Attenuated protective effect of opioid agonist therapy on HCV incidence among females

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Disclosures

- K Page, M Hellard, P Dietze, A Lloyd, J Tsui, J Bruneau:
  - receive investigator initiated research support from Gilead Sciences for research support unrelated to this work.
- P Dietze
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- J Bruneau has an advisory role with Merck (MDS) and Gilead Sciences

- **No Disclosures**
- L Geddes, l Maher, J I Iverson, A Esmaeili, H Wand, M Morris, N Shoukry

Background/aims

- **What is known about this area?**
  - Parenteral exposure though injection drug use the predominant mode of HCV transmission in developed countries[1]; ~16 million people who inject drugs (PWID) globally, including 3.2 million females[2]. More than half have been exposed to HCV[2]
  - HCV incidence among PWID differs by sex: 38% higher HCV among females compared to males[3].
- **Why is this study important?**
  - Opioid agonist therapy (OAT) reduces injection frequency and minimises injection risk behaviour[4], and reduces risk of HCV by 50%[5]
  - However, a recent meta-analysis suggests the protective effects of OAT may be attenuated in females compared to males: by 59% with each 10% increase in female participants[5].
- **Study aims**
  1. To assess, in greater depth, differences in HCV incidence by sex among PWID engaged in OAT
  2. To identify factors independently associated with the decreased efficacy of OAT among females.

[1] Alter et. Al., (2007) *World J Gastro;* [2] Degenhardt et al., (2017) *Lancet GH;* [3] Esmaeili et al., (2017). *CID.* [4] Tilson et. al. (2007). [5] Platt et. al. (2017). *Cochrane Database SR*

Methods

- **Study design/patient population**
  - International Collaboration of Incident HIV and Hepatitis C in Injecting Cohorts (InC3) Study 7 of 10 cohorts included
  - Biological sex recorded as either male or female; anti-HCV negative at baseline; two or more study visits recorded; history of injection drug use; *and* report of recent (last 12 months) OAT (methadone, buprenorphine or buprenorphine-naloxone) at least one visit.
- **Study assessments:**
  - Incident HCV infection using anti-HCV, RNA and clinical criteria
- **Study endpoint:**
  - Incident HCV while exposed to OAT
- **Statistical analysis**
  - Kaplan-Meier methods; Cox-proportional hazards with random effects were used to identify the independent predictors of incident HCV infection after accounting for the clustering effect of study sites and adjusting for missing data in each variable

Results

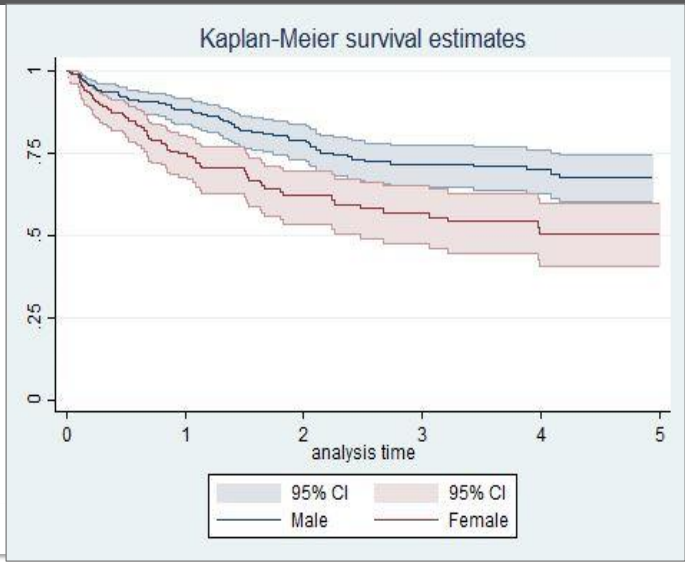
- 701 participants from 7 cohorts were eligible
- 64% male; 74% white
- Age (median): 26 (IQR: 17-49)
- No. of years injecting (median): 7 (IQR: 1,34)
- 22% >=daily injecting
- 18% report receptive syringe sharing

HCV incidence (/100pyo) (95% CI)

- Females: 16.5 (13.1, 20.7)
- Males: 7.6 (6, 9.5)

Adjusted F:M hazard ratio

- 1.80 (95% CI 1.37-2.22, *p*<0.001)



Results: Factors associated with decreased efficacy of exposure to OAT

	Females (N=253) Adjusted HR** (95% CI)	Males (N=448) Adjusted HR** (95%CI)
Race		
White (ref)	1	1
Non-white	1.70 (1.30, 2.22)	1.45 (1.13, 1,87)
Unstable housing*		
No	1	1
Yes	2.54 (1.31, 4.95)	3.28 (2.34, 4.59)
Drug injected most frequently*		
Non-opioid	--	1
Opioid	--	0.66 (0.50, 0.86)
Injection frequency*		
< Daily	1	1
Daily or more	1.85 (1.19, 2.88)	2.14 (2.11, 2.19)
Receptive syringe sharing*		
No	1	--
Yes	1.45 (1.28, 1.64)	--

*Denotes "Recent" exposure - in the previous 3 or 6 months depending on cohort interview intervals; ** Adjusted for missing data; V

Conclusions/implications

- Females exposed to OAT are twice as likely to acquire HCV infection than their male counterparts
- Structural and behavioural interventions that target women are required to bolster the efficacy of OAT in preventing HCV incident infection
- Harm reduction services should be sensitive to the specific needs of females as gender neutrality may inadvertently disadvantage females
- Further research should investigate the mechanisms and impact of factors that attenuate the protective effect of OAT (on HCV incidence) among females

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