



## **Prevalence of Hepatitis C Virus among HIV Patients in Ikole Ekiti, Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final  
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**Case Study**

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### **ABSTRACT**

**Background:** Co-infection of HIV-positive patients with hepatitis C viruses worsens the long term diagnosis and causes of the liver related diseases in almost three –quarters of the HIV infected individuals.

**Aim:** This research was carried out to know the sero-epidemiology of HCV among HIV infected individuals in Ikole Ekiti South West Nigeria.

**Place and Duration of the Study:** The clinical data and samples were collected in Specialist Hospital, Ikole Ekiti, Nigeria between November, 2012 and April, 2013 and processed in Medical Microbiology Department, LAUTECH, Nigeria.

**Methodology:** A total of 158 HIV-infected patients comprising 40 males and 118 females with age range from 3-82 years participated in this study. The test was performed using anti HCV cassette (Clinotech) and later confirmed with Enzyme link immunosorbent Assay.

**Results:** Four (2.53%) out of 158 HIV infected patients had antibodies to HCV. Co-infection of hepatitis C is more in female 3(1.90%) than male 1(0.63%) subjects. Statistical analysis showed no significant difference ( $p>0.05$ ). Age group 31-40 years had the highest prevalence of HCV (50%)

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followed by age group 21-30 years (25%), 41-50 years (25%). There was no HIV-HCV coinfection among age group >50 years and <20 years. No significant difference was observed in association between age and prevalence of HCV antibodies ( $p>0.05$ ).

**Conclusion:** Routine screening of patients with HIV infection for HCV antibodies should be encouraged for early diagnosis since research had shown that HIV-HCV co-infection can result in higher levels of HCV in the blood, quick progression to HCV-related liver such cirrhosis and hepatocellular carcinoma.

**Keywords:** Hepatitis C virus (HCV); HIV; prevalence; epidemiology; HIV-positive patients; HAART therapy.

## 1. INTRODUCTION

Hepatitis C virus (HCV) infection is caused by HCV and persistent HCV infection which account for up to 0.5 million deaths every year, can lead to progressive liver diseases and result to cirrhosis and cancer of the liver [1]. A recent study suggested that between 64 and 103 million individuals have chronic HCV infection [2].

Chronic viral hepatitis due hepatitis C virus in addition to infection with human immunodeficiency virus (HIV) is a global public health problem [3]. It is estimated that about 170 million people are chronically infected while 3 to 4 million people are newly infected every year [3]. A considerable proportion of these patients will progress onto cirrhosis and hepatocellular carcinoma [4]. Globally, HIV is accountable for about 38.6 million infections as calculated in December, 2005 [5]. Averagely, one death out of three in HIV patients is linked to liver disease. Hepatic diseases in HIV infected persons can occur due to HCV, excessive alcoholism, hepatic tuberculosis or antiretroviral therapy (ART) side-effects [6].

Co-infection of HCV in HIV individuals vary globally and it is a function of geographic regions, risk groups and the types of exposure involved [7]. Antiretroviral therapy has reduce deadly illness due to and has been proved to normalize CD4<sup>+</sup> counts in HIV infected patients [8]. Early diagnosis of HCV in HIV individuals has not been given enough priority it deserves in Nigeria possibly due to the low awareness of the burden and risk of HCV infection in HIV. HCV promotes advancement of hepatic disease in HIV individuals [8] and it can also increase the injuriousness to antiretroviral medications [9]. In United States, HCV accounts for most chronic diseases and co-infection with HIV fast track progression to hepatic diseases [10].

Highly active antiretroviral therapy (HAART) medication had been found to prolong the

survival of HIV infected individuals [11]. Co-infection of HIV with HCV intensify the threat for hepatotoxicity of those on ART and rapid initiation of AIDS related symptoms, compared with HIV mono-infection [12]. There is reduce life expectancy in HCV-HIV co-infected individuals due to hepatological diseases with the viruses [13]. In 2005, 38.6 million and 17 million chronic infection was reported for HIV infections and HCV infection respectively [14] and 4-5 million are HIV-HCV coinfectd [15].

