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Research Article

Serofrecquancy of Human Immuno Deficiency virus among Known hepatitis Bvirus infected patients attending Talodihospital, SouthkordofanState, Sudan

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ABSTRACT

Background: Co infection with human immuno deficiency virus (HIV) and hepatitis B virus (HBV) is common; worldwide, an estimated 10% of HIV-infected persons have chronic hepatitis B; because The incidence of traditional acquired immunodeficiency syndrome Related opportunistic infections has decreased with successful anti-HIV therapy, liver disease has emerged as a leading cause of morbidity and mortality in HIV-infected individuals.

This study aimed to detect serofrecquancy of Human Immuno Deficiency virus among known hepatitis B virus infected patients who attending Talodi hospital, South kordofan State, Sudan.

Methods: This was descriptive cross sectional study included HBV infected patients aged between (11-54) years old with mean 30.4 years old conducted in Talodi hospital, South Kordofan, State, Sudan , During the period from November 2014 to January 2015 , 90 serum samples were tested by semi quantitative enzyme linked immune sorbent assay (ELISA) for the presence of anti HIV1, 2, 0 antibodies, and the relations between seropositivity and other factors, eg: age , gender, positive family history of blood transfusion, duration of having hepatitis B infection, surgery, blood transfusion, and cupping, were detected. Generated data were analyzed by using SPSS program.

Result : Out of the total 90 patients who were HBsAg positive, attending Talodi hospital, South Kordofan, State, Sudan, were included in this study, 63(70%) were males, 27(30%)were females, out of them 29(32.2%), were positive for HIV. From them 21(23.3%) were males and 8(8.9%) were females. the seropositivity of HIV had associated with risk factors of gender, positive family history, cupping, surgery, and dental surgery. This study shown statistically in significant relationship between seropositivity of HIV and the above mentioned risk factors ($p>0.05$).

Conclusion: the seropositivity of HIV among HBsAg is high in Talodi. Further confirmation and mentoring with large scale specimen is recommended.

Keywords: Serofrequency Anti-HIV, Talodi Hospital, South Kordofan State, ELISA

INTRODUCTION:

Human immunodeficiency virus (HIV) and hepatitis B virus (HBV) infection have a worldwide distribution. However, prevalence of both infections is greater in the developing world especially Africa and Asia. In sub-Saharan Africa, it is estimated that 25 million people are infected with the HIV virus, and another 50 million people are HBV positive. Despite this alarming statistics, data on prevalence of co-infection of these two viruses in African subjects is sparse or even non-existent in many parts[(1)].

Both human immunodeficiency virus-1 (HIV) and hepatitis B virus (HBV) are transmitted through sexual and percutaneous routes; thus, coinfection with both viruses is common, Worldwide, it is estimated that 10% of the 40 million HIV-infected individuals have chronic hepatitis B [(2,3)]. However, regional differences exist in the prevalence of this coinfection, the highest rates also occur in sub-Saharan Africa and Asia [(4)].

Since the introduction of highly active antiretroviral therapy (HAART) in the United States and other industrialized countries, deaths from AIDS-related causes have declined, but liver disease has emerged as one of

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the leading causes of morbidity and mortality , As HAART is introduced into area so if the world with high HBV endemicity, hepatitis B–related liver disease is expected to increase in the HIV-infected population; thus, it is important to understand the interaction of these two chronic viral infections [5,6].

With the present availability of HAART and so improved longevity of subjects, co-infected patients have a higher chance of death from liver-related causes [7]. Some studies observed a higher prevalence of this co-infection in men who have sex with men and injection drug users[2] monoinfected individuals among men who have sex with men, ranging from 9%-17%, and the lowest prevalence is from heterosexual transmission In countries with intermediate and high HBV endemicity,the principal routes of HBV transmission are perinatal or in early childhood; thus, HBV infection usually precedes HIV infection by decades. In these countries, the majority of studies show HBV co infection prevalence of 10%-20 %, [8, 9] but some show prevalence rates as low as 6 % [10]. This work is intended to detect Serofrecquancy of Human Immuno Deficiency virus among Known hepatitis B virus Sudanese patients- Talodi hospital, south kordofan state, using ELISA technique.

MATERIALS AND METHODS:

Design:

This is across sectional study included HBV infected patients aged between (11-54) years old with mean 30.4 years old conducted in Talodi hospital, South Kordofan, State, Sudan, during the period from November 2014 to January 2015, A basic subject selection were from known HBsAg positive patients The data was collected by structured questionnaire. Ethical approval was taken from Al Neelain University research ethical board and from patients verbally.

Experimental work:

Serum samples were collected and stored at –80°C until assayed Serum from each subject was detected for anti HIV1,2,0 antibodies using enzyme linked immune sorbent assay (ELISA) technique(AMS,UK).

Collection of specimens and processing:

Three milliliters of blood were collected under aseptic technique into plain container, the sera obtained after centrifugation was kept at -20 until processed all reagents were brought to room temperature before assaying , hundred micro liter negative control, positive control and samples were dispensed into their respective wells,and it was coverd with plate cover and incubated for 30 minutes at 37°c , then plate cover removed and discarded then washed each well 5 times and blotted to remove any liquid residue, then100µ of horseradish peroxidase conjugated HIV1,2,0 antigen (conjugate) were added into each wells, except for the blank well, then the plate was coverd with card board plate cover to prevent evaporation or contamination of the wells and incubated for 30 minutes at 37°c.

