

Background

- In the U.S., hepatocellular carcinoma (HCC) is the 6th cause of cancer-related deaths with disproportionate burden in minority groups
- Less than half of eligible patients received HCC surveillance in accordance to liver guidelines
- Ultrasound Liver Imaging Reporting and Data System (US LI-RADS) created in 2017 to standardize ultrasounds for HCC surveillance
- Limited data on patient-level factors associated with poor HCC surveillance rates and clinical outcomes after implementation of US LI-RADS

Aims

We aimed to assess adherence to US LI-RADS and associated patient-level factors for HCC surveillance at a safety-net healthcare system in San Francisco

Methods

Part 1: Study Intervention

- US LI-RADS-based recommendation for HCC surveillance was implemented in SFGH radiology reports on June 1st, 2020

Part 2: Study Participants

- Total of 936 patients who received ultrasound for HCC surveillance from 6/1/2020 to 2/28/2022

Part 3: Study Design and Collection

- Retrospective electronic medical record and radiology database review for clinical and radiologic data collection

Part 4: Statistical Analysis

- Descriptive statistics of patient characteristics
- Multivariable logistic regression model of factors associated with adherence adjusted for age, sex, race, time since onset of pandemic to date of initial ultrasound and included a priori selected variables with $p < 0.1$ on univariable analysis

Result

Table 1. Univariable/multivariable analysis in association with full adherence

Variables (Demographics)	Univariable Analysis OR (95% CI)	p-value	Multivariable Analysis OR (95% CI)	p-value
Median Age, (interquartile range), years ⁺	1.20 (1.07-1.35)	0.002	1.21 (1.04-1.40)	0.01
Gender				
Men vs Women	0.77 (0.60-0.98)	0.03	1.64 (1.19-2.26)	0.002
Race/Ethnicity				
Asian/Pacific Islander	3.12 (2.16-4.50)	<0.0001	1.49 (0.90-2.46)	0.12
Black	0.85 (0.48-1.50)	0.57	1.00 (0.55-1.82)	1.00
Hispanic	1.33 (0.81 -2.17)	0.26	0.81 (0.46-1.43)	0.46
Other	1.25 (0.52-2.99)	0.62	1.02 (0.35-2.93)	0.98
Homelessness				
Yes vs No	0.28 (0.15-0.50)	< 0.0001	0.62 (0.29-1.35)	0.23
Smoking				
Current vs Never	0.40 (0.28-0.56)	<0.0001	0.39 (0.26-0.60)	<0.0001
History vs Never	0.52 (0.38-0.69)	<0.0001	0.49 (0.33-0.72)	0.0003
Substance Use Disorder				
Current vs Never	0.22 (0.11-0.42)	<0.0001	0.87 (0.38-1.97)	0.74
History vs Never	0.33 (0.21-0.51)	<0.0001	0.65 (0.38-1.13)	0.12
Etiology of Liver Disease				
HBV				
Yes vs No	2.80 (2.16-3.65)	<0.0001	-	₁
HCV				
Yes vs No	0.44 (0.31-0.61)	<0.0001	1.07 (0.66 - 1.74)	0.79
Alcohol Related Liver Disease				
Yes vs No	0.49 (0.33-0.73)	0.0004	0.91 (0.52-1.58)	0.72
Metabolic Associated Fatty Liver Disease				
Yes vs No	1.58 (1.18-2.12)	0.002	1.05 (0.73-1.51)	0.78
Hepatology Clinic Visit				
Yes vs No	4.49 (3.41-5.90)	< 0.0001	3.80 (2.79-5.18)	<0.0001
Prior US Exams in the Past Year				
Yes vs No	3.54 (2.70-4.64)	<0.0001	2.43 (1.81-3.27)	<0.0001

¹HBV was not included due to strong correlation with Asian/PI race ($r \geq 0.6$).

- ✓ 38.8% (363/936) had full-adherence, 24.9% (233/936) had partial adherence and 36.3% (340/936) had non-adherence to radiologists' recommendations

- ✓ Mean time to follow-up exam was 182 day

- Patients with full-adherence were more likely to:

- ✓ Be older
- ✓ Not have a history/current smoking history
- ✓ Attend hepatology clinic
- ✓ Have had a recent ultrasound exam in the past year

Younger age and negative health behaviors such as smoking were associated with lower adherence rates while access to hepatology specialist and having had a prior ultrasound were associated with higher adherence rates for patients in our safety-net system!

Discussion

- In this study, HCC surveillance adherence rates were suboptimal after implementation of US LI-RADS

- ✓ Surveillance rates were comparable to other those in other institutions
- ✓ Access to hepatology specialist resulted in nearly 4 times higher rates of adherence highlighting the importance of access to liver care in patients at risk for HCC
- ✓ Smoking has been previously associated with low lung cancer surveillance rates, but first to show association with HCC surveillance

- Need for further studies/interventions to address these specific health inequities observed despite US LI-RADS reporting