

HEPATITIS C VIRUS REINFECTION AFTER SUCCESSFUL TREATMENT WITH DIRECT-ACTING ANTIVIRAL THERAPY IN CANADA

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Background: Direct-acting antiviral therapies (DAA) remove many barriers to the treatment of people who inject drugs (PWID). However, reinfection among PWID remains a concern and may hamper elimination efforts. We estimated HCV reinfection rates among DAA-treated individuals, including PWID in a population-based cohort study in British Columbia (BC), Canada.

Methods: We analyzed data from the BC Hepatitis Testers Cohort which included ~1.7 million individuals screened for HCV in BC. We followed HCV-infected individuals treated with DAAs who achieved sustained virologic response (SVR) and had ≥ 1 subsequent HCV RNA measurement from SVR until October 9, 2018. Reinfection was defined as a positive RNA measurement after SVR. PWID were identified using a validated algorithm and classified based on recent (≤ 3 years) or former (> 3 years) before SVR) injection drug use (IDU). Crude reinfection rates per 100 person-years (PYs) were calculated.

Results: Of 4,563 individuals who received DAA treatment, the majority were male ($n=2,972$, 65%), born before 1965 ($n=3,730$, 82%), and were PWID ($n=2972$, 65%). Among PWID, 907 (20%) and 2065 (45%) were classified as recent and former IDU, respectively, and 20% were on opioid-agonist therapy (OAT). We identified 43 reinfections during 3,267 PYs (1.32/100 PYs) accumulated over one year of follow-up post SVR. Reinfection rates were higher among people with recent ($n=19$, 2.55/100 PYs) and former IDU ($n=20$, 1.42/100 PYs) than non-PWIDs ($n=4$, 0.36/100 PYs). Cumulative incidence curves showed an increase in incidence among PWID over time. Among people with recent IDU, reinfection rates were higher among those born after 1975 (7.1/100 PYs) or co-infected with HIV (3.6/100 PYs).

Conclusions: Population-level reinfection rates after DAA therapy are higher among PWIDs, especially those with recent IDU compared to those with no IDU. Rapid scale-up HCV treatment along with high coverage of harm reduction services for high risk groups will be needed to achieve HCV elimination.

Disclosure of Interest Statement: MK has received grant funding via his institution from Roche Molecular Systems, Boehringer Ingelheim, Merck, Siemens Healthcare Diagnostics and Hologic Inc.