IJBPAS, September, 2012, 1(8): 1040-1046

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

THE PREVALENCE OF HEPATITS C ANTIBODIES IN THE SERUM OF PATIENTS ATTENDING FEDERAL MEDICAL CENTER (FMC) KEFFI NASARAWA STATE, NIGERIA

DANIEL ST*[1], AREKEMASE MO[2], AND HAMZA HM[1]

1: Department of Medical Laboratory, School of Health Technology Keffi, Nasarawa State, Nigeria

2: Department of Microbiology, University of Ilorin, Ilorin, Nigeria

***Corresponding Author: E-mail: salemdan@gmail.com; danielsalem@rocketmail.com; Tel. +2348037852632, +2348058372681**

ABSTRACT

A total of 150 venous blood samples were collected from patients attending Federal Medical Center (FMC) Keffi Nasarawa State for sero-screening for Hepatitis C antibodies using Wondfo Biotech^{R} one step HCV rapid test strips. Of the 150 patients screened, 15 (10%) were positive for HCV while 135 (90%) tested negative. Male population had a higher prevalence rate (9) than females (6), analysis of the prevalence rate based on age group showed that the age groups 21 – 30 had the highest (6) and they are closely followed by the age group 31 – 40 which had four (4) the age groups 11 – 20 had (3). The people who were positive for HCV based on the risk factors exhibited by the patients such as history of needle injection at patent medicine stores which had the highest rate of infection, followed by those with multiple sex partners .The medical community in Nigeria needs to be alert to the fact that HCV is gradually crippling the populace unnoticed, therefore it needs to be alert to this phenomenon. Thus random and regular screening should be done for blood donors and drastic actions instituted especially when there is co-infection with HIV and potentially more dangerous in HCV/HBV/HIV infections.

Keywords: Hepatitis C, Antibodies, Transmission, Prevalence

INTRODUCTION

The Hepatitis C virus (HCV) is a life threatening viral infection of the liver transmitted by a small RNA virus that is closely related to the flavi viruses and animal pesti viruses. The virus is got through infected blood and blood products, but is not easily transmitted like Hepatitis B virus (HBV). Only small number of the virus are excreted and circulated in the blood **[1]**.

Currently, it is estimated that about 130-170 million people worldwide are infected with HCV while it accounts for 800-10000 deaths each year in Nigeria **[2]**. The Centre for Disease Control **[3]** reported that in the United States an estimated 3.2 million people live with HCV infection with an estimated 17,000 new infections annually.

A major risk factor associated with the HCV infection is its ability to cause acute hepatitis and a chronic asymptomatic carrier state. In 2004 Albert **[4]** estimated that about170 million people worldwide are chronically infected with HCV. However, they have remained asymptomatic for 10-30 years but are at risk of developing co-infection with human immune-deficiency virus (HIV).

Hepatitis C is primarily transmitted by blood-to-blood contact (i.e. Contact with blood of an infected person) via sharing of contaminated needles, syringes, or other injection drug equipment. In addition tattooing, ear piercing and body piercing using unsterile equipment are other potential sources.

The people at risk include some of the following groups; intravenous drug users, prison inmates, recipients of clotting factor concentrates, recipients of blood transfusions, or donated organs from a donor who later tested positive for HCV and long time hemodialysis patients.

Moreover, persons with known exposures to HCV (e.g., healthcare workers after needle sticks, HIV-infected persons, infants born to infected mothers **[5, 3]** Less commonly HCV can be transmitted through sexual contact with an infected person.

MATERIALS AND METHODS

Study Population

After receiving due permission from the hospital management and consent from participating patients attending the virology and microbiology unit of Federal Medical Centre (FMC, Keffi,), 150 venous blood samples were collected from patients of different occupations, cultural background and gender and analyzed in the laboratory of School of Health Technology Keffi. However not all the patients under this study came from Keffi, but majority of the population were residents of Keffi.

Sample Collection and Processing

Five milliliters of venous blood was aseptically collected into sterile BD Vacutainer® (EDTA) tubes and allowed to clot, then centrifuged. The serum was collected and stored at -20^{o} C until needed. The test and interpretation of results were done based on manufacturer's instructions on the use of kits.

RESULTS

Results of 150 blood samples collected and analyzed for HCV antibodies from FMC Keffi are presented in **Table 1, 2** and **3**.

