

HEPATIQ PREDICTS DECOMPENSATION FOR CIRRHOTICS

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BACKGROUND

Non-invasive tests such as HEPATIQ scans and ultrasound elastography are currently used to monitor patients with cirrhosis and assess those at risk of decompensation. HEPATIQ is an FDA cleared non-invasive nuclear medicine SPECT image analysis software that measures quantitative liver function (PHM), functional spleen volume (fSV), and functional liver volume (fLV). PHM and fSV have been proven to predict clinical outcomes in prospective studies (HEPAT 2012; 55:1019). Ultrasound elastography provides parameters such as surface nodularity (N), shear wave velocity (SWV) and estimated METAVIR fibrosis score (eMFS). The purpose of this study is to compare HEPATIQ SPECT and ultrasound elastography in their ability to predict decompensation in cirrhotic patients..

METHODS

A database of 45 sequential cirrhotic patients with ultrasound and HEPATIQ (nearest to the ultrasound) were used for the study. Of the 45 cirrhotic patients, 18 never had decompensation, 14 had a prior decompensation and recovered, and 13 had ongoing problems requiring continuing treatment (3 on the liver transplant list). 32/45 cirrhotic patients had no active clinical decompensation such as ascites or hepatic encephalopathy requiring treatment. All patients were followed for 4 years and the only 7 who decompensated had an abnormal PHM (< 95) at baseline..

PATIENTS

- CLD cause: HCV 11, HBV 1, NASH 9, immune 14, cryptogenic cirrhosis 9, ALD 6, post liver transplant 2, Vit A cirrhosis 1 and unknown 2.
- 45 C: 18 had never had a decompensation
 - 14 had a prior decompensation and recovered
 - 13 problems requiring continuing treatment (3 on transplant list).
- All patients with decompensations had a PHM <95
- All patients with PHM <95 had cirrhosis

RESULTS

Logistic regression was performed to compare the ability of HEPATIQ SPECT and ultrasound elastography to predict decompensation in cirrhotics. The Scaled Brier Score was used for the comparison of predictive power (100% complete accuracy, 0% complete inaccuracy). The results are in the table..

Prediction of Decompensation in Cirrhotics

HEPATIQ SPECT	PHM	50.2 %
	fLV	20.0 %
	fSV	17.5 %
Ultrasound Elastography	SWV	1.8 %
	Nodularity	0.9 %
	eMFS	0.4 %

Scaled Brier Score:

100% complete accuracy, 0% complete inaccuracy

CONCLUSIONS

- In cirrhotic patients, PHM and fSV predicted clinical decompensation
- PHM < 95 identified a group of cirrhotic patients with decompensation at baseline or within 4 years.
- HEPATIQ SPECT greatly outperformed ultrasound elastography in predicting the risk of decompensation in cirrhotic patients.