RISK BEHAVIOUR TRAJECTORIES AMONG PEOPLE TREATED FOR RECENT HCV INFECTION

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REACT

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Background

Exploration of sexual and drug use behaviours following treatment for recent hepatitis C virus (HCV) infection has been limited. This analysis modelled behavioural trajectories following treatment for recent HCV and assessed HCV reinfection and sexually transmitted infection (STI) incidence.

Methods

Participants in the Recently Acquired HCV Infection Trial (REACT), an international trial assessing the efficacy of sofosbuvir-velpatasvir for six or 12 weeks for treatment of recent HCV infection, were followed at three-monthly intervals for up to two years to assess longitudinal drug use and sexual behaviours. Population averaged changes in behaviours over time were estimated using a generalized estimating equation extension of logistic regression. As assessment of average behavioural patterns can mask heterogeneity among individuals, group-based trajectory modelling was used to identify relatively homogeneous clusters of behavioural trajectories over time. HCV reinfection and STI incidence were calculated using person-years (PY) of observation

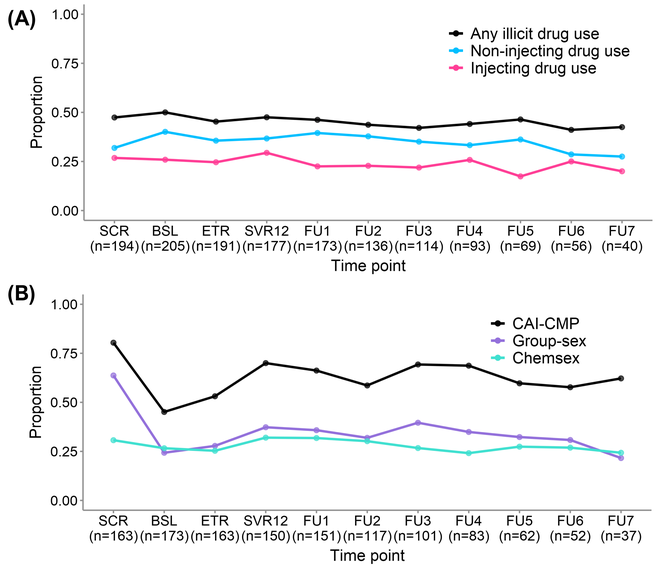

Figure 1. Proportion of participants reporting drug use and sexual risk behaviours. Proportion of participants reporting (A) injecting drug use and (B) proportion of gay and bisexual men reporting sexual risk behaviour.

In this international cohort of predominantly gay and bisexual men with HIV, limited sexual and drug use behavioural change was observed following treatment for recent HCV. There were high rates of HCV reinfection supporting access to regular post-treatment reinfection surveillance and retreatment.

Results

Drug use

Of 212 participants (84% gay and bisexual men [GBM]; 69% HIV]), almost half (47%) reported drug use in the month prior to enrolment (predominantly stimulants [38%]), with 26% reporting injecting drug use (IDU) **(Figure 1A)**.

Following treatment, behavioural trajectories for IDU and stimulant use in the past month did not change **(Figure 2A)**. However, population averaged decreases in the likelihood of daily IDU (adjusted odds ratio [AOR] 0.83; 95% CI 0.72, 0.95) and opioid use (AOR 0.84; 95% CI 0.75, 0.93) were observed.

Sexual behaviour

Among GBM at enrolment (n=179), most reported condomless anal intercourse with casual male partners (CAI-CMP, 80%) and group-sex (64%) in the past month and almost one-third reported sexualised drug use (chemsex, 31%) **(Figure 1B)**. In the past 12 months, 60% reported being diagnosed with an STI.

Population averaged decreases in CAI-CMP (AOR 0.95; 95%CI 0.90, 0.99) and group-sex (AOR 0.86; 95%CI 0.80, 0.93) were observed, but masked distinct behavioural trajectories **(Figure 2B, 2C)**. While some GBM had decreased probability of CAI-CMP (23%) and group-sex (59%) following treatment, a substantial proportion retained high probability of these behaviours. Behavioural trajectories for chemsex did not change **(Figure 2D)**.

HCV reinfection and STI incidence

HCV reinfection incidence was 13.2/100 PY (95% CI 9.0, 19.3), increasing to 33.0/100 PY (95%CI 17.7, 61.3) for those assigned to the high IDU probability trajectory and 23.3/100 PY (95%CI 14.5, 37.5) for GBM assigned to the high chemsex probability trajectory.

