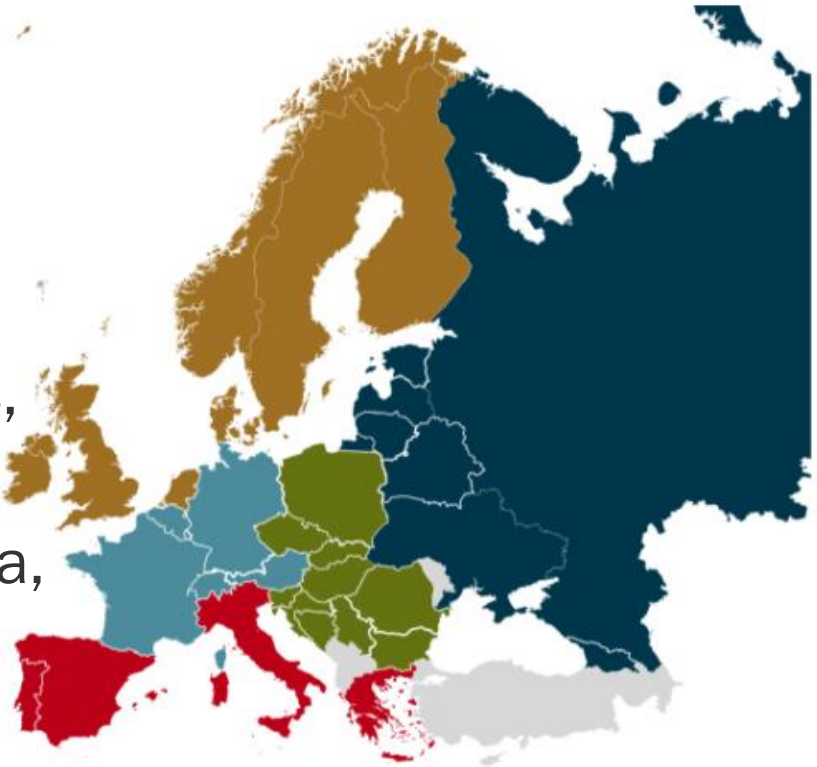
Aims

- To examine the risk of reinfection after achieving sustained virological response (SVR) in HIV/HCV co-infected individuals in Europe
- To assess whether the risk of reinfection varies depending on risk group for HIV infection, HCV treatment regimen (interferon-based regimens vs interferon-free DAAs), regional differences, or sociodemographic variables

EuroSIDA study

Large prospective observational cohort study with over 22,000 HIV-positive individuals

- **South:** Argentina, Greece, Israel, Italy, Portugal, Spain
- **Central West:** Austria, Belgium, France, Germany, Luxembourg, Switzerland
- **North:** Denmark, Finland, Iceland, Ireland, Netherlands, Norway, Sweden, United Kingdom
- **East/Central East:** Belarus, Bosnia-Herzegovina, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia, Slovakia, Slovenia



Methods - Definitions

- **SVR**: defined as a negative HCV-RNA result after treatment end date
  - 24 weeks or later for INF-based regimens (SVR24)
  - 12 weeks or later for INF-free DAA regimens (SVR12)
- **Reinfection**: defined as being HCV-RNA positive, HCV genotyped or receiving HCV treatment within 24 months of SVR12/SVR24

Methods - Statistics

- Tested for differences in baseline characteristics between those reinfected and not reinfected
- Logistic regression was used to identify risk factors associated with reinfection after SVR

Potential risk factors: age, sex, ethnicity, region in Europe, mode of HIV transmission, CD4 count, CD4 nadir, HIV-RNA, AIDS, non-ADI, HCV treatment type, year of SVR, stage of liver fibrosis*, HCV genotype, previous use of cART, prior HCV treatment, HBV infection

  - All factors found to be significant in univariable analyses ($p<0.1$) were included in multivariable model

*Determined by a biopsy (≥METAVIR stage F3), APRI (score >1.5), hyaluronic acid (>160ng/mL), or FibroScan (>9.5kPa) test

Inclusion criteria

- HIV positive
- HCV-RNA positive
- Completed HCV treatment
- Achieved SVR12 or SVR24
- ≥24 months follow-up after SVR
- ≥1 HCV-RNA test after SVR

Who was included?