Table 1: Prevalence of HCV Antibodies by Sex

SEX	FREQUE-NCY	PERCENTA-GE (%)	NUMBER POSITIVE	PERCENTAGE POSITIVE (%)	NUMBER NEGATIVE	PERCENTAGE NEGATIVE (%)
Male	**84**	**56**	**9**	**6.00**	**75**	**50.0**
Female	**66**	**44**	**6**	**4.00**	**60**	**40.0**
Total	**150**	**100**	**15**	**10.00**	**135**	**90.0**

Table 2: Prevalence of HCV Antibodies by Age Group

AGE GROUP (YRS)	FREQUENCY	NO. INFECTED	NO. -VE	PERCENTAG FREQUENCY AGE	PERCENTAG +VE	PERCENTAG -VE
0-10	**7**	**1**	**6**	**4.67**	**0.67**	**4.00**
11-20	**25**	**3**	**22**	**16.67**	**2.00**	**14.67**
21-30	**62**	**6**	**56**	**41.33**	**4.00**	**37.33**
31-40	**45**	**4**	**41**	**30.00**	**2.67**	**27.33**
40 +	**11**	**1**	**10**	**7.33**	**0.67**	**6.67**
Total	**150**	**15**	**135**	**100**	**10.01**	**90**

+, = above 40., -ve, =Negative., +ve, = Positive., %,= percentage

Table 3: Prevalence of HCV antibodies in serum sample

Sample frequency	Positive sample frequency	Negative sample frequency	Percentage of positive sample	Percentage of negative sample
150	**15**	**135**	**10.00**	**90.00**

DISCUSSION

It has been established from this investigation that HCV infection is existing among patients attending FMC keffi as shown in Table 3, thus indicating that inhabitants of Keffi Nasarawa State are at risk since this study site had a prevalence rate of 10%. According to Halim and Ajayi **[6]** the prevalence of HCV among local commercial blood donors in Nigeria ranged from 2.3 – 14.0% in Lagos Nigeria. Among patients with sick-cell anemia five percent (5%) anti HCV prevalence was recorded **[7]** similarly, 5.7% prevalence was recorded among HIV patients in Jos University Teaching Hospital **[8]**.

The results in **Table 1** are also compatible with reports from Greece **[9]** and Australia **[10]** which recorded prevalence rates of 13.8% 13.1% respectively. All these works reviewed, recorded prevalence results that are higher than those this study. However the work of **[11]** reported HCV sero-prevalence rate of 11.1% among HIV infected individual in the North-Central Nigeria. A previous study in Rivers State, Nigeria had overall HCV prevalence of 2.9% among blood donors in, Nigeria **[12, 13]**.

The difference in the present study might be due to the blood transfusions (5 out of 18) which were seldom subjected to screening for HCV and a great abuse of injection in patent medicine stores. This work concurs with the record among patients in Brazil (36.2%) **[14]** as well as those of 100 level students of the University of Ilorin (9.1%) **[2]**. Sexual behavior is usually considered of secondary importance in determining HCV infection risk but habits very common among the study population might also have had a contributory role in the prevalence of HCV observed in this study.

Analysis of the sex related sero-prevalence of HCV showed that the males were more infected than the females **(Table 1)**. The reason for higher frequency of HCV infection among the males was not immediately apparent. However the prevalence of viral hepatitis was reported to be higher in Nigerian male population than in females. In 2007 **[11]** found that out of 15 HCV individuals in North-Central Nigeria 9 males and 6 females were infected. This might be due to the higher frequency of exposure to infected blood products by male folks as a result of occupation and social behavior. Some men also indulge in use of drugs secretly. Series of studies in different transmission groups have confirmed that age is a co-factor for disease susceptibility and progression. **Table 2** also indicates that the age group 21-30 years had the highest HCV prevalence which agrees with **[2, 15, 16]**, They reported that age group

21 – 30 years had the highest prevalence rate the reason for this might not be easily understood, however this age bracket could be identified, as an important risk group but **[17]** suggest sexual activity of this age group. **Table 3** shows 10% (15) positive prevalence rate And a 90% (135) negative rate out of the sample size of 150.

CONCLUSIONS

Screenings, testing of blood and organ donors and prevention programs should be aimed at avoiding needle sharing among drug addicts. Needle exchange programs and educational interventions will reduce transmission of HCV infection among the population at risk here in Keffi Nasarawa State.

