

Original article:

Study of prevalence of co-infection of Hepatitis B and Hepatitis C virus in HIV infected patients in correlation with CD4 count and liver enzymes.

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Abstract:

INTRODUCTION: Viral hepatitis has become one of the major causes of morbidity and mortality in HIV-infected patients all over the world.¹There are increased levels of HCV RNA in patients with Co-infection of HCV with HIV.

MATERIALS AND METHODS: The information for the study was collected from HIV positive patients admitted to BLDEU'S Shri B.M Patil Medical college Hospital and Research center, Vijayapur from November 2015 to June 2017. Information was collected through prepared proforma from each patient. All patients were interviewed as per the prepared proforma and then complete clinical examination was done.

RESULTS AND CONCLUSION : The present study concluded that Co-positivity with HBV in HIV positive patients was found to be 14.7% , Co-positivity with HCV was found to be 3.8% , Study showed Male preponderance. Study also shows that highest co-positivity is seen in patients whose CD 4 count was <200.

INTRODUCTION

Viral hepatitis has become one of the major causes of morbidity and mortality in HIV-infected patients all over the world.¹There are increased levels of HCV RNA in patients with Co-infection of HCV with HIV. This leads to accelerated progression of HCV-related liver disease. In HCV infection, co infection of HIV, consumption of alcohol, increase in the age, and CD4 count <200 cells/mm are the risk factors for increased rate of progression of fibrosis.² There is increased risk of cirrhosis, end stage liver disease, hepatocellular carcinoma in patients with HIV-HCV co-infection and -occurs at a younger age.³ Co-infection of HIV with HCV and HBV is common because of similar routes of transmission and risk groups. Human immunodeficiency virus infection seems to affect the natural history of infection with certain hepatitis viruses. There is interaction between the HIV and concurrent infection with hepatitis viruses, which may change the natural history and response to the treatment of both diseases.¹

There is increased epidemiological similarity between HIV and HBV infection as regards to high risk groups, mode of transmission and the presence of virus in body fluids.²

There is more chance of liver disease, cirrhosis, and mortalities in a person having co-infection of HIV with HCV/HBV when compared to a person who is having infection of only one of these viruses. Hence, identifying HCV and HBV in HIV infected individuals is important in order to take care of these infections and allocate resources in health plans so that all HIV positive individuals should be tested for both HCV and HBV.⁵²

Therefore this study was undertaken to find the prevalence of co-infection of HCV and HBV in HIV infected patients, and need for prevention of HCV by education and HBV through immunization to be stressed in practice for better outcome in HIV patients.

MATERIALS AND METHODS:

The information for the study was collected from HIV positive patients admitted to BLDEU’S Shri B.M Patil Medical college Hospital and Research center, Vijayapur from November 2015 to June 2017. Information was collected through prepared proforma from each patient. All patients were interviewed as per the prepared proforma and then complete clinical examination was done.

Inclusion Criteria:

- HIV infection diagnosed as per NACO guidelines.
 - **Diagnosed by 3 spot tests:**
 1. **Coombs AIDS test**
 2. **Triline test**
 3. **Qualpro test**

Exclusion Criteria:

- HIV negative patents.
- Patients not willing to take part in the study.

It was a cross-sectional study with of HBV in HIV positive cases 2.25%[3] and at 95% confidence interval and +/-2 margin of error the sample size worked was 211 using

$$n = (Z_a^2 * p * q) / d^2$$

RESULTS:

TABLE-1: DISTRIBUTION OF SEX ACCORDING TO HbsAg POSITIVITY

SEX	HbsAg +ve		HbsAg -ve		p value
	N	%	N	%	
Male	24	77.4	113	62.8	0.115
Female	7	22.6	67	37.2	
Total	31	100.0	180	100.0	

TABLE2: DISTRIBUTION OF SEX ACCORDING TO Anti HCV POSITIVITY

SEX	Anti HCV +ve		Anti HCV -ve		p value
	N	%	N	%	
Male	5	62.5	132	65.0	0.883
Female	3	37.5	71	35.0	
Total	8	100.0	203	100.0	

TABLE-3: HbsAg POSITIVITY ACCORDING TO RISKY BEHAVIOUR

Variables	HbsAg +ve		HbsAg -ve		p value
	N	%	N	%	
MULTIPLE SEXUAL PARTNERS	20	64.5	78	43.3	0.029*
IDU	0	0.0	4	2.2	0.402
BLOOD TRANSFUSION	1	3.2	13	7.2	0.409

Note: *means significant at 5% level of significance (p<0.05)

TABLE-4: HbsAg POSITIVITY ACCORDING TO PARAMETERS

PARAMETERS	HbsAg +ve		HbsAg -ve		p value
	Mean	SD	Mean	SD	
CD4 COUNT	154.3	40.5	314.8	129.8	<0.001*

Note: *means significant at 5% level of significance (p<0.05)

PARAMETERS	HbsAg +ve		HbsAg -ve		p value
	Mean	SD	Mean	SD	
S.BIL	1.0	1.2	0.9	1.1	0.456

Note: *means significant at 5% level of significance (p<0.05)

PARAMETERS	HbsAg +ve		HbsAg -ve		p value
	Mean	SD	Mean	SD	
SGOT	229.4	354.2	46.3	56.5	<0.001*
SGPT	168.4	180.4	37.5	56.8	<0.001*
ALP	182.4	69.1	134.9	104.1	0.015*

