Changes in hepatitis C prevalence and incidence associated with access to direct-acting antivirals in a prospective cohort of people who inject drugs in Melbourne, Australia

Authors:
Fisher T*[1,2], Smith P*[1,2], Higgs P[1,3], Aung P[1,2], Stoove M[1,2,3], Dietze P*[1,2,4], Sacks-Davis R*[1,2,5]

[1]Burnet Institute, Australia, [2]Monash University, Australia, [3]La Trobe University, Australia, [4]Curtin University, Australia, [5]The University of Melbourne, Australia
*Indicates equal contribution

Background: Highly effective direct-acting antiviral (DAA) therapies for hepatitis C virus (HCV) could lead to reductions in HCV incidence through a treatment-as-prevention effect, making HCV elimination possible. Sharing injecting equipment is the main route of HCV transmission globally; however, most data on the impact of DAA availability in people who inject drugs has been collected through studies of people recruited from drug treatment or harm reduction services. We aimed to measure changes in HCV prevalence and primary (first ever) HCV infection incidence following the introduction of broad access to DAAs in a community-based cohort of people who inject drugs.

Methods: Data were from the SuperMIX prospective cohort of people who inject drugs. Annual interviews and HCV antibody and RNA tests were administered from 2010-2022. Current HCV infection was defined as HCV RNA positivity. Primary HCV infection was defined as a negative HCV antibody test followed by a positive HCV antibody or RNA test. Changes in prevalence of current HCV infection following DAA introduction were estimated using a log-binomial interrupted time series model. Changes in primary HCV incidence following DAA introduction were estimated using Poisson regression.

Results: Among 1083 participants, prevalence of current HCV was ~52% (95%CI:48-56%) from March 2010-February 2016, declined by 17% (prevalence ratio: 0.83, 95%CI:0.73-0.94) by February 2017, followed by a 14% decline per annum thereafter (prevalence ratio: 0.86, 95% CI: 0.82-0.90). Pre-DAA HCV incidence was 6.41 per 100 person-years (PY; 24 cases, 374.5 PY, 95%CI:4.30, 9.56), declining by 81% to 1.22 per 100 PY (2 cases, 164.5 PY, 95%CI:0.30, 4.86, incidence rate ratio: 0.19, 95%CI:0.04, 0.80).

Conclusion: Universal DAA access was associated with declines in HCV prevalence and incidence in a large community-based cohort of people who inject drugs, consistent with a treatment-as-prevention effect. Additional interventions may be required to further reduce HCV burden in this group.

Disclosure of Interest Statement: The authors acknowledge funding for this research from the Colonial Foundation Trust, the Australian National Medical Research Council, and the Burnet Institute.