Severe liver damage in mid/late-adulthood among PWID with chronic HCV

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The Hepatitis C virus (HCV) infection is a chronic blood-borne viral infection that affects an estimated 160 million people, or 2-3% of the population world-wide. Alarmingly, chronic HCV infection accounts for one-quarter of the cases of cirrhosis and hepatocellular carcinoma (HCC). If HCV is left untreated, chronic liver disease will occur in 60-70% of the cases, cirrhosis in 5-20% of the cases, and 1-5% will die from decompensated cirrhosis or HCC.

In most high-income countries, such as the United States, where drug injection is the primary route of HCV transmission, the disease is concentrated among people who inject drugs (PWID). While it is estimated that 50-80% of PWID are chronically infected, fewer than 5% of PWID have received treatment.

In a new study, "Hepatitis C virus (HCV) disease progression in people who inject drugs (PWID): A systematic review and meta-analysis," published in the *International Journal of Drug Policy*, a team of researchers from New York University's Center for Drug Use and HIV Research (CDUHR) assessed existing data on the natural history of HCV among PWID. A total of twenty-one studies examined over 8500 PWID, who contributed nearly 120,000 person-years at risk, for the study of four major HCV-related outcomes included in the synthesis.

"Understanding HCV disease progression rates among people who inject drugs (PWID) is important to setting policy to expand access to detection, diagnosis and treatment, and in forecasting the burden of disease," said Holly Hagan, PhD, the principal investigator for the HCV Synthesis Project, who also is a professor at New York University College of Nursing (NYUCN) and co-director at CDUHR. "In this study we synthesized existing data on the natural history of HCV among PWID, including fibrosis progression rates and the incidence of compensated cirrhosis, decompensated cirrhosis, and hepatocellular carcinoma."

Among the PWID, the mean age they acquired HCV was 21 years, and the mean duration of infection was 14 years. "Based on our analysis of fibrosis progression, PWID, on average, will have moderate liver fibrosis between 26-38 years after HCV infection and will develop cirrhosis within 34-46 years," said Dr. Hagan. "In the course of the disease progression, cirrhosis may lead to HCC, the prognosis for which is extremely poor—the median length of survival is approximately 12-15 months. Since PWID tend to be infected at an early age, they are likely to develop HCC in mid- to late-adulthood, resulting in losses of individuals in their most productive period of life."

Given their findings, the researchers note the health-related benefits of early engagement, especially since the new HCV treatments feature shorter drug regimens that are very likely to result in cure. However, such options are expensive and their eligibility guidelines may explicitly exclude active drug users. Furthermore, many public insurance programs in the United States, such as Medicaid, have restricted coverage of these new treatments to those in the more advanced stages of the disease.

"These limitations may delay treatment for years and, thus, will disproportionately affect PWID and other low-income patients," said Dr. Hagan. "These restrictions also are in conflict with new HCV treatment guidelines from the American Association for the Study of Liver Disease (2015), which explicitly state that active injection drug users should be prioritized for treatment in part because of the risk of transmission to susceptible injection partners."

Dr. Hagan and the team of NYU researchers hope that by providing a better understanding of HCV progression rates among PWID, they can help inform policy to expand access to detection,

diagnosis, and treatment. However, Dr. Hagan emphasized that there is a clear need for further study into the impact of alcohol consumption and other factors on disease development in PWID, as there are few studies that consistently report this information. Dr. Hagan added: "Unfortunately, the restrictions on HCV treatment force us to identify other ways to slow disease progression."

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