



Original Research Article

Prevalence of Hepatitis B Virus and Hepatitis C Virus Co-Infections among Ekiti People in South-Western Nigeria

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ABSTRACT

Viral hepatitis infections are important health problems worldwide. This study was carried out to know the prevalence of hepatitis B Virus and hepatitis C Virus co-infections among Ekiti people in South-Western Nigeria. Individuals and patients who visited the Haematology and Blood Transfusion Unit of Ekiti State University Teaching Hospital, Ado-Ekiti to screen themselves for HBV and HCV infections between January to December, 2014 were recruited for this study having obtained their consent. 4ml of blood sample was collected from each subject into a plain bottle and was allowed to stand for 1hour for clotting and clot retraction to take place. Sera were separated into khan tubes labeled appropriately and were screened for the presence of antibodies to HVB and HCV using One-Stage Rapid Test Kits (DiaSpot Diagnostics, USA) and were later confirmed using enzyme linked immune sorbent assay (ELISA) (Stat Fax Awareness, England). Out of the 1639 subjects recruited into this study, 774 were males while 865 were females. Prevalence of HBV was found to be 6.16%, HCV was 1.71% while the co-infection of HBV/HCV was 0.12%. This study showed that HBV is commoner than HCV among Ekiti people. Even though the prevalence of HVB/HCV co-infection is at minimal, prevalence of HBV is considerably high among these people therefore, there is still need to initiate program that will see to the reduction of these infections to the minimal level.

Keywords: prevalence, hepatitis B virus, hepatitis C virus, co-infection, Ekiti people.

INTRODUCTION

Viral hepatitis infections are important health problems worldwide. [1-4] Globally, it is estimated that about 350-400 million people are chronically infected with hepatitis B virus (HBV), 190 million are chronically infected with hepatitis C virus

(HCV) and 33 million are living with HIV infection today. Hepatitis C Virus as a global disease which was discovered in 1989 has a worldwide prevalence of 3.3%, and about 170-200 million infected individuals. [5,6] However, higher prevalence has been reported in some African countries such as

Egypt with prevalence of 14.5%.^[7] Hepatitis C virus is commoner within age group 30-49 years and can be transmitted through contact with infected blood,^[8] and intravenous drug injection has been reported currently to accounts for more than half of modes of transmission in the United States of America.^[9]

Chronic hepatitis B, which can be referred to as persistence of hepatitis B surface antigen (HBsAg) for a period more than 6 months, has differing epidemiology in regions of high versus low endemicity and it has been reported to be the leading cause of chronic liver disease and a leading cause of death worldwide.^[10] From a total of 400 million people infected with hepatitis B virus (HBV) worldwide, 620 people reportedly die annually from complications of chronic hepatitis B infection. Hepatitis B Virus has been described to be highly contagious and relatively easy to be transmitted from one infected individual to another by blood transfusion, during birth, by unprotected sex, and by sharing needles and has a relatively higher prevalence in the tropics.^[11,12]

This research work was carried out to know the prevalence of co-infections of both hepatitis B Virus and hepatitis C Virus in the selected study area because there is no documented report on this topic in the selected study area.

MATERIALS AND METHODS

Study Area and Subjects

Individuals and patients who visited the Haematology and Blood Transfusion Unit of Ekiti State University Teaching Hospital, Ado-Ekiti to screen themselves for HBV and HCV infections between January to December, 2014 were recruited into this study after obtaining their consent. Ethical approval was obtained for this study from ethical and research committee. The

teaching hospital is located in Ado-Ekiti (in Ado Local Government Area Headquarter) which is the capital city of Ekiti State, situated in the tropical rain forest belt of Southwest of Nigeria and is about 450km from Abuja (the capital city of Nigeria).

Methodology

Four ml of blood was aseptically collected from each subject into plain bottles. Each blood sample was allowed to stand for one hour at room temperature (25°) for clotting and clot retraction to take place. It was spun and sera separated into plain khan tubes labeled appropriately and the sera were screened for the presence of antibody to HBV and HCV using One-Stage Rapid Test kit (DiaSpot Diagnostics) and they were later confirmed using enzyme linked immuno sorbent assay (ELISA) (Stat Fax Awareness, England). The manufacturer's instructions were strictly adhered to.

RESULTS

1639 people were recruited into this study, out of which 774 were males while 865 were females. The subjects were grouped in different age groups as shown in the table below. 101(6.16%) were tested positive to hepatitis B, 28(1.71%) positive to hepatitis C while only 4(0.12) were positive to both hepatitis B and hepatitis C infections, and the highest prevalence found in age group 31-40 years for hepatitis B, hepatitis C and co-infection.

