UT Southwestern Medical Center

Poster # 621

High Prevalence of Advanced Liver Disease Among an HIV/HBV Real-World Cohort

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Hepatitis B Research Network

Background

- The HIV/Hepatitis B Virus (HBV) Cohort is a prospective ancillary study of the Hepatitis B Research Network (HBRN) whose goal is to define the clinical, virological, serological and histological characteristics of a cohort of HBV/HIV patients in North America on combination antiretroviral therapy (cART).
- HIV/HBV is associated with higher all-cause and liver-related mortality.[1,2]
- However, there is a paucity of data regarding serological and clinical characteristics of HIV/HBV patients in the United States to help understand these poor outcomes.
- **AIM:** We sought to examine a representative sample of HIV/HBV patients who were approached to be in the cohort study and declined. We also examined the reasons for declining enrollment into the prospective HIV/HBV Cohort study.

Methods

Clinical Setting: Data was collected from patients who were seen at one of 8 HIV/HBV Network clinical centers in the US or Canada. The centers were located in Dallas, San Francisco, Boston, Richmond, St. Louis, Baltimore, Bethesda, and Toronto and represent a diverse geographic, racial, and ethnic population.

Prospective Cohort: The HIV/HBV Network is a prospective observational cohort which enrolled patients from our 8 centers in North America. Liver biopsies were obtained and reviewed, and clinical, virological, and serological characteristics examined.

Retrospective Cohort: Those who did not enroll were retrospectively analyzed as representation of a "real world cohort". Reasons for not participating in the ancillary study was obtained. A retrospective descriptive analysis of a subgroup of non-enrollers was performed for clinical and serological characteristics.

Statistical Analysis: Factors associated with hepatitis B e antigen (HBeAg)-positivity and HBV DNA detectability was assessed by logistic regression.

References

1. Konopnicki et al. Hepatitis B and HIV: prevalence, AIDS progression, response to highly active antiretroviral therapy and increased mortality in EuroSIDA cohort. AIDS 2005; 6: 593-601.
2. Thio, CL, Seaberg, EC, Skolasky, R. HIV-1, hepatitis B virus, and risk of liver-related mortality in the Multicenter Cohort Study (MACS). Lancet. 2002;360(9349):1921–1926.

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Results

Figure 1: Flow Diagram of Retrospective Participants

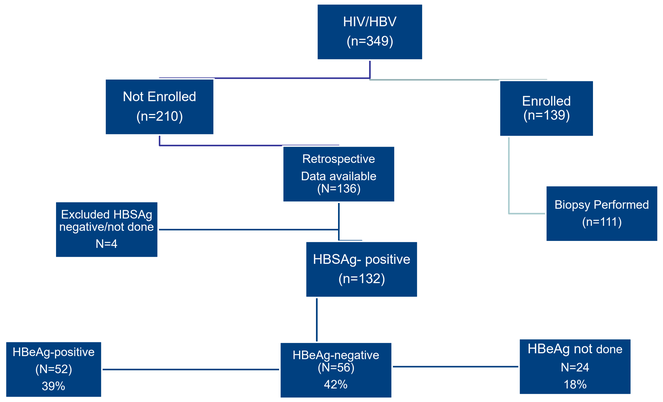

Table 1: Baseline Characteristics of Enrolled & Not Enrolled Subjects

Characteristics	Enrolled n=139	Not Enrolled N= 136
Age (years), mean (SD)	48.7 (8.8)	48.9 (9.7)
Gender (% male)	92.1	82.3
Race/ethnicity (% White/ Black/ Asian/ Other)	31.8/50.7/3.6/13.8	35.3/45.6/5.1/13.9
High Risk Alcohol use %	<1%	1.1%
Median ALT (IU/L) (25th/75th)	28 (19,41)	27 (20,42)
Median AST (IU/L) (25th/75th)	29 (23, 40)	30 (24, 43)
HBe Antigen + (%)	61	48
HBV DNA + (% undetectable <1000 IU/mL)	80	75
Median CD4(cell/mm^3)	568 (337-713)	456 (207-715)
HIV RNA (% undetectable < 20 copies/mL)	75	65

