

Trends in incidences and risk factors for hepatocellular carcinoma & other liver events in HIV/HCV co-infected individuals from 2001 to 2014: a multi-cohort study

15th European AIDS Conference
Barcelona, Spain @ October 23, 2015

Lars I. Gjørde, Leah Shepherd, Amanda Mocroft,
Andri Rauch, John Gill, Marina B. Klein & Lars Peters

On behalf of EuroSIDA in EuroCoord and the HCC Study Group



CANADIAN CO-INFECTION COHORT
A PROSPECTIVE CLINICAL COHORT OF HIV AND HEPATITIS C CO-INFECTED PATIENTS



Background

- Individuals with HIV are often co-infected with HCV

Alter, J Hepatol, 2006

- Co-infection accelerates the progression of liver disease

Lo Re et al., Ann Int Med, 2014

- In HIV/HCV co-infected individuals

- Liver disease is a major cause of death, but seems to be declining

Grint et al., AIDS, 2015

- Hepatocellular carcinoma (HCC) seems to be increasing

Ioannou et al., Hepatology, 2013

Aim

In HIV/HCV co-infected individuals:

- **Describe incidences of HCC and other liver events from 2001 to 2014**
- **Compare risk factors for HCC versus other liver events**

Study population

- 7,229 adults with HIV and positive HCV antibody-test
- EuroSIDA Study (n = 4,132)
- Swiss HIV Cohort Study (n = 2,044)
- Canadian Co-infection Cohort (n = 840)
- Southern Alberta Clinic Cohort (n = 213)



Outcomes

1) Hepatocellular carcinoma (HCC)

2) Other liver events

- Liver decompensations
- Liver-related deaths (excluding HCC)

Statistical analyses

- Poisson regressions to estimate incidence rate ratios separately for
 - 1) HCC
 - 2) Other liver events
- Univariate predictors with $p < 0.10$ were included the multivariate models

Predictor variables

- Age*
- Gender
- Race
- HIV risk group
- Region
- BMI*
- Calendar year of diagnosis
- Smoking*
- Alcohol*
- Cirrhosis*
- HBV status*
- Prior HBV drugs*
- Prior HCV drugs*
- Prior cART*
- Prior AIDS*
- HIV RNA*
- CD4 cell count nadir*
- CD4 cell count current*

* Time-updated variable

Definition of cirrhosis as predictor variable

- **Subjects had cirrhosis if they had at least one of the following:**
 - 1) Liver biopsy with METAVIR score F4**
 - 2) FibroScan elasticity > 12.5 kPa**
 - 3) Aspartate aminotransferase-to-platelet ratio index (APRI) > 2**
 - 4) Plasma hyaluronic acid level > 200 ng/ml**

Baseline characteristics (subset)

- in HIV/HCV co-infected individuals

Study subjects	n = 7,229
Age	38 (33–43) ^a years
Male gender	68 %
White race	90 %
IDU HIV risk group	59 %
HBV positive	5 %
Prior cART	71 %
Prior HCV drugs	5 %

^a Median (IQR)

