# HIGH HEPATITIS C VIRUS REINFECTION RATE AFTER ACHIEVING SUSTAINED VIROLOGICAL RESPONSE (SVR) AMONG PEOPLE WHO INJECT DRUGS ACTIVELY : TACTIC COHORT

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## INTRODUCTION

Availability and efficacy of new regimens to treat Hepatitis C (HCV) are appealing for treatment scale-up. Treating people who inject drugs (PWID) could prevent onward transmission however there are concerns about high costs and possible reinfections.

In Canada, approximately 80% of new hepatitis C virus (HCV) infections occur in people who inject drugs (PWID).

- In Quebec City, hepatitis C prevalence in PWIDs was 73% in 2010 (SurvUDI-I-Track)
- Cocaine is the most frequently injected drug in Québec City followed by opioids: 92% injected cocaine in the last 6 months and 63% injected opioids (51% medical opioids and only 12% heroin)

## TACTIC PROJECT: A MODEL OF CARE

- The Tactic project started in the spring of 2009 and was devised to provide anti-HCV treatment to PWIDs in the context of a community setting with an adapted model of care.
- The project has a harm reduction philosophy and a low threshold for access to care that is provided in proximity to where PWIDs live.
- Health services, including anti-HCV treatment, were provided in the setting of a needle exchange program and a homeless shelter.
- The multidisciplinary team comprises 1 family physician with experience in HCV treatment, 2 nurses and 1 community outreach worker.

## METHODS

47 PWIDs (who injected drugs within 6 months prior treatment) were treated with Peginferon/ribavirin (+/- protease inhibitor).

To document reinfection, we performed HCV RNA testing 3 and 6 months post-treatment and every 12 months after sustained virological response (SVR) . Reinfection was defined as a positive HCV RNA after SVR or a positive RNA within 6 months post-treatment with a different genotype.

### BASELINE CHARACTERISTICS

| | | |
|---|---|---|
| Gender, n=47 (%) | Male | 27 (57) |
| | Female | 20 (43) |
| Mean age | | 37 (23–56) |
| Psychosocial characteristics | Unemployed | 96% |
| | Prostitution | 36% (75% for women) |
| | Prior incarceration | 80% |
| | Psychiatric comorbidities | 77% |
| | Receiving opiate substitution therapy | 25% |
| HCV genotype | 1 or 4 | 60% |
| | 2 or 3 | 40% |
| HIV co-infection | | 10% |

## RESULTS

In this cohort adherence was very high (95%) and sustained virological response was over 70%

A total of 33 patients achieved SVR but 3 patients were lost to follow-up. Among the 30 eligible patients there were:

- 18 males, median age 38 and 3 HIV positive.
- We documented 10 reinfections in a mean of 2.6 years of follow-up.
- Reinfection rate was 12.8 per 100 person-years (95%CI 4.87, 20.77).
- 2 persons had reinfection early after treatment (6 and 9 months)
- Mean time for reinfection was 2.35 years after treatment (6-62 months).

## DISCUSSION

Recent systematic reviews[1,2,3] looking at reinfection among PWIDs described lower rates of reinfection than in our cohort. Among the studies included in analysis, majority had small sample sizes without clear distinction between former and current injecting drug users. Majority of studies excluded early reinfection, a positive RNA within 6 months post-treatment was considerer a relapse rather than a possible reinfection.

**Some possible explanation for high reinfection rate in our cohort:**

- **High prevalence of HCV infection in our PWID population ( 73% )**
- **Cocaine as the most frequently injected drug (associated with more injections per day, no substitution therapy)**
- **We included early reinfection (positive RNA within 6 months post-treatment with a documented different genotype)**
- **Only 3 patients were lost to follow-up**

Limitations in our study:

- Testing interval: with a shorter testing interval we could have capture reinfection followed by spontaneous clearance
- No access to sequencing results to document early reinfection with same genotype
- The loss of follow-up for 3 patients

## CONCLUSION

Expanded access and cost of new regimens will be a challenge for majority of countries and better evaluation of reinfection rate is important. Future studies should adopted a common definition of risk factors (former vs active PWID), shorter testing intervals, longer period of follow-up and assess for early reinfection with use of sequensing methods.

**A better understanding of rate and risk of HCV reinfection is mandatory to implement interventions and programs to prevent reinfection rather than withheld the treatment in PWID.**

**References**

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3-Grebely J, Prins M, Hellard M, Cox and al. Hepatitis C virus clearance, reinfection, and persistence, with insights from studies of injecting drug users: Towards a vaccine. The Lancet Infectious Diseases 2012;12(5):408-14

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