Ever anti-HCV positive

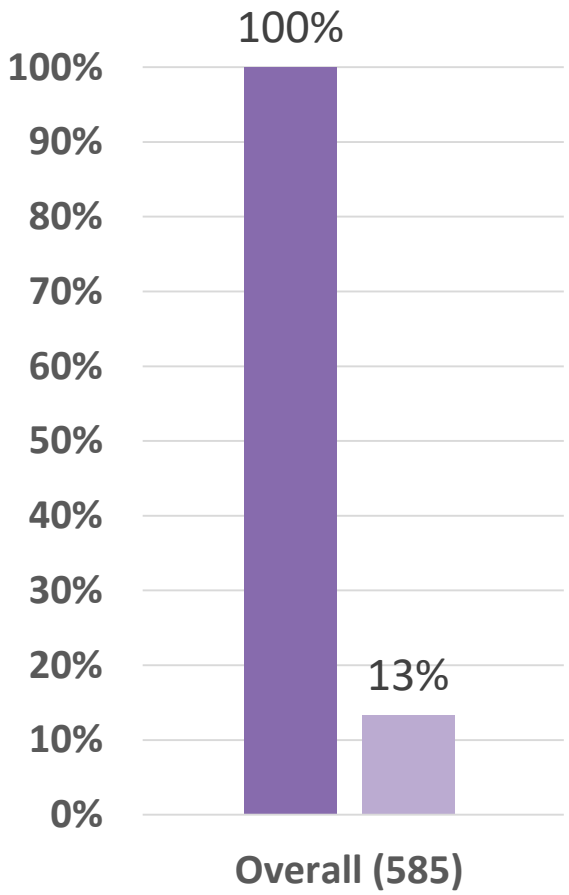
n = 9465

Baseline

Results – Reinfection by treatment

Study population	585
Reinfected	78, 13.3% (10.6-16.0%)

Results – Reinfection by region



Results – Characteristics at SVR (1)

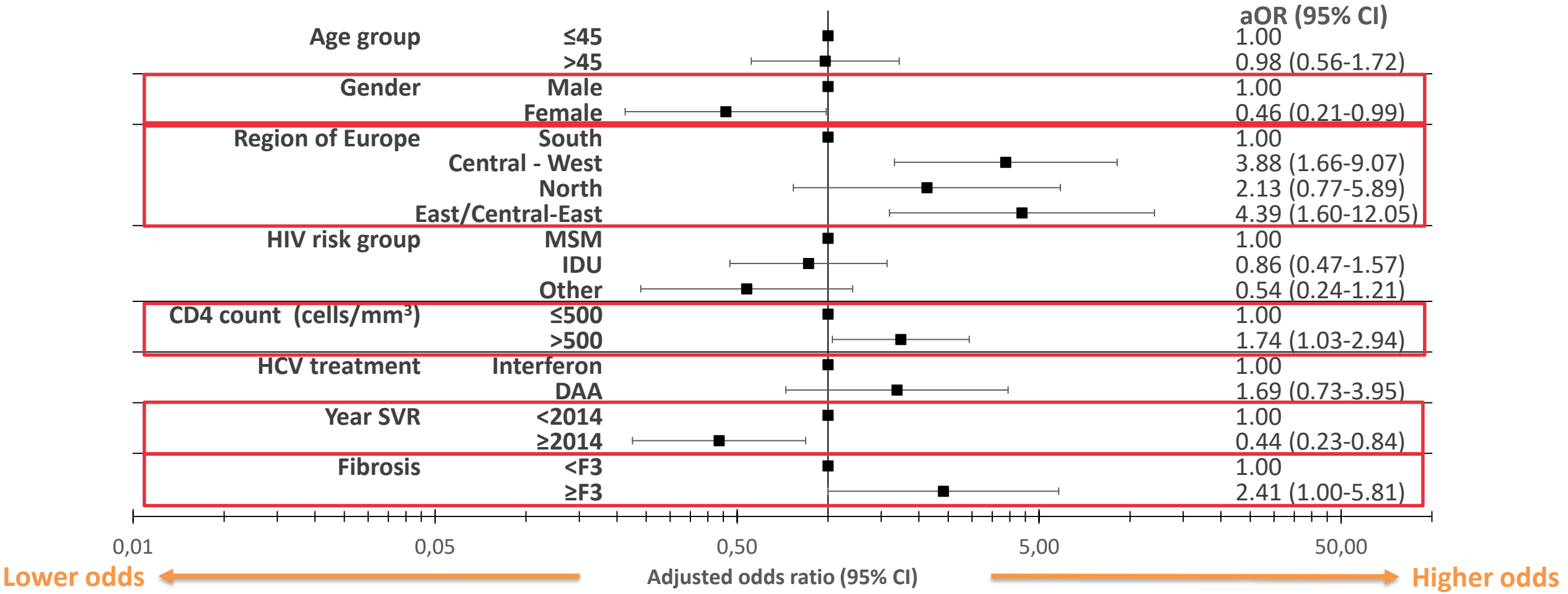
		Overall n (%)	Not reinfected n (%)	Reinfected n (%)	P-value
Overall		**585 (100.0)**	**507 (86.7)**	**78 (13.3)**	
Gender	**Male**	453 (77.4)	385 (85.0)	68 (15.0)	0.0270
	Female	132 (22.6)	122 (92.4)	10 (7.6)	
Ethnicity	**White**	455 (77.8)	408 (89.7)	47 (10.3)	0.0002
	Global Majority	7 (1.2)	7 (100.0)	0 (0.0)	
	Unknown	123 (21.0)	92 (74.8)	31 (25.2)	
Region of Europe	**South**	142 (24.3)	135 (95.1)	7 (4.9)	0.0030
	Central - West	256 (43.8)	210 (82.0)	46 (18.0)	
	North	102 (17.4)	90 (88.2)	12 (11.8)	
	East/Central - East	85 (14.5)	72 (84.7)	13 (15.3)	
HIV risk group	**MSM**	177 (30.3)	148 (83.6)	29 (16.4)	0.1471
	IDU	281 (48.0)	243 (86.5)	38 (13.5)	
HCV treatment	**Interferon**	475 (81.2)	412 (86.7)	63 (13.3)	0.9174
	DAA	110 (18.8)	95 (86.4)	15 (13.6)	

