Improved Survival of Hepatocellular Carcinoma (HCC) in HIV-Infected Patients with Undetectable HIV RNA

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The Liver Cancer in HIV Study Group*

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Background

- High HIV viral load in HIV/HCV-coinfected patients is associated with faster fibrosis progression.
- The influence of HIV viral load on the disease course of HCC is unknown

Methods

- **Retrospective analysis in 20 centers in 6 countries:**
  Canada, United States, Brazil, United Kingdom, Italy, Spain.
- **All HCC cases in HIV-infected patients 1992 – 2009 with data on plasma HIV RNA level at HCC diagnosis:**
  N=99. Total of 101 patients, of whom 2 had no HCV RNA data.
  Diagnosis by AASLD criteria (Bruix & Sherman, *Hepatology*, Nov-05)
- **Patients were divided into**
  Undetectable: HIV RNA <400 copies/ml vs.
  Detectable: HIV RNA 400+ copies/ml

Patient Characteristics

	HIV RNA <400 c/ml n=54 (55%)	HIV RNA 400+ c/ml n=45 (45%)	P
Age (yrs), Mean ± SD	50.6 (±7.8)	51.4 (±8.1)	0.62
Male Sex	50 (93%)	40 (89%)	0.73
Race/Ethnicity			
Black	**18 (33%)**	**25 (56%)**	
White	**27 (50%)**	**13 (29%)**	**0.096**
Latino	8 (9.3%)	7 (15.6%)	
Asian	1 (1.9%)	0	
Time of HCC Diagnosis			
Date, Median	Aug-2004	Apr-2003	**0.026**
Etiology of HCC			
Chronic Hepatitis C	37 (69%)	34 (76%)	
Chronic Hepatitis B	16 (30%)	10 (22%)	0.71
Non-Viral (Alcohol, NASH)	1 (1.9%)	1 (2.2%)	
Alcohol Consumption			
None	21 (40%)	9 (21%)	
Moderate	13 (24%)	14(33%)	0.15
Excessive	19(36%) [1]	20 (46%) [1]	
Unknown			
Liver Function, Mean ± SD			
Child-Turcotte-Pugh Score	**6.63**	**7.20**	**0.095**
Stage A	30 (56%)	19 (42%)	
Stage B	21 (39%)	20 (44%)	0.26
Stage C	3 (5.6%)	6 (13.3%)	
Initial Presentation			
Screening Without Symptoms (AFP, Imaging)	35 (65%)	20 (44%)	**0.042**
Symptoms	19 (35%)	25 (56%)	
HIV parameter, Mean ± SD			
CD4+ Cells (per mm3)	349 (±191)	294 (±291)	0.19

HCC Staging

	HIV RNA <400 c/ml n=54	HIV RNA 400+ c/ml n=45	P
BCLC Stage, n (%)			
A	20 (37%)	9 (20%)	
B	9 (17%)	12 (27%)	
C } Advanced,	19 (35%)	18 (40%)	0.28
D } Incurable	6 (11%)	6 (13%)	
BCLC Stages C and D	25 (46%)	24 (53%)	0.49
CLIP Score, Mean ±SD	**1.74 (±1.3)**	**2.33 (±1.3)**	**0.028**

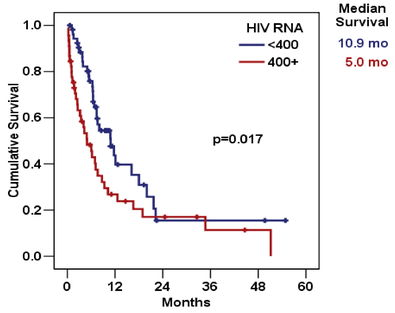
HCC Therapy

	HIV RNA <400 c/ml n=54	HIV RNA 400+ c/ml n=45	P
Potentially Curative Therapy	18 (33%)	10 (22%)	
Radiofrequency Ablation (RFA)	9	5	
Ethanol Injections	3	4	
Surgical Resection	4	1	
Liver Transplantation	2	0	
Effective, Non-Curative Therapy	15 (28%)	10 (22%)	0.24
Transarterial Chemoembolization	14	9	
Sorafenib	1	1	
No Therapy	21 (39%)	25 (56%)	
Any Potentially Curative Therapy	18 (33%)	10 (22%)	0.22
Any Effective Therapy	**33 (61%)**	**20 (44%)**	**0.098**

HCC Tumor Characteristics

	HIV RNA <400 c/ml n=54	HIV RNA 400+ c/ml n=45	P
Hepatic Lesions			
Solitary Tumors	27 (50%)	19 (42%)	
Multiple tumors	24 (44%)	24 (53%)	0.68
Diffusely Infiltrative Tumors	3 (5.6%)	2 (4.4%)	
Median Size Largest Lesion (cm), Range	**3.5** (1.5 – 18)	**5.8** (2.0 – 20)	**0.019**
Portal Vein Thrombosis	7 (13.0%)	8 (17.8%)	0.51
Extrahepatic Metastases	10 (18.5%)	4 (8.9%)	0.25
AFP level			
Median (ng/mL), Interquartile Range	**335** (22 – 3,001)	**1,504** (128 – 12,192)	**0.052**
Normal (≤ ULN), n (%)	8 (15.7%)	43 (6.8%)	0.22

Survival (all patients)

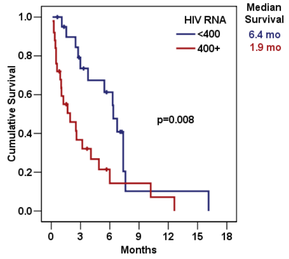


At Risk:

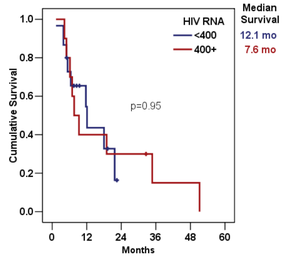
HIV RNA <400	54	11	2	2	2
HIV RNA 400+	45	9	5	2	1

Survival (by HCC Therapy)

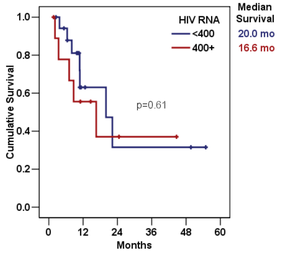
None



Effective, Non-Curative



Potentially Curative



Summary and Conclusion

(1) Undetectable HIV RNA (<400 copies/ml) is associated with better survival

(2) This phenomenon is only observed in patients receiving no HCC therapy

(3) Any effective HCC therapy obliterates the beneficial effect of suppressed HIV infection on survival

(4) In this study, there were only n=75 deaths, precluding a meaningful multi-variable Cox regression analysis

(5) This will be performed in the future, when the sample size has increased.

** This abstract is dedicated to Edmund J. Bini, MD, MPH (1967 – 2010) who contributed greatly to this study, and who would have been a co-author*

To contribute your cases of HCC in HIV patients for further studies, please contact:

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EASL 2010, Wien (Austria), Fri, 16 April 2010 Abstract No. 2882