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Research article

HEPATITIS B VIRUS (HBV) AND SYPHILIS CO-INFECTIONS AMONG THE PEOPLE OF EKITI, SOUTH-WEST, NIGERIA

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ABSTRACT

This study was carried out to know the prevalence of hepatitis B, syphilis and co-infection of both among the people of Ekiti, South-West, 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 Syphilis infections between January to November, 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 syphilis using One-Stage Rapid Test Kits (DiaSpot Diagnostics) and were later confirmed using enzyme linked immune sorbent assay (ELISA) (Stat Fax Awareness, England). One Thousand Six Hundred and Thirty-Nine subjects were recruited for this study, out of which Seven Hundred and Seventy-Four were males while Eight Hundred and Sixty-Five were females. 101(6.16%) were positive to HBV, 51(0.92%) positive to syphilis and 5(0.31%) were co-infected with both infections. The results of this study showed higher prevalence of hepatitis B infection than syphilis infection with the highest prevalence found within the age group 31-40 years and 21-30 years indicating that most of the infected people got the infection through sexual intercourse.

Keywords: Prevalence, Hepatitis B, Syphilis, Co-infection, Ekiti people

INTRODUCTION

Syphilis is an infection caused by bacterium, *Treponema pallidum*, and it remains a serious public health problem in sub-Sahara Africa. It is spread through sexual intercourse, transfusion of blood and/or blood products, vertical transmission ^[1]. According to some researchers, prevalence of active syphilis infection among African countries has been reported to be 12.8% in Tanzania ^[2], and 3.8% in Kenya ^[3]. In 1995, a study was conducted to know the prevalence of HIV, syphilis and HBV infections

among blood donors in Ethiopia and it was reported that HIV has sero-prevalence of 16.7%, syphilis has 12.8% while HBV has 14.4% ^[4]. Infection with syphilis can take up to 3 months for symptoms to show and some people may never have noticeable symptoms of this infection, people infected with the infection can transmit it to other persons even if they show no sign or symptoms of the infection ^[5]. The globally important health problems are viral hepatitis infections ^[6, 7, 8]. Chronic hepatitis B has

been reported to be the leading cause of chronic liver disease and a leading cause of death worldwide [6]. 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. Usually people successfully manage to get rid of the infection within a few months by developing an immunity that lasts a lifetime. Evidence of this immunity may be shown by blood tests but there will be no signs of active infection, while some don't get rid of the infection and such people are considered carriers. Sero-prevalence of HBV and syphilis infections are well recognized worldwide but has been reported to be more common in developing countries in Africa and Asia [9].

Aim: This study was embarked upon to actually know how prevalent are hepatitis B virus (HBV), syphilis and their co-infections in this part of the country because there is no documented or published report on such.

MATERIAL AND METHODS

Type of study: This work is a case study research

Study Area: This study was conducted at the Haematology and Blood Transfusion Unit of Ekiti State University Teaching Hospital, Ado-Ekiti, between January to November, 2014. Ekiti State University Teaching Hospital is located in Ado-Ekiti in Ado Local Government Area of Ekiti State and Ado-Ekiti is the capital city of Ekiti State, situated in the tropical rain forest belt of Southwest of Nigeria. It is about 450km from Abuja (the capital city of Nigeria). People from different parts of the state visit the Teaching Hospital for Healthcare Services.

Subjects: One Thousand Six Hundred and Thirty-

Nine Patients and individuals (males and females) who visited the Haematology and Blood Transfusion Unit of Ekiti State University Teaching Hospital, Ado-Ekiti, to screen themselves for HBV and Syphilis infections were recruited into this study having obtained the consent of those 18years and above and those below 18years gotten from their parents. The maximum age of the subjects was 70years. Ethical approval was obtained for this study from ethical and research committee.

Methodology: 4ml 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 Syphilis using One-Stage Rapid Test kit (DiaSpot Diagnostics, USA) which were later confirmed using enzyme linked immuno sorbent assay (ELISA) (Stat Fax Awareness, England). The manufacturer's instructions were strictly followed.