STI incidence was 103.2/100 PY (95%CI 90.7, 117.5) increasing to 161.1/100 PY (95%CI 136.4, 190.2) and 152.1/100 PY (95%CI 127.2, 177.3) for those assigned to the high group-sex and chemsex probability trajectories, respectively.

Conclusion

Treating people with recent HCV infection will be critical to reduce HCV transmission and achieve elimination. With limited risk behaviour modification following treatment, regular reinfection surveillance and rapid access to retreatment will be critical to achieve sustained declines in the incidence of HCV among gay and bisexual men and people who inject drugs.

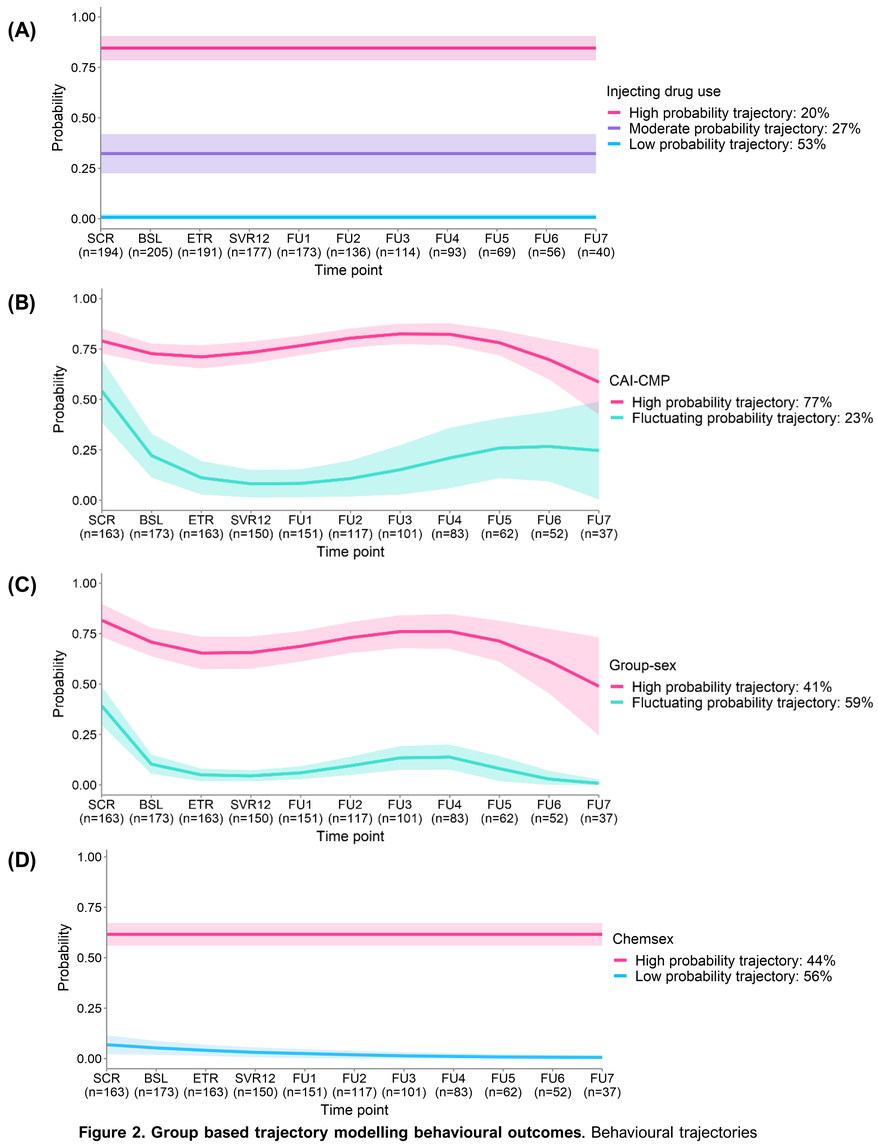

Figure 2. Group based trajectory modelling behavioural outcomes. Behavioural trajectories before, during, and following treatment for recent HCV infection. (A) injecting drug use in the overall population; (B) condomless anal intercourse with casual male partners, (C) group-sex, and (D) chemsex among gay and bisexual men.

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