Overall crude incidence rates

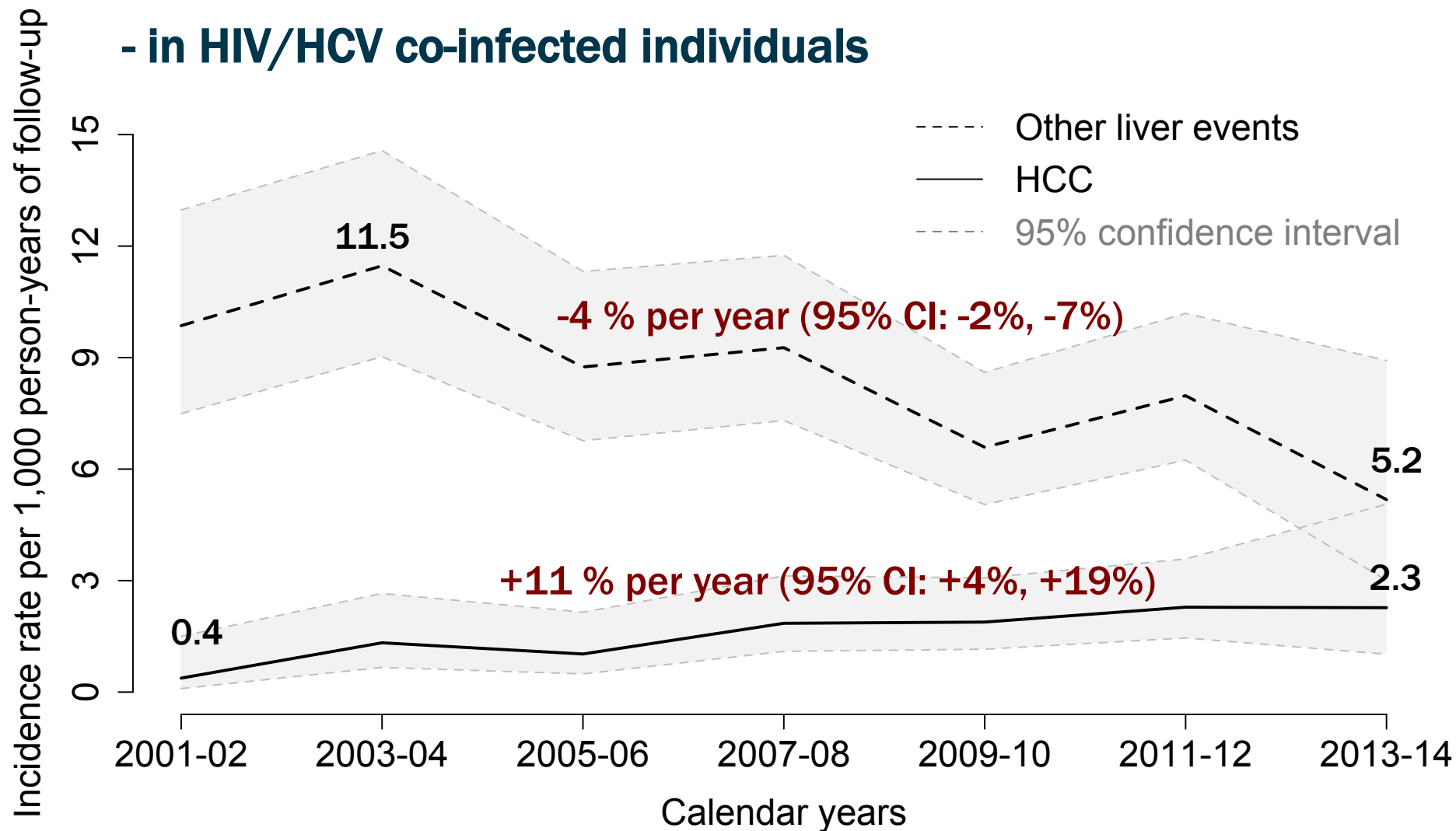
- in HIV/HCV co-infected individuals

	Number of events	Person-years of follow-up	Crude incidence rate ^a	95% CI
HCC	72	45,192	1.6	1.3–2.0
Other liver events	375	43,718	8.6	7.8–9.5

^a per 1,000 person-years of follow-up

Trends in crude incidence rates

- in HIV/HCV co-infected individuals



Characteristics at event (subset)

