Hepatitis C Surveillance Markers Study: A Validation of Genotype as a Laboratory Proxy for Linkage to Care

Jason Halperin, MD, MPH; Asher Schranz, MD; Fabienne Laraque, MD, MPH; Katherine Bornschlegel, MPH; Emily McGibbon, MPH; Harold Horowitz, MD; and Ellie Carmody, MD; (1)Division of Infectious Diseases and Immunology, New York University, New York, NY; (2)Internal Medicine, New York University, New York, NY; (3)Viral Hepatitis Surveillance, Prevention and Control Program, New York City Department of Health & Mental Hygiene, New York, NY; (4)Bureau of Communicable Diseases, New York City Department of Health and Mental Hygiene, Long Island City, NY; (5)Bureau of Communicable Diseases, NYC Department of Health and Mental Hygiene, New York, NY.

INTRODUCTION

3.5 million Americans and 146,500 New York City residents have chronic hepatitis C virus (HCV). The New York City Department of Health and Mental Hygiene (NYCDOMH) is committed to using surveillance data to improve the HCV cascade of care from diagnosis through cure. After screening for HCV infection and RNA confirmation, linkage to care is an important step in this cascade that needs to be monitored and improved. Positive HCV antibody, HCV RNA and HCV genotype are all reportable to the NYCDOHMH. We hypothesized that an HCV genotype might be a laboratory proxy for linkage to care and that the lack of a genotype correlates with not being in HCV care.

METHODS

We performed a retrospective validation study to determine the utility of using an HCV genotype as a laboratory proxy for linkage to care. This study was performed at Bellevue Hospital Center (BHC): a large urban public hospital in New York City. The NYCDOHMH provided the medical record numbers of 510 patients who had a positive HCV antibody test performed at our institution from January 2014 through February 2015 and each chart was retrospectively reviewed. 23 charts were excluded as ineligible for review as described below. 79 charts were excluded because their HCV RNA testing was negative, signifying either cleared infection or previous curative treatment. A total of 408 charts were then evaluated to determine if a genotype test was performed during the study period at BHC and whether the patient was linked to outpatient care at BHC. Linkage to care was defined as attending an appointment with an HCV treating provider within four months after HCV antibody testing.

RESULTS

Of the 408 patients included in the study, 130 (32%) had a genotype performed at BHC during the study period. Of those, 93 (72%) were linked to care and 37 (28%) were not. Of 278 patients without a genotype, 15 (5%) were linked to care and 263 (95%) were not. The sensitivity of the genotype as a proxy for linkage to care was 86% (CI: 78% - 92%) and the specificity was 88% (CI: 83% - 91%). The positive predictive value was 72% (CI: 65% - 79%) and the negative predictive value was 95% (CI: 91% - 97%). The odds of being linked to care for those with a genotype performed was 41.1 compared to those without a genotype (CI: 21.9 - 77.5, p-value: <0.0001).

There were no significant differences between patients with genotype performed at BHC compared to those without genotype in regards to gender, median age, race, or APRI score. As detailed below, there was no significant difference in terms of gender, median age, race or APRI score for patients with BHC genotype who were linked to care compared to those who were not linked to care.

DISCUSSION

A reported genotype is moderately associated with linkage to the care (72% positive predictive value). The lack of a reported HCV genotype strongly correlates with not being in care with an HCV treating provider at Bellevue Hospital Center (95% negative predictive value). A limitation of our study is that we were unable to determine if patients were linked to non-Bellevue Health Center HCV providers. Yet, very few of the non-linked patients had documented genotyping within the NYCDOHMH system.

The lack of a genotype being sent could be a robust tool for public health practitioners to estimate and target individuals who are not in care for HCV, but will require further validation in diverse settings. The NYCDOHMH will continue to evaluate the usefulness of genotype reporting as a proxy for linkage to care. This information can be used to develop targeted interventions to monitor and increase linkage to care, treatment and cure.