

Sero-prevalence of HCV among HIV infected adult patients attending Comprehensive Care Center at Kenyatta National Hospital

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Research note

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Abstract

Objective The objective of the study was to assess the prevalence of Hepatitis C virus infection and associated risk factors amongst HIV/AIDS adult patients in a sub-Saharan setting. **Results** Two hundred and forty (240) HIV/AIDS patients were recruited from Comprehensive Care Center at KNH. A total of 21 days were spent in the recruitment. The mean age of the participants was 41 years with a standard deviation of 11. The ages ranged between 18 years and 76 years. Majority of the participants were between 30 and 50 years of age. 70% of recruited participants were residing in Nairobi, 16% in Kiambu, 4% in Machakos, 3% in Kajiado and 7% in other counties. 72% of all recruited participants were females, whereas males accounted for 28%. The Prevalence of HCV among Adult HIV/AIDS was 0%. Among risk factors assessed, sexually transmitted infections accounted for 20.4% of all risk factors. None of the participants had a history of intravenous drug use.

Introduction

Around 33 million people worldwide are living with Human immunodeficiency virus (HIV) infection and approximately 20–30% of HIV infected individuals are also infected with Hepatitis C Virus (HCV) [1]. The main form of HCV transmission is via the blood borne route. High rates of co-infection are found in intravenous drug users with HCV prevalence rates as high as 90% [1]. HCV is responsible for about 350,000 deaths annually; among western countries, southern Europe and particularly Italy is among the most affected areas [1,2]. Due to shared routes of transmission, co-infection with both human immunodeficiency virus type 1 (HIV-1) and Hepatitis C virus (HCV) is relatively common and results in accelerated liver disease, driving morbidity and mortality [3].

HCV Patients with Human immunodeficiency virus (HIV) co-infection are 3 times more likely to develop cirrhosis or liver decompensation than those infected with Hepatitis C alone [4].

Africa has the highest WHO estimated regional prevalence (5.3%) with Egypt having the highest prevalence (17.5%) of HCV in the world; Kenya's prevalence among high-risk groups is 1.7% [5]. Many HIV-positive individuals in sub-Saharan Africa are co-infected; a systematic review and Meta analysis, showed anti-HCV prevalence rates of 7% among HIV-infected individuals. HIV is associated with a higher prevalence of HCV in this region [6]. For persons living with HIV, Hepatitis C is a major public health problem that must be controlled and possibly eradicated. If untreated, chronic Hepatitis C can progress to cirrhosis and hepatocellular carcinoma in a subset of these patients. However, the prevalence of HCV infection amongst HIV/AIDS patients in Kenya is still unknown; the study highlights for the first time, the prevalence of HCV infection amongst HIV infected adult patients at KNH Comprehensive care center (CCC).

Methods

This was a hospital based cross-sectional study. The study was carried out at Kenyatta National Hospital (KNH) where the participants were recruited from the Comprehensive Care Center (CCC). CCC is located within the premises of KNH, in its own building close to the main entrance of the hospital and opposite the university of Nairobi school of Pharmacy. KNH is the largest referral hospital in East and Central Africa and as such receives large numbers of patients from different parts of the of the sub-Saharan region.. All study subjects were at least 18 years old and attending at comprehensive care center at Kenyatta National Hospital, confirmed by a clinic card and center database. Adult HIV/AIDS infected patients including pregnant women attending comprehensive care center at Kenyatta national hospital and willingly consented to participate in the study were included. Individuals less than 18 years, Adult patients/clients not attending comprehensive care center at KNH and adult HIV/AIDS patient/clients attending comprehensive care center at KNH but refused consent were excluded form the study. A total of 240 candidates were included in the study with random selection of patients attending comprehensive care center at (KNH) Kenyatta national hospital was employed. Structured case report forms were used to collect demographic information, screening for risk factors such as history of drug use and injection practices, sexually transmitted diseases and history of blood transfusion and then all participants tested for hepatitis C virus infection. The case report form was pretested before the actual data collection and the information obtained was used to further fine-tune the report form. Specimen collection, labeling, processing, and testing, was done in accordance to the standard operating procedures of the laboratory and according to the manufacturer's recommendations. Blood specimens were collected by a finger prick and two drops of blood spread on the test kits' sample well. Results were read after 5 to 20 minutes. Testing for antibodies against HCV was done using SD-Bioline rapid diagnostic test kits. Data entry was done using Microsoft excel followed by editing and analysis using statistical package for social sciences (SPSS). Descriptive statistics was be done by cross tabulating explanatory variables against outcome variables. P-Value < 0.05 was considered as statistically significant.