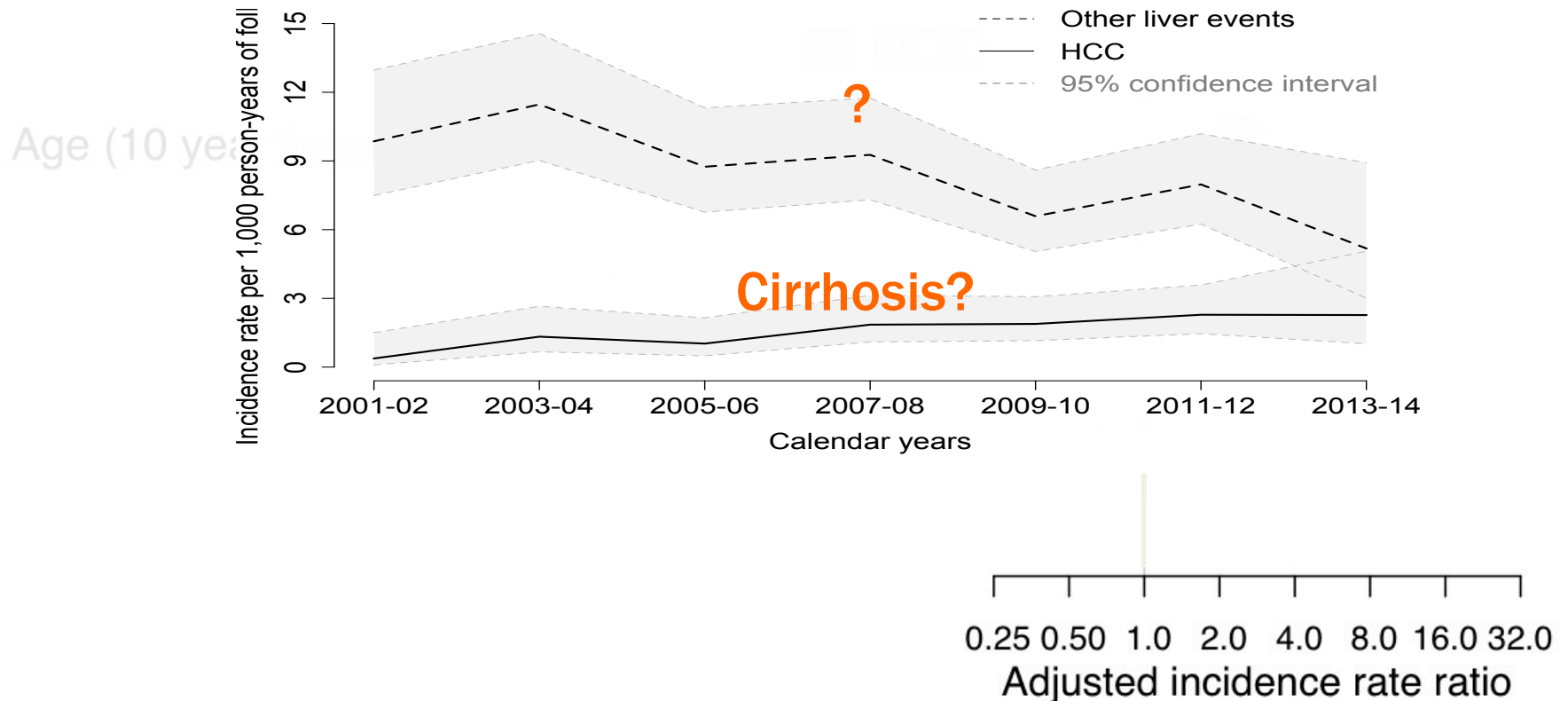
- in HIV/HCV co-infected individuals

Event	HCC (n = 72)	Other liver event (n = 375)
Age	50 (46–56) ^a years	44 (39–50) ^a years
White race	94 %	92 %
Cirrhosis	74 %	70 %
HBV positive	8 %	6 %
Ever HCV drugs	32 %	18 %
Current cART	89 %	60 %
CD4 cell count current	286 (201–438) ^a cells/mm ³	242 (110–397) ^a cells/mm ³

^a Median (IQR)

Risk factors

- in HIV/HCV co-infected individuals



■ also adjusted for gender, region (Europe East/Argentina vs. Europe West vs. Canada), prior AIDS, prior HCV drugs, prior HBV drugs, prior cART, and CD4 cell count nadir

● also adjusted for: gender, region (Europe East/Argentina vs. Europe West vs. Canada), prior AIDS, prior HBV drugs, prior cART, CD4 cell count nadir, HIV risk group, BMI*, smoking*, alcohol abuse, diabetes, and HIV RNA *p<0.05

Conclusion

- in HIV/HCV co-infected individuals

- Opposing trends in crude incidence rates
 - Increasing for HCC (driven by cirrhosis?)
 - Decreasing for other liver events
- Common risk factors for HCC and other liver events
 - Cirrhosis
 - High age
 - Low CD4 cell count

Acknowledgements

Leah Shepherd

Amanda Mocroft

Andri Rauch

John Gill

Marina B. Klein

Lars Peters



Acknowledgements

The EuroSIDA Study Group

[illegible]

Acknowledgements

The Swiss HIV Cohort Study

SWISS
HIV
COHORT
STUDY



Acknowledgements

Southern Alberta Clinic Cohort



Acknowledgements

Canadian Co-Infection Cohort (CTN 222)

Principal investigators: CIHR, FRSQ, and CTN. Cohen, Brian Conway, Curtis Cooper, Pierre Côté, Joseph Cox, John Gill, Shariq Haider, Mark Hull, Valerie Martel-Laferrriere, Julio Montaner, Erica Moodie, Neora Pick, Anita Rachlis, Danielle Rouleau, Aida Sadr, Stephen Sanche, Roger Sandre, Mark Tyndall, Marie-Louise Vachon, Sharon Walmsley, Alexander Wong, David Wong.

www.cocostudy.ca



Acknowledgements

Thank you for your attention!