Health care workers should be retrained on safer injection practices to reduce accidental needle sticks injuries. Disposable syringes with self-capping needle systems should be introduced in health facilities to avoid the manual replacement of needles to caps after drawing blood and reducing the risk of needle sticks. People with HCV infection should not share razors or tooth brushes with others. Multiple sexual partners should use condoms to limit the risk of HCV as well as other sexually transmitted diseases.

REFERENCES

[1] Cheesebrough M, District Laboratory Practice in Tropical Countries Part 2, Cambridge University Press International Sale Dept., Edinburgh building, Cambridge, 2002, 251.

[2] Udeze AO, Bamidele RA, Okoonko IO, and Sule WF, Hepatitis C antibody detection among first year students of University of Ilorin, Ilorin, Nigeria, World Journal of Medical Sciences, 6 (3), 2011, 162-167.

[3] Center for Disease Control and Prevention (CDC), The ABCs of Hepatitis, Publication 21, 2010, 1076, www.cdc.gov/hepatitis.

[4] Albert FJ, Chemello L and Benuegnu L, Natural history of hepatitis, 7th edition, Arnold press, Euston road, London, 2004, 388.

[5] Center for Disease Control and Prevention (CDS), The blue Book: Guidelines for the Control of Infectious Diseases, Melbourne Victoria, 2006, 79-83.

[6] Halim NK, Ajayi OI, Risk factors and seroprevalence of hepatitis C antibody in blood donors in Nigeria, East African Medical Journal, 77, 2000,410-12

[7] Lesi OA and Kehide MO, Hepatitis virus infection in sickle cell anemia at the Lagos University hospital, Nigeria

Post-Graduate Medical Journal, 10, 2003, 79-83.

[8] Inyama PU, Uneke CJ, Anyanwu GI, Njoku OM, Idoko JH, Idoko JA, Prevalence of antibodies to Hepatitis C virus among Nigerian patients with HIV infection, Online Journal of Health Allied Sciences, 2 (2), 2005

[9] Dimitrako-poulos A,Takou A, Haida A, Molangeli S, Gialeraki A and Kordossi T, The prevalence of Hepatitis B and C in HIV positive Greeek patients, Journals of infectious diseases, 40, 2000, 127-131.

[10] Lincoln D and Petoumenos KD, General journal on HIV/HBV and HIV/HCV co-infection and outcomes following highly active antiretroviral therapy, HIV Medical, 2003,4241-249.

[11] Forbi JC, Gabadi S and Alabi R, The Role of the Triple Infection with Hepatitis B Virus, Hepatitis C Virus, and Human Immunodeficiency Virus (HIV) type-1 on CD+ Lymphocytes Levels in the Highly HIV Infected Population of North-Central Nigeria, Mem Inst Oswaldo Crutz., 102, 2007, 535-537.

[12] Koate BB, Buseri FI and Deremiah ZA, Sero-prevalence of hepatitis C virus among blood donors in Rivers state, Nigeria, Transfuse Medical Journal, 15, 2005, 449-451.

[13] Agwale SM, Tanimoto L, Womack C, Odama L, Leung K, Duey D, Negedu-Momoh R, Audu I, Mohammed S.B, Inyang U, Graham B and Ziermann R, Prevalence of HCV co infection in HIV-infected individuals in Nigeria and characterization of HCV genotypes, Journal of Clinical Virology, 31(1): 2004, S3-6.

[14] Segurado AC, Braga P, Etzel A, Cardoso MR, Hepatitis C virus coinfection in a cohort of HIV-infected individuals from Santos Brazil: seroprevalence and associated factors. AIDS Patient Care STDS, 18, 2004, 135-43.

[15] James AN, Obinna ON, Georgebest ON, Echeonwu L, Surajudeen AJ, Onyeka A and Tiri JA. Studies on Prevalence and Risk Factors for Hepatitis B Surface Antigen among Secondary School Students in North-central, Nigeria. Sierra Leone Journal of Biomedical Research, 3(3), 2011, 163-168.

[16] Federal Ministry of Health, Nigeria, Risk factors and sero- prevalence of

Hepatitis C antibody in blood donors in Nigeria, East Africa Medical Journal. 77, 2000, 410- 412.

[17] Komas NP, Bai-Sepou S, Manirakiza A, Leal J, Bere A and Le Faou A, The Prevalence of Hepatitis B virus Markers in a Cohort of Students in Bangui, Central African Republic, BMC Infect. Dis., 10, 2010, 226: http://www.biomedcentral.com/1471-2334/10/226.