

Utility of Endo-Hepatology in Assessing Liver Fibrosis in Patients with Chronic Liver Disease: Data From University Hospital in WV



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Introduction: The clinical utility of EUS and the field of Endo-Hepatology (EH) are expanding. While CT-guided liver biopsy (LB) was once considered the gold standard other modalities such as Transient elastography (TE), EUS-shear wave elastography (EUS-E), and EUS guided liver biopsy (EUS-LB) are becoming more prevalent due to multitude of benefits from cost to patient tolerability and comparable accuracy. We look to add to this growing body of evidence. Our study investigated the accuracy and diagnostic yield of EUS-LB. We then compared LB to TE and EUS-E. Our results add to the clinical utility and strengths of EH.

Method: In this IRB approved retrospective analysis, 53 patients with chronic liver disease (CLD) were diagnosed with severe fibrosis on TE and underwent EUS guided analysis. EGD indicated for distinct reasons was coupled with EUS-LB to further stage the fibrosis of these high-risk patients. The study evaluated patients between October 2021 – June 2022. Demographic characteristics were collected in each patient. Liver biopsies were reviewed for adequacy. A cutoff of 10 and 14 kPa on TE/EUS-E was used to assess accuracy in predicting fibrosis when compared to EUS-LB. Correction coefficient was used to assess the association between these methods.

Result: Our Appalachian population was unique, as it was predominantly Caucasian, held a BMI>30, and multiple comorbidities equally present in both genders. Our study found a correlation between the EUS-E and TE in kPa ($r=0.549$, $p=0.1$) as well as EUS-E kPa and LB fibrosis stage ($r=0.6627$, $p=0.007$). Additionally, a significant correlation was found between the TE and LB in terms of fibrosis stage ($r=0.6$ $p=0.003$) and steatosis stage ($r=0.5249$, $p=0.01$) in diagnosis of cirrhosis. This was more consistent in ALD ($r=0.5847$) in comparison to NAFLD ($r=0.4$). Interestingly, this correlation seems more consistent in higher fibrosis stages as shown in Table B.

Discussion: 53 patients underwent EH based procedures without any complications. EUS-LB had adequacy rate of 92.2% and held > 14 portal triads on avg. Our study indicated that various modalities via EH are reliable in identifying severe fibrosis when compared to the previous gold standard and TE. Our study adds to the large body of evidence regarding reliability of TE in detecting severe fibrosis present in various etiologies of CLD.

Demographics Table	
Total number of cases, n	53
Age, mean in years (std dev)	55.6 (+/- 12.9)
Male, n (%)	26 (49.1%)
Female, n (%)	27 (50.9%)
Race	
White, n (%)	52 (98.1%)
Black, n (%)	1 (1.9%)
BMI, mean (std dev)	33.3 (+/- 9.2)
Etiology of Liver Disease	
Non-alcoholic fatty liver disease (NAFLD), n (%)	14 (26.4%)
Viral Hepatitis, n (%)	8 (15.1%)
Alcohol, n (%)	34 (62.2%)
Other (AIH, DILI, PBC), n (%)	10 (18.9%)
Clinical Cirrhosis, n (%)	20 (37.7%)
EV/GV on EGD, n (%)	15 (28.3%)
Fibroscan, mean in kPa	23.9 (+/- 19.2)
EUS-SWE, mean in kPa	24.3 (+/- 8.1)
Fibrosis stage ≥ 3 on biopsy, n (%)	25 (54.3%)

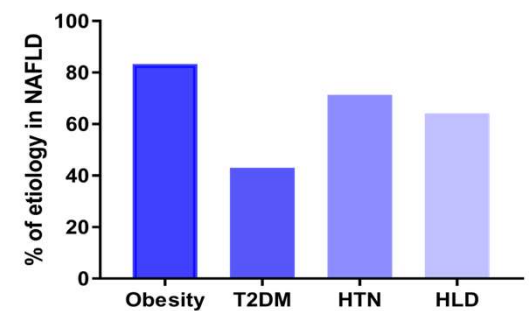


Fig 1. Concomitant metabolic disorders in patient with NAFLD

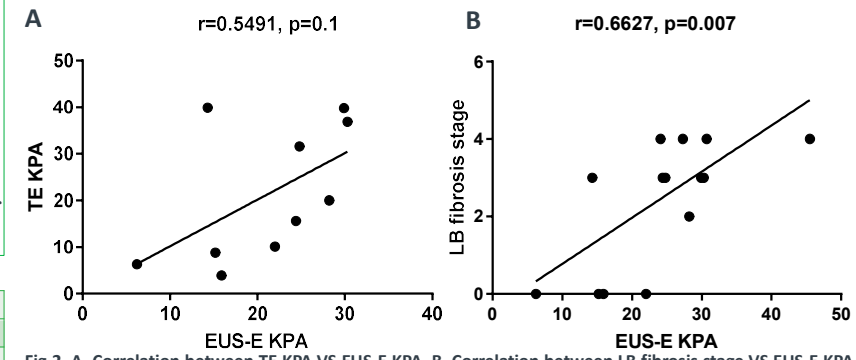


Fig.2 A, Correlation between TE KPA VS EUS-E KPA. B, Correlation between LB fibrosis stage VS EUS-E KPA. EUS-E, Endoscopic ultrasound Elastography; LB, Liver biopsy, TE, Transient Elastography.

	TE fibrosis VS LB Fibrosis		TE steatosis VS LB steatosis	
	r value	P value	r value	P value
General	0.5949	0.003	0.5249	0.0121
NAFLD	0.4001	0.2215	0.5298	0.1424
ALD	0.5847	0.0043	0.6076	0.0212

Table A. Correlation between TE and LB in Fibrosis stage and steatosis with different etiology. LB, Liver biopsy; NAFLD, Non-Alcoholic Fatty Liver disease; ALD, Alcoholic Liver Disease, TE, Transient Elastography

TE Fibrosis stage	LB stage 0-2	LB stage 3-4
0	4	0
1	0	1
2	5	1
3	2	1
4	2	18

Table B. Result of TE fibrosis stage and relative LB stage. TE, Transient Elastography; LB, Liver biopsy

LB steatosis %	TE CAP Score (Mean±SD)	Number of patients
<30%	259±62	32
30%-60%	292±13	2
>60%	339±68	2

Table C. Result of LB steatosis percentage and relative TE CAP score. TE, Transient Elastography; LB, Liver biopsy