RESULTS

Out of the One Thousand Six Hundred and Thirty-Nine subjects screened for the presence of antibodies to HBV and T. pallidum (syphilis), One Hundred and One were positive to HBV giving rise to 6.16%, Fifteen positive to syphilis infection amounting to 0.92% while only Five of the subjects were co-infected with both HBV and syphilis infections which is 0.31%. the highest prevalence to HBV, syphilis and co-infections were found in the age group 31-40 years followed by 21-30 years as shown in the (table 1) below

Table 1: Sero-prevalence of HBV and syphilis co-infection in different age groups among Ekiti people

Age-Groups (years)	HBV			Syphilis		Co-infection(HBV/syph)	
	No. Exam.	No. Pos.	%Pos.	No. Pos.	%Pos.	No. Pos.	% Pos
10	53	-	-	-	-	-	-
11-20	154	06	3.90	01	0.65	-	-
21-30	709	44	6.21	05	0.71	02	0.28
31-40	410	40	9.75	08	1.95	03	0.73
41-50	178	09	5.06	01	0.56	-	-
51	135	02	1.48	-	-	-	-
Total	1639	101	6.16	15	0.92	05	0.31

Key; No. Exam.-----Number Examined,No.
 Pos.-----Number Positive, % Pos.-----
 -----Percentage Positive.

In the table 2 below, One Thousand Six Hundred and Thirty-Nine subjects were recruited, out of which Seven Hundred and Seventy-Four were males while Eight Hundred and Sixty-Five were females.

Table 2: Sero-prevalence of HBV and syphilis co-infection among males and females in Ekiti

Gender	HBV			Syphilis		Co-infection(HBV/syph)	
	No. Exam.	No. Pos.	%Pos.	No. Pos.	%Pos.	No. Pos.	%Pos.
Male	774	49	6.33	09	1.16	02	0.26
Female	865	52	6.01	06	0.69	03	0.35
Total	1639	101	6.16	15	0.92	05	0.31

DISCUSSION

Hepatitis B virus (HBV) is important and has several implications among the blood-borne viruses transmissible through the parenteral route, by blood transfusion, as well as by sexual intercourse. It does not only establish asymptomatic persistent infection but also cause significant morbidity and mortality when transmitted through transfusion of blood and blood products [10]. Prevalence of HBV has been reported to vary between 2% in developed countries where the prevalence is low to about 8% in developing countries where infection is endemic with sex, age and socioeconomic status as important risk factors for infection [11, 12, 13]. In 2006, Centers for Disease Control and Prevention (CDC) reported more than 36,000 cases of syphilis in the United States, and the rate of syphilis among homosexual men has been rising consistently since 2000 [14].

The results of this study showed a higher prevalence of hepatitis B infection (6.16%) than that of syphilis infection (0.92%). The higher prevalence of hepatitis B infection than syphilis infection in this study correlates with reports of [15, 16, 17, 18] who all reported the prevalence of hepatitis B infection to be higher than that of syphilis infection in their various researches, but it is against the reports of [19] who reported higher prevalence for syphilis than hepatitis B infection.

The prevalence of hepatitis B infection (6.16%) in this study is a little higher than the reports of [18, 20, 21, 22] who reported prevalence of hepatitis B infection to be 4.7%, 5.9%, 5.3% and 4.9% respectively, and much higher than the reports of [19, 23] who reported

49(6.33%), 09(1.16%) and 02(0.26%) out of the 774 males were positive to HBV, syphilis and coinfections respectively while 52(6.01%), 06(0.69%) and 03(0.35%) out of the 865 females were positive to HBV, syphilis and co-infection respectively

2.9% and 3.0% respectively, but it is lesser than the prevalence reported by [24, 25].

The prevalence of syphilis infection (0.92%) according to this study is considerably low among the people of Ekiti when compared to the prevalence reported by [15, 18, 19, 21] but is also higher than the reports of [16, 17, 26]. The prevalence of people co-infected with both hepatitis B and syphilis infections was 0.31% which is against the reports of [16, 18] who both reported no co-infection between hepatitis B and syphilis infections. And this study also showed that both hepatitis B and syphilis infections are more common in males than females which correlates with the reports of [25], and the highest prevalence is found within the age group 31-40 years followed by 21-30 years which is line with the reports of [27, 28].

CONCLUSION

Based on the results of this study, the prevalence of hepatitis B infection is higher than that of syphilis and it can be said that hepatitis B infection is considerably high among the people of Ekiti with the highest prevalence found within the age groups 31-40 years and 21-30 years which indicates that most of the infected people would have got infected through sexual intercourse because the age groups within which the infections are mostly found is referred to as the sexually active age group.

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Conflict of Interest: Nil

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