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### SURVEILLANCE OF ANTI-HCV ANTIBODY AMONGST IN-SCHOOL YOUTH IN A NIGERIA UNIVERSITY

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#### ABSTRACT

Infection with Hepatitis C Virus (HCV) is a public health problem. Worldwide, there are about 170 million people infected with HCV. HCV is transmitted through sex and use of contaminated sharp objects during tattooing or intravenous drug abuse. These routes make youth to be more vulnerable. Transfusion and mother to child transmissions are also documented modes. This study was carried out to determine sero-prevalence of hepatitis C virus infection among in school youth at Achievers University, Owo in southwest Nigeria. Samples of blood were collected from 70 undergraduate students and sera harvested were tested for the presence of antibodies against hepatitis C virus by Enzyme Immunoassay Technique. Most participants fall within age range 21-25 (91.4%). The study showed that none of the subjects was positive for anti- HCV antibodies. Education and awareness level might have impacted positively on this outcome. Thus routine screening for HCV and sustained awareness creation activities to eradicate HCV and its attendant consequences from our society is of paramount importance.

Key words: HCV, prevalence, in-school youth, education.

### SURVEILLANCE D'UN ANTICORPS ANTI-VHC CHEZ LES JEUNES À L'ÉCOLE DANS UNE UNIVERSITÉ DU NIGERIA

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#### ABSTRAIT

L'infection par le virus de l'hépatite C (VHC) est un problème de santé publique. À l'échelle mondiale, environ 170 millions de personnes sont infectées par le VHC. Le VHC se transmet par le sexe et l'utilisation d'objets tranchants contaminés au cours du tatouage ou de l'abus de drogues par voie intraveineuse. Ces itinéraires rendent les jeunes plus vulnérables. La transfusion et les transmissions mère-enfant sont également des modes documentés. Cette étude visait à déterminer la prévalence de la séropositivité au virus de l'hépatite C chez les jeunes scolarisés de l'Université Achievers, à Owo, dans le sud-ouest du Nigéria. Des échantillons de sang ont été prélevés chez 70 étudiants de premier cycle et les sérums prélevés ont été testés pour détecter la présence d'anticorps contre le virus de l'hépatite C par la technique d'immunoanalyse enzymatique. La plupart des participants sont âgés de 21 à 25 ans (91,4%). L'étude a montré qu'aucun des sujets n'était positif pour les anticorps anti-VHC. Le niveau d'éducation et de sensibilisation pourrait avoir eu un impact positif sur ce résultat. Le dépistage systématique du VHC et des activités de sensibilisation soutenue visant à éradiquer le VHC et les conséquences qui en découlent pour notre société sont de la plus haute importance.

Mots clés: VHC, prévalence, jeunes scolarisés, éducation

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## INTRODUCTION

Viral hepatitis is a life threatening liver disease, caused majorly by hepatitis B and C viruses, and is a major public health problem; particularly in developing countries (1,2). Hepatitis C is an infectious disease affecting primarily the liver, caused by the hepatitis C virus (HCV). HCV is a single-stranded RNA virus of the flavivirus family, about 9.5 kb in length. HCV has a long lag time between onset of infection and clinical manifestation of liver disease which may be up to 20 years (3).

HCV has become a significant causative factor in the aetiology of chronic liver disease worldwide (4). Individuals with chronic infection of HCV have a high risk of liver cirrhosis and hepatocellular carcinoma. Serological markers for HCV are screened in blood banks and antenatal clinics routinely. The evaluation of the data of the prevalence of the HCV antibodies among patients gives an idea for the epidemiology of these infections in the community (5). The prevalence of HCV in a population can be predicated on risk factors associated with the transmission of infection such as blood transfusion, intravenous drug abuse, unsafe injections, sexual activity, shared needle, other body fluids such as semen, vaginal secretions and breast milk, from mother to child, needle stick injury, ear piercing, tattooing and scarifications, exposure to barbers razors, surgical procedures and vertical transmission. (6,7,8,9,10). Viral hepatitis during pregnancy is associated with high risk of maternal complication the virus can be transmitted through infected blood, mother to child in perinatal period. Perinatal transmission is the most common mode of HCV transmission worldwide (11). Viral infection is public health problem and is highly endemic in the sub-Saharan Africa (12, 13). Prevalence rates of anti-HCV antibodies have been determined for various nations of the world. Nigeria as one of the countries highly endemic for viral hepatitis was reported to have a prevalence rate of 3.6% through 12.3% (14, 24). Though HCV infections are known to occur in the general population, the mode of transmission makes youth rather more vulnerable.

The infection is often asymptomatic, but chronic infection can lead to scarring of the liver and ultimately to cirrhosis, which is generally apparent after many years. In some cases, those with cirrhosis will go on to develop liver failure, liver cancer, or life-threatening esophageal and gastric problems (25).

The aim of this work is to determine the seroprevalence of hepatitis C viral infection among in school youths at Achievers University in Owo with a view to examine the effect of education on transmission of HCV.

