A proposed algorithm for surveillance of hepatocellular carcinoma
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HCC Surveillance Algorithm

"HCC-specific biomarkers are designed to improve the effectiveness of hepatocellular carcinoma surveillance by their use as risk markers. Elevated HCC biomarkers, when utilized simultaneously with regular ultrasound, can provide a practitioner with quantitative information to allow that provider to consider ordering more advanced imaging such as MRI or CT with contrast, thereby aiding the identification of small/early stage HCC that may be missed by ultrasound surveillance alone."
— Dr. Robert Gish

A regular surveillance program for patients at risk for development of hepatocellular carcinoma (HCC) is recommended by clinical practice guidelines worldwide [1-6]. Dr. Robert Gish proposes a surveillance algorithm that includes routine measurements of serum biomarkers lectin-reactive alpha-fetoprotein (AFP-L3), alpha-fetoprotein (AFP) and des-gamma-carboxy prothrombin (DCP) in combination with ultrasound at a frequency of every 6 months [7]. If ultrasound is negative, but one or more of the HCC biomarkers are positive, the patients should be escalated to enhanced imaging for further evaluation.
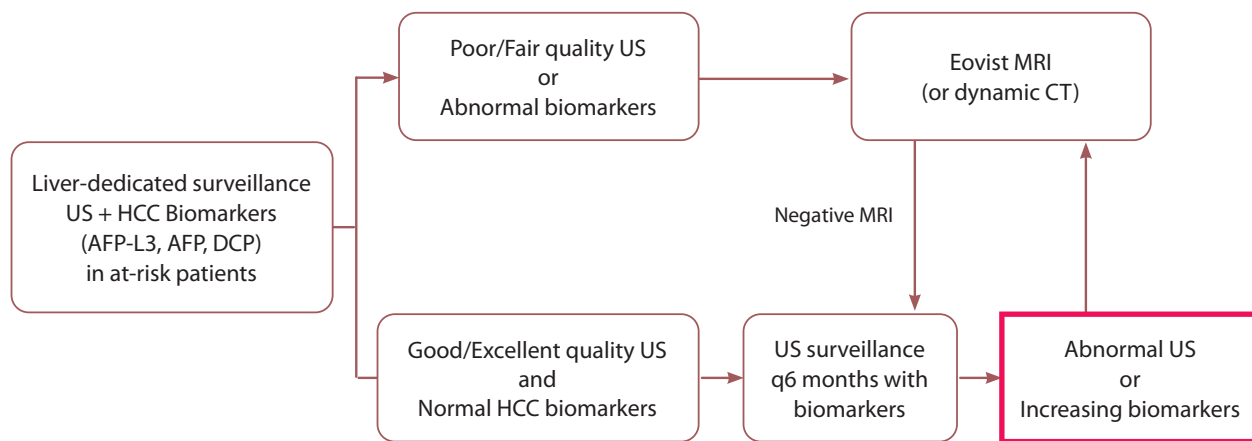

Figure: A proposed algorithm for surveillance of hepatocellular carcinoma [7]

Studies have shown that although each biomarker can be clinically useful on its own for risk assessment of HCC, due to the heterogeneity of HCC tumors, using the biomarkers in combination can yield better clinical performance [8-10]. As such, the HCC biomarkers in combination (AFP-L3, AFP and DCP) are increasingly becoming part of surveillance protocols in U.S. clinics.

Organizations	Surveillance Recommendation
AASLD American Association for the Study of Liver Diseases [1]	Ultrasound every 6 months +/- AFP
EASL European Association for the Study of the Liver [2]	Ultrasound every 6 months (AFP denoted as risk marker)
APASL Asian-Pacific Association for the Study of the Liver [3]	AFP + ultrasound every 6 months (AFP-L3/DCP noted as options based on medical circumstance)
NCCN National Comprehensive Cancer Network [4]	AFP + ultrasound every 6-12 months
VA United States Department of Veterans Affairs [5]	AFP + ultrasound every 6-12 months
JSH Japan Society of Hepatology [6]	AFP/AFP-L3/DCP + ultrasound every 3-6 months

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