Conversion of Intermediate LIRADS Categories to Hepatocellular Carcinoma in patients with Chronic Hepatitis B: Korean Immigrant Experience
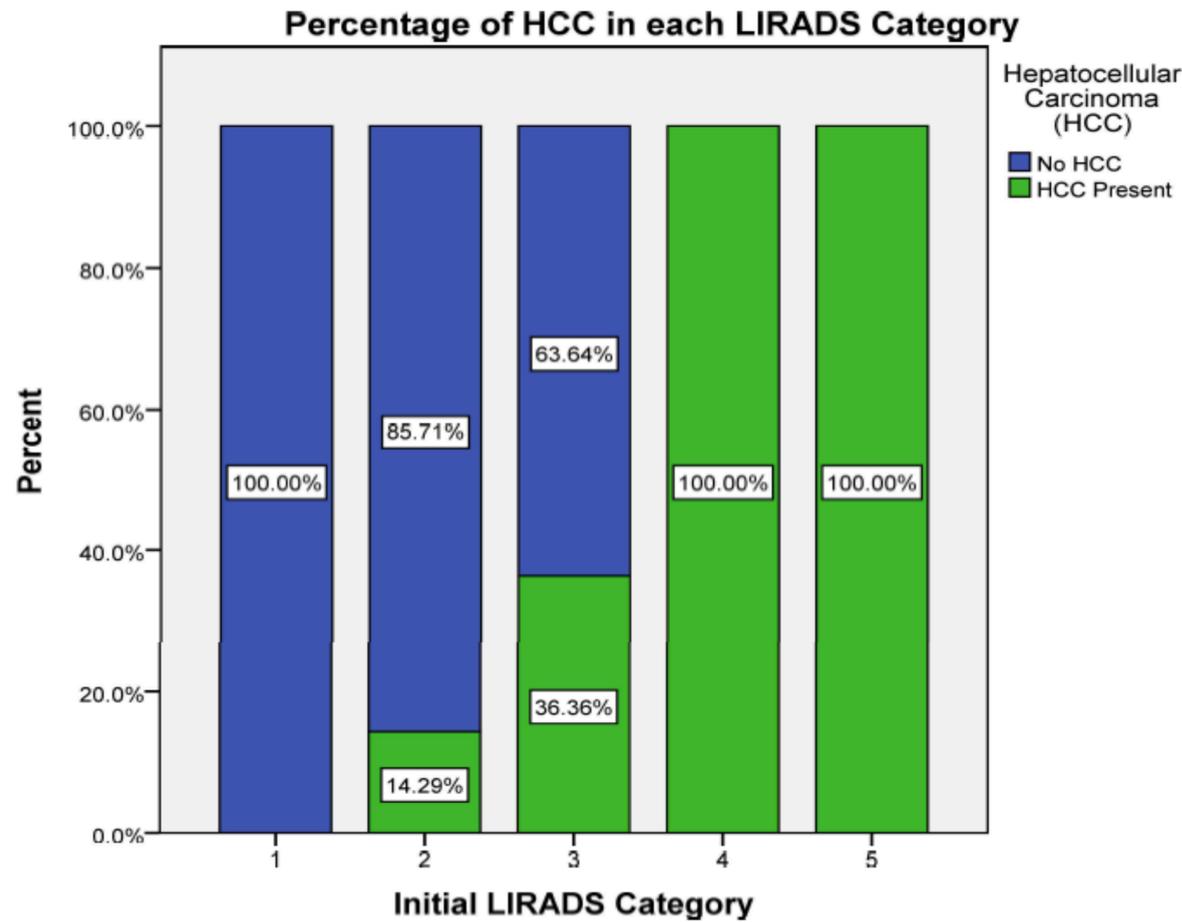
Kofi-Buaku Atsina, MD, Zhenteng Li, MD, Sandeep Deshmukh, MD

Department of Radiology, Thomas Jefferson University Hospital, Philadelphia PA

Introduction and Objective

The Liver Imaging Reporting and Data System (LIRADS) was created to standardize the reporting and data collection of MR imaging for hepatocellular carcinoma (HCC) in high risk patients. The major categories for LIRADS have the following descriptors:

LI-RADS 1 = Definitely benign
LI-RADS 2 = Probably benign
LI-RADS 3 = Intermediate probability for HCC
LI-RADS 4 = Probably HCC
LI-RADS 5 = Definitely HCC
LI-RADS 5V = Definitely HCC with tumor in vein
LI-RADS M = Probable malignancy, not specific for HCC
LI-RADS T = Treated Observation

However, there is a paucity of quantitative evidence for the progression of LIRADS 2, 3 and 4, (hereafter defined as intermediate LIRADS categories) to LIRADS 5. Our objective was to investigate the conversion of intermediate LIRADS categories to definite hepatocellular carcinoma (LIRADS 5) to help inform management decisions regarding treatment and better stratify imaging follow up for high-risk patients with intermediate LIRADS categories.

Percentage of HCC in each LIRADS Category

Results

1) 125 patients (46 %) had at least one focal hepatic lesion.
2) A total of 60 patients had at least one follow up study for evaluation.
3) 48 (80%) had MR evidence of cirrhosis.
4) 38 (63%) had or developed LIRADS 5 lesions or biopsy-proven HCC.
- No LIRADS 1 lesions progressed to LIRADS 5 or biopsy proven HCC.
- 14.3 % (1/7), 36.3 % (4/11) and 100 % (7/7) of LIRADS 2, 3 and 4 lesions respectively, progressed to LIRADS 5 or biopsy proven HCC.
4) The mean duration to LIRADS 5 were 9 years, 2.7 years (10 months - 4.3 years), and 9 months (2 months - 3 years) respectively for LIRADS 2, 3 and 4 lesions.

Methods

1) A retrospective imaging database search at a single institution from 2005 to 2015, yielded 269 Korean immigrant patients with Chronic Hepatitis B Virus (HBV) who underwent annual MR screening.
2) For these patients, the initial and most recent LIRADS scores were obtained from electronic medical records. Analysis was performed using IBM SPSS 21.0.

Conclusions

These results are concordant with the presently used descriptors of intermediate LIRADS categories. The differing conversion rates to definite HCC of each LIRADS category suggests shorter interval imaging follow up for higher LIRADS categories. LIRADS 4 lesions may be managed similarly to LIRADS 5 lesions, obviating the need for biopsy, and directly pursuing treatment. A larger sample size is needed to corroborate these findings.

1. American College of Radiology. Liver Imaging Reporting and Data System version 2014. Accessed 09/2016 from http://www.acr.org/Quality-Safety/Resources/LIRADS
2. Mitchell, D.G., et al., LI-RADS (Liver Imaging Reporting and Data System): summary, discussion, and consensus of the LI-RADS Management Working Group and future directions. Hepatology, 2015. 61(3): p.1056-65.