**The effects of alcohol on spontaneous clearance of acute hepatitis c virus infection in females versus males**

Tsui JI1, Mirzazadeh A2, Hahn JA2,3, Maher L4, Bruneau J5, Grebely J4, Hellard M6, Kim AY7, Shoukry NH5, Cox AL8, Prins M9, Dore GJ4, Lauer G7, Lloyd A10, Page K11, on behalf of the InC3 Collaborative

1 Division of General Internal Medicine, Department of Medicine, University of Washington, Seattle, WA, USA, tsuij@uw.edu; 2 Department of Epidemiology and Biostatistics, University of California, San Francisco, San Francisco, CA, USA

3 Department of Medicine, University of California, San Francisco, San Francisco, CA 94143; 4The Kirby Institute, University of New South Wales, Sydney, NSW, Australia

5 Centre de Recherche du CHUM, Université de Montréal, Montréal, QC, Canada

6 Burnet Institute, Melbourne, VIC, Australia; 7 Harvard Medical School, Boston, MA, USA; 8 Department of Medicine, Johns Hopkins Medical Institutions, Baltimore, MD, USA; 9 Cluster Infectious Diseases, GGD Public Health Service of Amsterdam, Amsterdam, The Netherlands; 10 University of New South Wales, School of Medical Sciences, Sydney, NSW, Australia; 11 Department of Internal Medicine, Division of Epidemiology, Biostatistics and Preventive Medicine, University of New Mexico Health Sciences Center, Albuquerque, NM, USA

**Background**: Approximately one quarter of persons exposed to hepatitis C virus (HCV) will spontaneously clear. We undertook this study to investigate the impact of alcohol on likelihood of HCV spontaneous viral clearance stratified by sex.

**Methods:** Pooled data from an international collaboration of prospective observational studies of incident HIV and HCV infection in high-risk cohorts (the InC3 Study) was restricted to 411 persons with documented acute HCV infection and data regarding alcohol use. The predictor of interest was self-reported alcohol use at or after estimated date of incident HCV infection and the outcome was HCV spontaneous clearance. Sex stratified Cox proportional hazards models were used to evaluate the association between alcohol and spontaneous clearance, adjusting for age, race/ethnicity, and IFNL4 genotype.

**Results**: The median age was 28.5 years, 30.4% women, 87.2% white, and 71.8% reported alcohol use at or after incident infection. There were 89 (21.6%) cases of spontaneous clearance observed over 560.7 person-years of observation (pyo), 39 (31.2%) among women and 50 (17.5%) in men (p<0.01). Overall, spontaneous clearance occurred less frequently among participants who drank alcohol compared to those who did not drink (18.9% v. 28.5%, p=0.03). After adjustment for other covariates, alcohol was significantly associated with lower relative hazards for spontaneous clearance of HCV in women (AHR=0.35; 95% CI: 0.19-0.66; p=0.001) but not in men (AHR=0.63; 95% CI: 0.36-1.09; p=0.10).

**Conclusions:** Results indicate that abstaining from drinking alcohol may increase the likelihood of spontaneous clearance among women.

**Acknowledgements**: The authors recognise the considerable contribution that industry partners make to professional and research activities. We also recognise the need for transparency of disclosure of potential conflicts of interest by acknowledging these relationships in publications and presentations.