Results – Characteristics at SVR (2)

Overall		Overall n (%) 585 (100.0)	Not reinfected n (%) 507 (86.7)	Reinfected n (%) 78 (13.3)	P-value
Year SVR	<2014	312 (53.3)	261 (83.7)	51 (16.3)	0.0219
	≥2014	273 (46.7)	246 (90.1)	27 (9.9)	
Fibrosis	<F3	415 (70.9)	363 (87.5)	52 (12.5)	0.4080
	≥F3*	46 (7.9)	37 (80.4)	9 (19.6)	
HCV genotype	G1	236 (40.3)	204 (86.4)	32 (13.6)	0.9906
	G2 - G4	183 (31.3)	159 (86.9)	24 (13.1)	
cART	No	46 (7.9)	42 (91.3)	4 (8.7)	0.4963
	Yes	539 (92.1)	465 (86.3)	74 (13.7)	
Prior HCV treatment	No	427 (73.0)	374 (87.6)	53 (12.4)	0.2813
	Yes	158 (27.0)	133 (84.2)	25 (15.8)	
			Median (IQR)		
Age		47 (41-52)	47 (41-52)	47 (42-51)	0.9358
CD4 count (cells/mm^3)		514 (346-695)	503 (344-695)	546 (384-704)	0.5787

*Either a biopsy (≥METAVIR stage F3), APRI (score >1.5), hyaluronic acid (>160ng/mL) or FibroScan (>9.5kPa) test

Results – Odds of reinfection



Limitations

- Cohort individuals not necessarily representative of all HCV/HIV infected individuals
  - Majority of study of white ethnicity– unable to explore differences in reinfection based on ethnicity
- Differences in access to care, and patient management approaches within countries and regions
- No data on HCV risk behaviours
- FU HCV-RNA data not available for all
- Clinics may have targeted HCV-RNA testing to those at highest risk of reinfection, or with signs of reinfection
- The numbers of individuals on DAAs is limited so far, further FU is required

Summary

- The proportion of reinfections among HIV/HCV co-infected individuals within 24 months of achieving SVR was 13%, with evidence suggesting this is decreasing over time
- Individuals from Central-West and East/Central-Eastern Europe, with a CD4 count >500 cells/mm^3, and those with fibrosis ≥F3 were found to have an increased odds of reinfection.
- Females, and those who started treatment ≥2014 were found to have a decreased odds of reinfection
- No evidence of a difference in the proportion of individuals that we reinfected rate based on treatment (interferon vs interferon-free).

Conclusions

- Active surveillance to detect early HCV reinfection (with an offer of early treatment) is essential
- Harm reduction services in PWID are crucial to reduce rates of reinfection
- Reducing the rate of HCV reinfection is urgently needed to reach the goal of elimination by 2030, especially among marginalised groups[1]

[1]World Health Organization (WHO). Global hepatitis report, 2017. 2017.

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