Note: *means significant at 5% level of significance (p<0.05)

TABLE-5: Anti HCV POSITIVITY ACCORDING TO RISKY BEHAVIOUR

Variables	Anti HCV +ve		Anti HCV -ve		p value
	N	%	N	%	
MULTIPLE SEXUAL PARTNERS	5	62.5	93	45.8	0.353
IDU	0	0.0	4	2.0	0.689
BLOOD TRANSFUSION	0	0.0	14	6.9	0.442

TABLE-6: Anti HCV POSITIVITY ACCORDING TO PARAMETERS

PARAMETERS	Anti HCV +ve		Anti HCV -ve		p value
	Mean	SD	Mean	SD	
CD4 COUNT	135.5	18.8	297.3	132.4	0.001*

Note: *means significant at 5% level of significance (p<0.05)

PARAMETERS	Anti HCV +ve		Anti HCV -ve		p value
	Mean	SD	Mean	SD	
S.BIL	2.4	3.3	0.8	0.9	<0.001*

Note: *means significant at 5% level of significance (p<0.05)

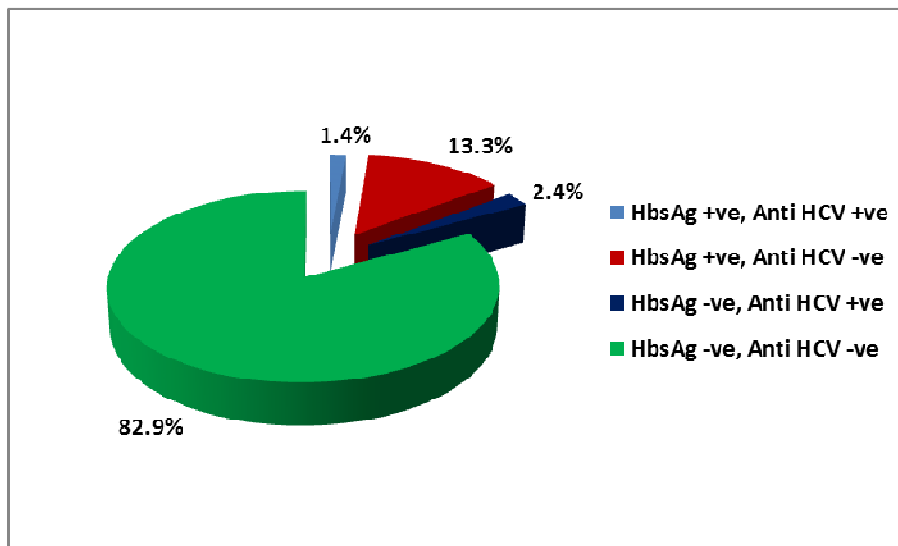
PARAMETERS	Anti HCV +ve		Anti HCV -ve		p value
	Mean	SD	Mean	SD	
SGOT	467.6	635.3	57.7	73.8	<0.001*
SGPT	239.8	301.3	49.5	73.6	<0.001*
ALP	278.3	225.6	136.5	89.9	<0.001*

Note: *means significant at 5% level of significance (p<0.05)

Table-7: Relationship between HbsAg and Anti HCV positivity

Positivity	N	%
HbsAg +ve, Anti HCV +ve	3	1.4
HbsAg +ve, Anti HCV -ve	28	13.3
HbsAg -ve, Anti HCV +ve	5	2.4
HbsAg -ve, Anti HCV -ve	175	82.9

Figure-8: Relationship between HbsAg and Anti HCV positivity



Out of 211 HIV positive patients, 28 (13.3%) are Hbs Ag positive, 5 (2.4%) are Anti HCV positive and 3 (1.4%) are both Hbs Ag and Anti HCV positive.

DISCUSSION:

HBV has considerable potential to activate HIV replication directly. In addition, chronic and persistent activation of the immune system by an ongoing immune response (e.g., an infection with a hepatotropic virus) increases the expression of HIV and may therefore accelerate immunodeficiency and the course of HIV infection. It is evident from literature and which is also present in our study the maximum number of co-positive patients are in 30-50 age group. Agarwal K, Sarin SK of Moulana Azad Medical College found maximum number of cases to be in 30-50 years age group.^{4,5,6}

In comparison to western studies co-positivity is lower in India. In HIV Atlanta cohort study it was found that Anti HCV was prevalent at rate of 32% among HIV positive individuals.

In western countries among co-infected individuals, the risk behavior was different from the Indian population. There HIV spread is more common with Intra venous drug abuse; this mode of transmission is negligible in India except in metro cities and north eastern states which show higher Anti HCV prevalence than our studies.

Since there is a changing trend of HIV transmission with increase in intravenous drug abuse the co-infection with Hepatitis B and Hepatitis C may increase.

As literature shows that co-infectivity with Hepatitis B and Hepatitis C virus with HIV causes increased damage to Liver resulting in increased mortality and morbidity, it is advisable to test every HIV positive individual with HbsAg and Anti HCV, and if not exposed to infection vaccination should be given to such individuals.

CONCLUSIONS:

The present study concluded that Co-positivity with HBV in HIV positive patients was found to be 14.7% , Co-positivity with HCV was found to be 3.8% , Study showed Male preponderance. Study also shows that highest co-positivity is seen in patients whose CD 4 count was <200.

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