Results

Two hundred and forty (240) HIV/AIDS patients were recruited from Comprehensive Care Center at KNH. A total of 21 days were spent in the recruitment, each day from Monday to Friday during clinic days. The mean age of the participants was 41 years with a standard deviation of 11. The ages ranged between 18 and 76 years.

Majority of the participants were between 30 and 50 years of age. 70% of recruited participants were residing in Nairobi, 16% in Kiambu, 4% in Machakos, 3% in Kajiado and 7% in other counties in Kenya.72% of all recruited participants were females, whereas males accounted for 28% (Table 1).

Table 1. Gender of patients

Gender	Frequency	Percent	Cumulative percent
Female	172	72%	72%
Male	68	28%	100%
Total	240	100%	

The mean age among male participants was 44 years and that for females was 41 years, but this observation was not statistically significant (Table 2).

Table 2. Mean age by gender of Patients

Gender of Patient	Total	Ag of Patient		Mean Diff	95%CI (Mean diff)	P-value
		Mean	Std Deviation			
Male	68	44	11	3	-0.1-5.8	0.061
Female	172	41	10			

Of all participants recruited, 64% did not have any of the risk factors assessed, 30% reported to having one of the risk factor and 6% reported to two of either of the risk factors assessed. 20% of the participants, responded positively to a history of sexually transmitted infection other than HIV, 16% admitted to having a history of blood transfusion and 5% admitted to having a tattoo/traditional mark. None of the participants responded positively to a history of illicit drug use (Table 3).

Table 3. Total Number of responses on each risk factor from study participants

No of Responses	Frequency	Percent	Cumulative percent
0	155	64%	64%
1	71	30%	94%
2	14	6%	100%
Total	240	100%	

Of the 240 HIV/AIDS adult patients tested, none of them tested positive for the presence of HCV antibodies.

Discussion

The results of the study showed that the prevalence of HCV using a rapid diagnostic test kit to detect HCV antibodies was 0%. Kenya's HCV prevalence in the general population is low, stands at 0.9%. High risk groups for HCV acquisition include, Intravenous drug users, HIV-infected patients on hemodialysis, patients with a history of blood transfusion or organ transplant, healthcare workers with needle stick injuries, children born to HCV infected mothers and sexually active adults with multiple partners. Kenya still ranks low among high-risk groups. Intravenous drug use is the most efficient transmission route of HCV. The most efficient means of HCV transmission is percutaneous exposure to blood, with transmission efficiency 10 times higher for HCV than for HIV. HCV is less likely transmitted by sexual means, which accounts for the majority of HIV transmission in Kenya and in most other parts of the world.

Sexual transmission of HCV is increased by indulging in high-risk sexual practices such as, men who have sex with men and presence of sexually transmitted diseases [8]. In Cameroon, the prevalence of HCV/HIV co-infection was 1.7%, histories of scarification (62.1%), multiple sex partners (31%) and sexually transmitted diseases (66.1%) were the most common risk factors for HCV transmission [9]. The fact that none of the participants had any history of intravenous drug use, could explain the results observed. However the risk of HIV and HCV acquisition via blood transfusion is highly unlikely in the present era because of improved techniques in detecting early infection with these viruses.

Conclusion

Despite the limitations, the findings indicate lack of HCV infection among HIV/AIDS adult clients attending CCC, with none of the respondents having any history of intravenous drug use, which is the main risk factor associated with HCV acquisition.

The study is among the first HCV prevalence studies among HIV/AIDS patients, hence provides baseline data that can contribute to knowledge on the magnitude of the disease, stimulate further research on the disease and also inform policy on risk assessment.

Limitations

Since the risk of HCV acquisition through sexual means among heterosexuals is minimal, the study should have included more study participants. The study however, was limited by financial constraints. The study also should have looked into more sexual behavior practices and other practices related to

increased risk of HCV transmission. Infection with HCV, through any of the known means is followed after 6-8 weeks of seroconversion to produce antibodies against HCV. In this regard then, early infection could not be detected by rapid chromatographic rapid test method used in the study. The findings cannot be generalized to all HIV/AIDS patients in Kenya, because only a few of the known risk factors were taken into account in this study. Other studies that look into more risk factors need to be conducted. Further studies need to be done on the genotype(s) most common in Kenya and development of appropriate rapid testing kits to detect antibodies to the most common available genotype(s).

Declarations

Ethics approval and consent to participate

A written informed consent was obtained from the study participants prior to enrolment into the study. The study received approval from the Kenyatta National Hospital/University of Nairobi-Ethics Review Committee.

Availability of data and materials

All data underlying the findings are fully available without restriction.

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Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

KU and MM designed the study, KU implemented the study and collected the data, and KU, MM and OA analyzed the data. All authors read and approved the final manuscript.

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