Reinfection following successful direct-acting antiviral therapy for hepatitis C virus infection among people who inject drugs: the sharp-c study

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Background: Reinfection following successful Hepatitis C Virus (HCV) treatment can reduce the individual and population benefits of HCV treatment. This study aimed to evaluate the incidence of HCV reinfection and associated factors following successful direct acting antiviral (DAA) therapy among people with recent injecting drug use.

Methods: The SHARP-C study was a prospective, observational cohort study, which recruited participants from hospital-based HCV clinics, community-based drug treatment clinics, and community healthcare clinics in Australia, New Zealand, and Canada between 2018 and 2020. Participants with recent injecting drug use (prior 6 months) with either: 1) chronic HCV infection who were commencing DAA therapy; or 2) had a documented sustained virological response (SVR) were recruited. Participants were evaluated every three months, with reinfection confirmed via viral sequencing. Follow-up was calculated from end of treatment (those commencing treatment during study) or SVR (those previously treated). Person-time of

observation and Cox proportional hazard models were used to calculate reinfection incidence and associated factors.

Results: A total of 111 participants were enrolled (median age 43 years; 66% male, 85% reported injecting drugs in the last month). Twelve reinfection cases were confirmed over 113 person-years, for an incidence of 10.6/100 person-years (95% confidence interval [CI], 6.0-18.7). Median time to reinfection was 22 weeks. Reinfections exclusively occurred in people with recent injecting drug use (last month) during study follow-up, for an incidence of 12.2/100 person-years in this population (95% CI, 5.8-20.0). Among people who reported sharing needles/syringes, incidence was 32.3/100 person-years (95% CI, 8.0-76.8).

Conclusions: These findings underscore the importance of monitoring for HCV reinfection following treatment among people who continue to inject drugs. They also highlight the need for research into holistic models of HCV care which are integrated into harm reduction services in order to reduce the risk of reinfection.

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