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Prevalence of HBV, HCV and Syphilis among the People of Ekiti in South-Western Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

This study was carried out to know the prevalence of hepatitis B, hepatitis C and syphilis infections among the people of Ekiti, South-West, Nigeria. This study took place at the Haematology and Blood Transfusion Unit, Ekiti State University Teaching Hospital, Ado-Ekiti. Patients and individuals who visited this unit of the hospital to screen for hepatitis B, hepatitis C and syphilis infections between January to November, 2014 were recruited for this study. Four ml 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 HBsAg, HCV and syphilis using One-Stage Rapid Test Kits (DiaSpot Diagnostics) and all were later confirmed using enzyme linked immune sorbent assay (ELISA) (Stat Fax Awareness, England). The results of this study showed the prevalence of hepatitis B, hepatitis C and syphilis infections to be 6.2%, 1.7% and 0.7% respectively with the highest prevalence of the three infections found within the age group 31-40 years followed by age group 21-30 years and males were more infected than the females. Age group 25-40 years is considered to be the most sexually active age group and the age group with the highest prevalence

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of these infections fall within the sexually active age group indicating that most of the infected people got infected through sexual intercourse with an infected person because the major mode of transmission of these infections is through sexual intercourse even though they can also be transmitted through other means.

Keywords: Prevalence; hepatitis B; hepatitis C; syphilis; Ekiti people.

1. INTRODUCTION

Sexually Transmitted Infections (STIs) have been globally reported to have reached an alarming prevalence in several countries especially in sub-Saharan Africa with more than 20 STIs been identified by the National Institute for Allergy and Infectious Diseases [1]. About 340 million new cases of syphilis, gonorrhoea, chlamydia and trichomoniasis reportedly occur in men and women aged 15-49 years in each year and the overall STI prevalence rates continue to rise in most countries [2]. The major mean of transmission of sexually transmitted infections (STI) is through person-to-person contact (sexual intercourse), though some of the pathogens that cause it, such as Human immunodeficiency virus (HIV), Hepatitis B virus (HBV), Hepatitis C virus (HCV) and syphilis, can be transmitted from mother to child during pregnancy and childbirth, and transfusion of blood and/or blood products and tissue transplantation [3,4]. The incidence and prevalence of STIs has been reported more among adolescents. In the United States, it is estimated that approximately one-fourth of the more than 15 million new cases of sexually transmitted infections diagnosed in each year occur among teenagers [5,6]. At the age of 24 years, one in three sexually active people will have contracted an ST1 and many of these young people suffer long-term health problems as a consequence of their infection [7].

Hepatitis B is a viral infection of the liver, caused by the hepatitis B virus (HBV). Infection with this virus can cause scarring of the liver, liver failure, liver cancer, fever, abdominal pain, tiredness, jaundice and sometimes result to death while some with this infection never get sick [8,9]. It has been reported by CDC that the number of people contracting hepatitis B has decreased from an average of 200,000 per year in the 1980s to 43,000 in 2007 and the highest rate of infection occurs among the age groups 20 to 49 years old [8]. Hepatitis C virus (HCV) is one of several viruses that cause hepatitis, which is an acute or chronic inflammation of the liver. This infection can lead to liver damage and possibly liver cancer [10]. It was initially named non-A non-B hepatitis before it was later identified as hepatitis C in 1989. An estimation of 16,000 acute Hepatitis C virus infections reported in the United States in 2009 while about 3.2 million people in the United States have chronic Hepatitis C virus infection [11]. Syphilis is the oldest known sexually transmitted infection (STI) [9]. It is caused by a bacterium known as *Treponema pallidum* and spread by vaginal, oral and anal sex. It can take up to 3months for symptoms to show while some people may never have noticeable symptom but people with this infection can spread to others even without showing any symptoms [9]. More than 36,000 cases of syphilis were reported in the United States in 2006 [12].

This research work was carried out to know the sero-prevalence of Hepatitis B virus, Hepatitis C virus and Syphilis infections among the people of Ekiti because there is no documented report on this study in the selected study area.

2. MATERIALS AND METHODS

2.1 Study Area and Subjects

Ekiti State University Teaching Hospital is the only state Teaching Hospital in Ekiti where medical students receive their clinical training, and it is located in Ado-Ekiti (in Ado Local Government Area) which is the capital city of Ekiti State, situated in the tropical rain forest belt of Southwest of Nigeria and is about 450 km from Abuja (the capital city of Nigeria). People from different parts of the state visit the Teaching Hospital for Healthcare Services.

Individuals and patients who visited the Haematology and Blood Transfusion Unit of Ekiti State University Teaching Hospital, Ado-Ekiti to screen themselves for HBV, HCV and Syphilis infections between January to November, 2014 were recruited into this study. The consents of those 18 years and above were obtained and those below 18 years were gotten from their parents. Ethical approval was obtained for this study from ethical and research committee.

2.2 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 (25º) 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, HCV and syphilis using one-stage Rapid Test kit (RTK) (DiaSpot Diagnostics) which were later confirmed using enzyme linked immuno sorbent assay (ELISA) (Stat Fax Awareness, England). The manufacturer's instructions were strictly adhered to. All participants were screened with RTK and confirmatory was done on all the participants with ELISA. And individuals positive to any of these infections were referred to the appropriate quarter.