Out of the 774 males recruited into this study, 49(6.33%) were positive to hepatitis B, 15(1.94%) positive to hepatitis C while only 2(0.26%) were positive to both infections. And of the 865 females recruited, 52(6.01%) were tested positive to hepatitis B, 13(1.50%) positive to hepatitis C while 2(0.23%) were positive to hepatitis B and C as shown in the table below.

Table 1: Prevalence of HBV and HCV co-infection in different age groups among Ekiti people

Age-Groups (years)	HBV		HVC		Co-infection(HBV/HCV)		
	No. Exam.	No. Pos.	%Pos.	No. Pos.	%Pos.	No. Pos.	% Pos
≤ 10	53	-	-	-	-	-	-
11-20	154	06	3.90	02	1.30	-	-
21-30	709	44	6.21	10	1.41	01	0.14
31-40	410	40	9.75	14	3.41	03	0.73
41-50	178	09	5.06	02	1.12	-	-
≥ 51	135	02	1.48	-	-	-	-
Total	1639	101	6.16	28	1.71	04	0.12

Key;

No. Exam.----- Number Examined

No. Pos.----- Number Positive

%Pos----- Percentage Positive

Table 2: Prevalence of HBV and HCV co-infection among males and females in Ekiti

Gender	HBV		HCV		Co-infection(HBV/HCV)		
	No. Exam.	No. Pos.	%Pos.	No. Pos.	%Pos.	No. Pos.	%Pos.
Male	774	49	6.33	15	1.94	02	0.26
Female	865	52	6.01	13	1.50	02	0.23
Total	1639	101	6.16	28	1.71	04	0.12

DISCUSSION

The prevalence rate of hepatitis B Virus varies according to the endemicity of the infection in a specific locality. Different prevalence rates have been reported from different parts of the world by different researchers. Lin and colleagues reported 12.0% rate of hepatitis B prevalence among the people in Taiwan. [13] 17.3% was reported by Collenberg and colleagues in Burkina Faso [14] and Pontius and colleagues reported 11.8% from Uganda. [15] Prevalence rate of hepatitis B has also been reported from different parts of Nigeria; 11.6% prevalence from Maiduguri by Harry and colleagues, [16] 4.3% from Port-Harcourt by Akanni and colleagues, [17] 5.7% from Ilorin by Agbede and colleagues [18] and 8.3% from Zaria by Luka and colleagues. [19] High prevalence of hepatitis B is mostly reported from Asia and African countries.

The results of this research showed prevalence of hepatitis B Virus and hepatitis

C Virus infections to be 6.16% and 1.71% respectively while the prevalence of co-infection of both hepatitis B and hepatitis C was 0.12%. The prevalence of hepatitis B has shown in this study is lower than that reported by researchers from different parts of the world and within Nigeria [13-16,19] while it is higher than the prevalence reported by. [17,18,20]

The prevalence of hepatitis B Virus and hepatitis C Virus in this study is considerably high when compared to the results reported by Krunal and colleagues [21] who reported 2.9% for HBV and 0.19% for HCV, Hussain and colleagues [22] who reported 2.9% for HBV and 1.0% for HCV, Belay and colleagues [23] reported 4.7% for HBV and 0.7% for HCV. Landes and colleagues reported a higher prevalence for hepatitis C than hepatitis B as against the results of this study where hepatitis B has higher prevalence than hepatitis C. [24]

Akinleye and fellow researchers reported 9.80% prevalence for hepatitis B in Lagos^[25] which is higher than the prevalence gotten from this study and the higher prevalence reported in Lagos could be due to the high population in Lagos and social lives of the people because people in Lagos are more socialized and this could increase their sexual exposure and as well increase their risk factor.

The prevalence of hepatitis B and C according to this study is almost in line with the reports of Esan and colleagues and also Afolabi and co-researchers who reported 6.78% for HBV, 1.39% for HCV and 5.9% for HBV, 1.4% for HCV respectively.^[26,27]

The results of this study showed co-infection of hepatitis B and C to be 0.12% which is against the reports of Krunal and colleagues, Belay and colleagues and also Ajayi and co-researchers, who all reported no co-infection between hepatitis B and C^[21,23,28] while it correlated with the report of Hussain and colleagues who reported 0.1% for the co-infection.^[22] And 6.5% prevalence was reported for co-infection of hepatitis B and C by Okeke and colleagues^[29] which is very higher than the one reported in this study and could be due to the high population and low level of education among the people in the area studied by.^[29]

CONCLUSION

It is clearly shown in this study that hepatitis B infection is commoner than hepatitis C infection among Ekiti people and prevalence of hepatitis B is considerably high among these people even though the co-infection is at the minimal. Therefore, the government and healthcare professionals are enjoined to put more efforts in inventing programs that will create awareness to the general public on the modes of spread and prevention of these viral infections so that

the prevalence can be reduced to the minimal.

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