REINFECTION IN THE REACH-C COHORT: OCCURRENCE AND EFFECTIVENESS OF RETREATMENT FOR HEPATITIS C VIRUS REINFECTION FOLLOWING DIRECT ACTING ANTIVIRAL THERAPY

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Background: Direct acting antiviral (DAA) therapy is highly effective for HCV infection, but reinfection following treatment may compromise benefits of cure. This study assessed factors associated with post-DAA reinfection and effectiveness of reinfection retreatment in a real-world setting.

Methods: Real-world effectiveness of antiviral therapy in chronic hepatitis C (REACH-C) is an observational study representing 14% (n=10843) DAA initiations in Australia across 33 diverse health services between March 2016-June 2019. Post-treatment follow-up data was collected until October 2020. Reinfection was defined by HCV viraemia after sustained virologic response (SVR) or post-treatment genotype switch.

Results: Of 10,843 DAA initiations, 9,284 had available post-treatment follow up assessment. Post-treatment viraemia was identified in 6% (n=526/9,284) of whom 408 (78%) were virological failures, 99 (19%) were reinfections and 19 (4%) remained unclassified. Retreatment for reinfection occurred in 88 individuals. Regimens used included regimens glecaprevir/pibrentasvir (50%), sofosbuvir/velpatasvir (36%). Per-protocol SVR for reinfection retreatment was similar to baseline treatment (95% vs 95% p=0.745) and comparable across primary, tertiary and prison treatment settings (p=0.097). Intention to treat SVR for reinfection retreatment was significantly lower than baseline treatment (67% vs 81%; p=0.002), due to a high rate of lost to follow-

up. The likelihood of reinfection was higher in those with recent injecting drug use [adjusted odds ratio (AOR) 32.60; 95%CI 15.78-67.36; p<0.001] and HIV (AOR 2.39; 95%CI 1.08-5.28; p=0.032). Among those with recent injecting drug use, current incarceration (AOR 3.84; 95%CI 2.13-6.92; p<0.001), opiate agonist therapy (AOR: 0.52; 95%CI 0.30-0.89; p=0.018) and increasing age (AOR 0.97; 95%CI 0.95-1.00; p=0.028) modified the likelihood of reinfection.

Conclusion: Post-treatment reinfection is more likely to occur among people with recent injecting drug use, incarceration and HIV. Reinfection retreatment is highly effective and can be delivered in non-specialist settings. Access to monitoring and retreatment of reinfection in high-risk populations is crucial to HCV elimination.

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