Nigeria is one of the countries highly endemic for viral hepatitis [11]. There is no information and interrelationship about HIV and HCV coinfection in Ikole Ekiti, South West Nigeria as no study of this nature has been done. This research was done to estimate the prevalence of HCV seropositivity among HIV individuals in Ikole Ekiti – Ekiti State, South west Nigeria.

## 2. MATERIALS AND METHODS

The study populations were HIV infected patients attending HAART Clinic of Specialist Hospital, Ikole Ekiti, Nigeria. The patients were educated Yoruba and all of them were receiving antiretroviral treatment. The permanent Secretary, Ministry of Health gave ethical approval for the project. Their clinical data was collected and one hundred and fifty eight (158) samples were selected randomly from a pool of HIV infected positive serum stored at -24°C until analysis. The samples were collected between November 2012 - April 2013 from HIV infected patients who attended HAART clinic for follow-up and other health needs.

The test was performed using Clinotech (Clinitech Diagnostic Pharmaceuticals Canada) anti HCV cassette which is a rapid direct binding procedure, which usually determines antibodies to hepatitis and later confirmed with Enzyme link immunosorbent Assay kit (second generation). Liver enzymes (Alaline Transaminase and

Aspartate transaminase) were determined using Sigma Aldrich kit while CD4 count was determined using flow cytometry. Data were analysed using packages with SPSS software and p value less 0.05 considered to be significant.

### 3. RESULTS

Of the 158 HIV-infected patients studied, 40 were male and 118 female. The mean age was 35.5years (3-82) years and 142 (89.9%) of them had secondary to tertiary education but majority 102 (64.6%) were unemployed. Fifty one (32.3%) of 158 came from polygamous family while few 16 (10.1%) involve in alcoholism. One hundred and twenty four (83.2%) of 158 patients were of age between 30-49. Mean and median CD4 T lymphocyte count of the study participants were 210/mm<sup>3</sup> and 142/mm<sup>3</sup> respectively. Four (2.53%) of the patients had antibodies to HCV. Co-infection of hepatitis is more in female 3(1.90%) than male 1(0.63%) subjects. A slight increase in mean liver enzymes (Alaline aminotransferase and aspartate aminotransferase) was found in all HIV- HCV coinfecting patient but CD4 count remain normal. This study detected four patients were positive for Anti-HCV and therefore the prevalence of HCV is 2.53%. Among the study subjects, there were 1 male (0.63%) and 3 females (1.90%) with mean age of 21-50 years. Age related prevalence of HCV antibodies in HIV infected patients was assessed and results showed that Age group 31-40 years had the highest prevalence of HCV (50%) followed by age group 21-30 years (25%), 41-50 years (25%) and no serum was positive for age groups <20 years and >50 years. No significant difference was observed in association between age and prevalence of HCV antibodies (p>0.05).

### 4. DISCUSSION

Viral hepatitis is a leading cause of liver –related ailment and death in HIV infected patients globally [16]. This study showed a prevalence of 2.53% co-infection of HCV in HIV infected patient in Ikole Ekiti which is low to 4.8% reported by Jesses et al. [17] in Ibadan, 5.7% reported by Inyama et al. 2005 in northern Nigeria, 7.2% in Bida reported by Omosigho et al. [7] and 11.1% reported by Forbi et al. in Keffi. The prevalence in this study is very high compare to prevalence reported by Wedemeyer et al. [18] who reported prevalence of 0.8% (Argentina), 0.4% (Finland),

1.2% (Greece), 0.4% (Norway) and 3.2% (Russian), in contrast a higher prevalence rate of 6.8% was reported in Mongolla [18].

### 5. CONCLUSION

This study confirmed that HIV- HCV exists in Ikole. Therefore, routine screening for hepatitis C viral infections in all HIV positive individuals is very essential as it is now obvious that early initiation of ART before marked immunosuppression sets in could be of highly important for the HIV infected patients in order to decrease the long term ailment and death.

### CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

### ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the author(s).

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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