## MATERIALS AND METHODS

**Study setting:** This study was carried out at Achievers University, Idashen, Owo in southwestern Nigeria. The University is a private sector initiative established in 2007 and it houses students from all major tribes in Nigeria running undergraduate programs in various departments of the 2 faculties. Owo is situated halfway between the Nigerian towns of Ife and Benin. The primary occupation of Owo people is farming and trading. They are producers of cocoa, cotton and timber.

**Study subjects:** A total of 70 apparently healthy students of the university who consented to participate in the study were recruited. All the participants were offered pre-test and post-test counseling.

**Procedure:** Five milliliters (5ml) of venous blood were collected from each subject by venepuncture into vacuum plain tube. The specimens were centrifuged at 1200 revolution per minute (rpm) for 5 minutes to harvest serum into a microtube for the anti-HCV (IgG) testing with third generation Enzyme Immuno-Assay (EIA) method. Donor's serum was added to the microwell together with a second antibody conjugated with the enzyme horseradish peroxidase (the HRP-Conjugate) and directed against a different epitopes of HCV. During incubation, the specific immunocomplex formed in case of presence of anti-HCV in the sample, was captured on the solid phase which generates an optical signal that is proportional to the amount of anti-HCV antibodies present in the sample. The commercially prepared positive and negative controls were treated alongside the specimens. A cut-off value was determined and results were interpreted as positive and negative according to manufacturer's instructions.

**Statistical analysis:** The data generated were coded, entered, validated and analyzed using Statistical Package for Social Science (SPSS) version 20.0. The seroprevalence of HCV were expressed for the entire study group and documentation of participants' age, gender, knowledge and attitude was done.

## RESULTS

A total of 70 healthy Achievers students within the age range of 15-30, were tested for HCV. The distribution of HCV in relation to age and gender was determined. Majority of the respondents were in the age range of 21-25years. Out of 70 respondents, thirty nine were males (56%) and twenty one were females (44%). The sero-prevalence of HCV obtained from this study was zero (0%).

**TABLE 1: AGE DISTRIBUTION AND PREVALENCE OF HCV AMONG IN SCHOOL YOUTH.**

Age group	No examined (n)	Percentage (%)	Sero positivity of HCV
15-20	3	4.3	0
21-25	64	91.4	0
26-30	3	4.3	0
<b>Total</b>	<b>70</b>	<b>100</b>	<b>0</b>

**TABLE 2: DISTRIBUTION OF HCV INFECTION BY GENDER**

Gender	No examined (n)	Percentage (%)	Sero-positivity of HCV
Male	39	55.7	0
Female	31	44.3	0
<b>Total</b>	<b>70</b>	<b>100</b>	<b>0</b>

**TABLE 4.3: RESPONDENT'S AWARENESS ON THE ROUTE OF TRANSMISSION OF HEPATITIS C**

Major route of infection	Frequency (n)	Percentage (%)
Coitus	30	48.6
Blood transfusion	26	1.4
Use of infected material	14	50.0
<b>Total</b>	<b>70</b>	<b>100</b>

## DISCUSSION

Seventy healthy students were examined for presence of marker of HCV infections. The age range of subjects was 15-30 years. There was no sero-positivity

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to this viral infection among the subjects studied. No prevalence of HCV infection in this community was found and this is in contrast to reports from some countries in Western Pacific (3.9%), South East Asia (2.15%), America (1.17%), Europe (1.03%) and Eastern Mediterranean (26) (4.6%). It is still at variance with reports from some researchers about the entire Africa (5.3%) (26) and Egypt (20.0%) (15). In Enugu where 14.9% was reported (16); the 5.2% and 11.09% reported in Jos and Kaduna respectively (15) were all higher than what was reported in this study. The sero-prevalence of anti-HCV antibodies reported in this study differs from previous studies including the 13.3% reported for Anti-HCV in Keffi; Nigeria (17). The 9.2% found by Ogunro *et al.* 2007 (27) in Osun State; the 8.4% anti-HCV antibody seroprevalence rate reported in Lagos (28); the 3.0% found by Ezeani (29) in Southeastern, Nigeria; the 2.4% HCV infection rate found by Olokoba *et al* (21); the 1.1% reported by Buseri *et al* (22) for HCV in Osogbo; Nigeria are all alarming. However, our report is exactly the same with 0.0% HCV seroprevalence previously reported by Elfaki (30) in Sudan, another African country. The zero level prevalence reported in this study and that of Sudan may be due to high level of awareness and adherence to safety practices among the participants in the studies. No doubt, students of the Achievers University, Owo have enough information on transmission of HCV and their attitudes generally about transfusion transmissible infections reflect their level of awareness.

## CONCLUSION

In conclusion, the results of this study have highlighted that HCV infection is not common in Owo. However, a prospective cohort study is suggested for newly admitted students till their year of graduation for HCV seroprevalence in order to affirm our observation.

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