National Rates of Hepatocellular Carcinoma Surveillance in an Insured Population of Patients with Cirrhosis

Kelly R. Bates BA¹, Dominic J. Vitello MD MS¹, Mitchell Paukner², Federico Crippa MSc³, Joy Obayemi MD¹, Aditya Jain BA⁴, Michael Gmeiner PhD⁵, Andrés Duarte-Rojo MD^{1,6}, Laura Kulik MD^{1,7}, Therese Banea MPH¹, Oriana Dentici¹, Eleena Koep MS⁸, Lihui Zhao PhD^{1,6}, Lisa B. VanWagner MD⁹, Charles F. Manski PhD^{3,4}, Daniela P. Ladner MD MPH^{1,6}

¹Northwestern University Transplant Outcomes Research Collaborative (NUTORC), Comprehensive Transplant Center (CTC), Feinberg School of Medicine, Department of Biostatistics and Data Science, Winston-Salem, NC, US, ³Department of Economics, Northwestern University, Evanston, IL, US, ⁵London School of Economics, London, UK, ⁶Division of Transplantation, Department of Surgery, Northwestern Medicine, Chicago, IL, US, ⁷Division of Gastroenterology and Hepatology, Department of Medicine, Northwestern Medicine, Chicago, IL, US, ⁸UnitedHealth Group, ⁹Division of Digestive and Liver Diseases, Department of Medicine, University of Texas Southwestern Medical Center, Dallas, TX, US

Background

- Cirrhosis serves as a primary risk factor for developing hepatocellular carcinoma (HCC).
- HCC surveillance in patients with cirrhosis is associated with cost-effective improvements in patient outcomes.
- National rates of guideline-concordant surveillance in insured patients have not been addressed.

Research Objectives

To characterize the utilization of HCC surveillance in a national insured population and identify predictors associated with its use.

Methods

- Retrospective cohort study of 270,686 patients within a large, national insurance claims database between 2011-2020.
- Adult patients with cirrhosis were identified by ICD-9/-10 codes. Patients with less than 12 months of follow up and HCC at baseline were excluded.
- Guidelines set by the American Association for the Study of Liver Diseases were used to define adherence. Patients were followed until the identification of HCC or disenrollment.
- Multivariable generalized linear mixed-effects model identified predictors of adherence.

0%-

24

48

Months After Cirrhosis Diagnosis

GI Patient — No - - Yes



72

94

120

• The most frequent cirrhosis etiologies were metabolic dysfunction associated steatohepatitis (MASH) 95,618 (35.3%), metabolic and alcohol-associated liver disease (MetALD) 68,284 (25.4%), and hepatitis C virus (HCV) 21,084 (7.8%).

• The incidence of any one surveillance exam within the 6 months before, 6 months after, and 12 months after identification was 7.1%, 14.0%, and 20.8% respectively.

• 35.9% of patients ever received at least one surveillance exam.

• Guideline-concordant adherence was highest in the first 8 months after cirrhosis diagnosis (18.3%).

• 117,774 (43.5%) patients were decompensated at baseline.

• 75,319 (27.8%) experienced decompensation and 81,737 (30.2%) saw a gastroenterologist during follow-up. Following with a gastroenterologist was a strong predictor of adherence (Odds ratio 7.21 95% confidence interval 7.18-7.25).

14,828 (5.5%) patients were diagnosed with HCC during follow-up.

Conclusions

• The rate of cost-effective, guideline-adherent screening among insured patients is low.

• Specialty care was substantially associated with guidelineconcordant adherence.

Efforts to promote awareness of surveillance programs between gastroenterologists and primary care physicians are warranted.