Table 2: Reasons for non-enrollment in prospective study

Reason for non-enrollment	%
Refusing liver biopsy	31
Hepatic decompensation	4
Failure to consent	63

Enrolled patients were those who had liver biopsy: 19 did not get liver biopsy and 9 biopsy were out of window
AST: aspartate aminiotranferase
ALT: alanine aminotransferase
HBeAg: hepatitis B e antigen
HCV Ab: hepatitis C antibody

Table 3: Baseline Characteristics of Retrospective Cohort

	HBSAg+ N=132 (%)	HBeAg + N=52 (%)	HBeAg- N=56 (%)
Male	107 (82)	42 (75)	43 (83)
Race			
White	45 (34)	16 (31)	17 (30)
Black	62 (47)	29 (56)	27 (48)
Asian	7 (5)	1 (2)	5 (9)
Other	18 (14)	6 (12)	7 (13)
Hispanic	18 (14)	5 (10)	9 (16)
Age, median (years) [range]	51 [3-66]	48.5 [23-60]	51.5 [26-66]
HCV Ab- positive	13 (10)	0	7 (13)
Cirrhosis (chart review or fib-4>3.5)	34 (24)	11 (21)	13 (23)
decompensation	7 (5)	1 (2)	4 (7)
HBV, detectable	53 (41)	32 (61)	12 (21)
Alcohol active use	21 (24)	9 (21)	8 (22)
ALT (IU/mL), median [range]	27.5 [8-284]	29.5 [10-150]	26.5 [11-284]
AST (IU/mL), median [range]	30 [13-229]	35 [16-205]	26.5 [13—229]
CD4 copies/mm^3, median [range]	453 [3-1606]	390 [3-1318]	505 [60-1606]
HIV, undetectable	84 (64)	26 (50)	42 (75)
AIDS (CD4 <200 copies/mm^3)	30 (23)	16 (31)	9 (16)

Table 4: Association of HBeAg+ with Clinical Parameters

	Odds ratio	95% CI	P value	Odds Ratio	95% CI	P value
	Univariate			Multivariate		
HIV undetectable						
No	Reference	Reference	Reference			
Yes	0.33	0.15, 0.75	0.008	0.63	0.25, 1.59	0.32
HBV detectable						
No	Reference	Reference	Reference			
Yes	5.87	2.51,13.7	<.001	4.68	1.90, 11.56	0.001
Age	0.95	0.91, 0.99	0.02	0.96	0.91, 1.00	0.10

Table 5: Association of Detectable HBV DNA with Clinical Parameters

	Odds ratio	95% CI	P value	Odds Ratio	95% CI	P value
	Univariate			Multivariate		
Cirrhosis						
No	Reference	Reference	Reference	Reference	Reference	Reference
Yes	3.53	1.51, 8.23	0.004	1.41	0.46, 4.29	0.54
HIV undetectable						
No	Reference	Reference	Reference	Reference	Reference	Reference
Yes	0.18	0.08, 0.39	<.001	0.32	0.13, 0.81	0.02
AIDS (CD4 <200)						
No	Reference	Reference	Reference	Reference	Reference	Reference
Yes	8.82	3.26, 23.86	<.0001	5.35	1.70, 16.84	0.004
ALT	1.03	1.01, 1.05	0.001	1.01	0.98, 1.04	0.51
AST	1.05	1.02, 1.08	<.001	1.02	0.99, 1.07	0.19

Conclusions

- One in four HIV/HBV patients in this real world cohort had evidence of advanced liver disease.
- Among those with Hepatitis Be antigen (HBeAg) status available, half were HBeAg-positive , which was independently associated with detectable HBV DNA .
- Detectable HBV DNA was associated with CD4 <200 cells/mm^3 and inversely associated with undetectable HIV viral load.
- Focused efforts to reduce HIV and HBV viral load in HIV/HBV infected patients is needed to improve HBV outcomes in this group.