Effect of direct acting antiviral son HCV incidence among people living with HIV

Abstract Body

The World Health Organization (WHO) strategy to eliminate hepatitis C virus (HCV) as a public health threat aims at reducing incidence by 30% in 2020 and by 80% in 2030 compared to 2015. Universal access to direct-acting antivirals (DAA) can reduce HCV incidence through a treatment as prevention effect. We aim to monitor progress towards HCV elimination, including changes in primary HCV incidence by calendar year and following DAA introduction among people living with HIV (PLHIV).

We used pooled data from 6 cohorts from the International Collaboration on Hepatitis C Elimination in HIV-coinfection (InCHEHC), including data from the Netherlands, Switzerland, Australia, Spain, and France (2010-2019). For incidence, follow up started from the first negative HCV-antibody test date until last negative antibody test or infection date which was estimated as the midpoint between last negative and first positive test dates. To monitor elimination progress, we calculated annual rates. We used interrupted time series analysis to assess the effect of DAA introduction on incidence. We aggregated data in 6-monthly intervals. Time zero was aligned across cohort to indicate the interval between the date of DAA introduction in each country to 6 months thereafter.

Of 86,250 participants, 45,933 had at least one HCV antibody negative result and a subsequent test. During 248,186 person-years (py), we observed 2,051 incident infections. Incidence decreased from 0.91 per 100 py (95%CI=0.80,1.03) in 2015 to 0.46 per 100 py (95%CI=0.35,0.60) in 2019, reflecting a 49% decrease. Mean incidence in the pre-DAA period was 1.27 per 100 py. Interrupted time-series analysis estimated that pre-DAA incidence was declining slowly by 0.009 per 100 py (95%CI=-0.05,0.04) per 6-month interval (Figure). In the first 6 months following DAA introduction, a 51% (absolute

change=-0.62 95%CI=-0.90,-0.35) drop in incidence was observed. Mean incidence in the DAA period was 0.56 per 100 py. Post-DAA incidence continued to decrease by 0.009 per 100 py (95%CI=-0.02,-0.005) per 6-month interval.

Our data suggests the countries from which our cohorts are drawn are on track to meet the WHO elimination incidence target for PLHIV in care by 2030. A rapid decline in primary HCV incidence was observed shortly following DAA introduction and incidence remained low, with a slow ongoing decline thereafter. Our findings indicate that greater efforts and new strategies are needed to achieve further incidence reductions.