3. RESULTS

The results of this study are presented in the tables below.

Out of the One Thousand, Six Hundred and Seventy-One subjects screened for HBV, 103 (6.2%) were positive to the infection with the highest prevalence in age group 31-40 years followed by age group 21-30 years. Nine Hundred and thirty were screened for HCV, out of which 16 (1.7%) were positive to the infection with the highest prevalence in same age group as HBV. Out of the Eight Hundred and Seventeen screened for Syphilis, only 6 (0.7%) were positive with the highest prevalence in same age group as HBV and HCV as shown in (Table 1).

4. DISCUSSION

Viral hepatitis is a life-threatening liver disease, caused by hepatitis B and C virus, and is a major public health problem, particularly in developing countries [13]. It has been reported that Viral hepatitis, hepatitis B and C in particular are common with the two accounting for about 75% of all cases of liver diseases worldwide and this make it a disease of global concern. Chronic hepatitis B infection is estimated to occur in about 350 million people worldwide and is commoner between the ages of 25-44 years [14,15].

Out of the total Subjects screened for HBV, HCV and Syphilis, Males have higher prevalence than females in all the infections, as shown in (Table 2).

Table 1. Prevalence of HBV, HCV and Syphilis infections in different age groups in Ekiti

	HBV			HCV			Syphilis		
Age-Groups (years)	**No. Exam.**	**No. Pos.**	**%Pos.**	**No. Exam.**	**No. Pos.**	**%Pos.**	**No. Exam.**	**No. Pos.**	**%Pos.**
≤10	53	-	-	25	-	-	20	-	-
11-20	154	06	3.9	126	-	-	118	-	-
21-30	739	44	6.0	334	06	1.8	318	02	0.6
31-40	412	42	10.2	261	09	3.4	200	04	2.0
41-50	178	09	5.1	104	-	-	101	-	-
≥51	135	02	1.5	80	01	1.3	60	-	-
Total	1671	103	6.2	930	16	1.7	817	06	0.7

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

Table 2. Prevalence of HBV, HCV and Syphilis among males and females in Ekiti

	HBV			HCV			Syphilis		
Gender	**No. Exam.**	**No. Pos.**	**%Pos.**	**No. Exam.**	**No. Pos.**	**%Pos.**	**No. Exam.**	**No. Pos.**	**%Pos.**
Male	790	51	6.5	508	11	2.2	500	05	1.0
Female	881	52	5.9	422	05	1.2	317	01	0.3
Total	1671	103	6.2	930	16	1.7	817	06	0.7

In this study, it showed that the prevalence of hepatitis B infection was considerably high among the people of Ekiti while hepatitis C and syphilis infections were very low among these people. The results showed the prevalence of hepatitis B, hepatitis C and syphilis infections to be 6.2%, 1.7% and 0.7% respectively in the study area. Nigeria has been classified to be among the high endemic zone for viral hepatitis B infection with prevalence between 2.7-13.3% [16,17,18] which correlated with the results of this study. The 6.2% prevalence of hepatitis B infection in this study was lower than the 11.5% reported by [19]. The prevalence of syphilis infection among females in this study was 0.3% while 1.7% and 0.16% were reported by [20,21] respectively.

The prevalence of hepatitis B, hepatitis C and syphilis infections in this study were lesser than that reported by [22] and it was against the reports of [23,24]. The higher prevalence reported by [22] who worked on blood donors in Lagos State, could be due to the higher population in the study area and also social lives of the people in the study area because people in Lagos are more exposed to social lives which could increase their sexual exposure as well as increase their risk factor. The prevalence of hepatitis B and C infections in this study correlated with the reports of [25,26]. Also, the results of this study showed prevalence of hepatitis B and C among females to be 5.9% and 1.2% respectively which correlated with the reports of [27]. The highest prevalence of these infections (hepatitis B, hepatitis C and syphilis) according to the results of this study was found within the age group 31-40 years and also 21-30 years which correlated with the reports of [14,15,25,27] and this is because age group 21-40 years is the most sexually active age group among men and women and the major mode of transmission of these infections is through sexual intercourse which indicated that most of the people infected with these infections would have gotten it through sexual intercourse with an infected persons, even though the infections can also be transmitted through transfusion of infected blood and/or blood products, sharing of sharp objects contaminated with infected blood from an infected person, mother to child either during gestation or at birth and also breast milk.

5. CONCLUSION

World Health Organization reported the prevalence of hepatitis B and C infections for Nigeria to be 8.0% and 1.2% respectively in the year 1999 [26] and this study showed the prevalence of hepatitis B and C infections to be 6.2% and 1.7% respectively which indicated that there's been no significant reduction in the prevalence of these infections within the country over the years, government at all levels are therefore enjoined to put more attention to these infections by collaborating with different health professional bodies and also Non-government Organizations (NGO) to initiate more initiative programs which will help in reducing the prevalence of these infections to the minimal level within the country.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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