The choromogen (substrate) was preperd just before the end of incubation, and when incubation was completed, the card board was discarded, and the strips were washed and blotted fifty microliter of chromogen/ substrate solution was dispensed in to all wells and incubated for 15 mimutes at37°c (away from intense light), then 50µ of blocking stopsolution was dispensed into all wells and mix gently. the plate reader calibrated with the blank well .

Measurement:

The absorbance of specimens were measured with photometer at 450 at refrence wavelength 630 nm within 15 minutes after the reaction has been stoped.

Calculatation and interpretation of result:

The result calculated by cut-off value. The cut-off value is determined by adding the mean absorbance for the negative control values (NC) plus factor 0.12, Cut-off value = NC + 0.12.

Samples giving absorbance less than the Cut-off value shoud considered negative results , samples giving absorbance equal to or greater than the Cut-off value shoud considered positive result, Samples with absorbance values within ±10% of the cut-off value shoud considered borderline.

Data analysis:

Data was statistically analyzed by Statistical software packages (Excel 5.0,Microsoft, Redmond, WA); and Statistical Package for the Social Sciences 20.0, SPSS, Inc., Chicago, IL).

RESULTS:

A total of 90 HBs Ag positive patients, attending Talodi hospital, South Kordofan State, Sudan, during, November 2014 to January 2015 were enrolled in this study, their mean age range 30.4 years old, of them 63 (70%) were males and 27 (30%) were females. Out of the total, 29(32.2%) were seropositive for anti HIV 1,2,0 (Figure1). From them 21(23.3%) were males and 8(8.9%) were females, (Figure2). The seropositivity of HIV according to age, the study reported high positive at range from 20-30 years old, (Table1). Based on gender and risk factors, statistically there was insignificant relationship between them and seropositivity to HIV(p value>0.05)(Table2), also Regarding duration of HBsAg and seropositivity of HIV the duration less than one month, one year, two years, and three years revealed the same result and there was no significant relation (p=0.857), (Table3).

DISCUSSION:

Several researches have been made and reported different results in various countries associated with HIV among HBsAg patients. This study aimed to estimate serofrequency of HIV among HBsAg patients, attending to Talodi hospital, South Kordofan, State, Sudan. Our study included 90 HBsAg positive patients mean age 30.4 were investigated for HIV, The overall, seropositive of anti HIV among HBsAg patients were 29(32.2%).when compared with other studies it found to be slightly higher than that of Adoga *et al*; (2009), in Nigeria who reported A total of 300 male prison inmates with the mean age of 29.2 years participated in the study. Fifty-four (18.0%) were seropositive for HIV, 69 (23.0%) for HBsAg, and 37 (12.3%) were HCV seropositive. Eight (2.7%) were HIV/HBV co-infected, and two (0.7%) were co-infected with HBV/HCV[11].also it is higher than which obtained by Guimarães *et al*; (2013), in launda southafrica who registered A total of 431 individuals (262 women and 169 men) were studied, of whom 8.8% (38/431) were seropositive for HIV-1 and/or HIV-2 (of these,78.9% were HIV-1-positive, 2.6% HIV-2 positive and18.4% confected); Rates of co-infection were as follows: 2.3% (10/431) for HIV/HBV, 0.9% (4/431) for HIV/HCV, and 0.9% (4/431) for HCV/HBV[12]. also similar to the study of Olawumi *et al*; (2014), Nigeria who found The prevalence of HIV and HBV co-infection was 37, Thirty seven (37%) were hepatitis B positive while 63(63%) were negative. Twenty four (64.9%) of the HBsAg patients were females while 13(35.1%) were males[13]. another study of Lar, *et al*; (2013),Nigeria also reported that Out of the 135 sera collected from HIV infected pregnant women examined The occupation of the women examined showed that housewives and business women had higher rates of HIV/HBV co-infection (8.8% and 5.5%respectively) [14].

also Koziel *et al*; (2007) have indicated that HBV infection among those infected with HIV varies from 5–10% in the United States to 20–30% in Asia and parts of Sub-Saharan Africa [15] the variation of the result may be due to sample size ,techniques, subject selection however higher result was obtained by Lodenyo *et al*; (2000) in Johannesburg who reported a much higher HIV-HBV co-infection rate of 40% [16] . In conclusion this study reported high result for serofrequency of HIV among HBsAg positive patients that indicate the important of screening for HIV infection for all patients who had HBV. We recommended to immunized all people who at risk for having HBV. Further confirmation and monitoring with large scale specimen is recommended.

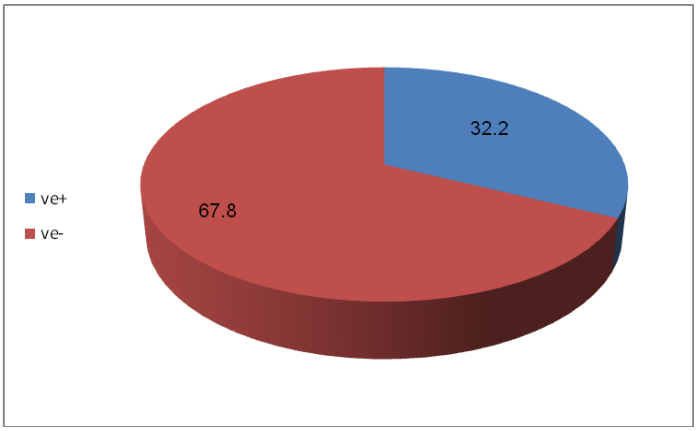

Figure 1: Serofrequency of HIV among known HBsAg patients

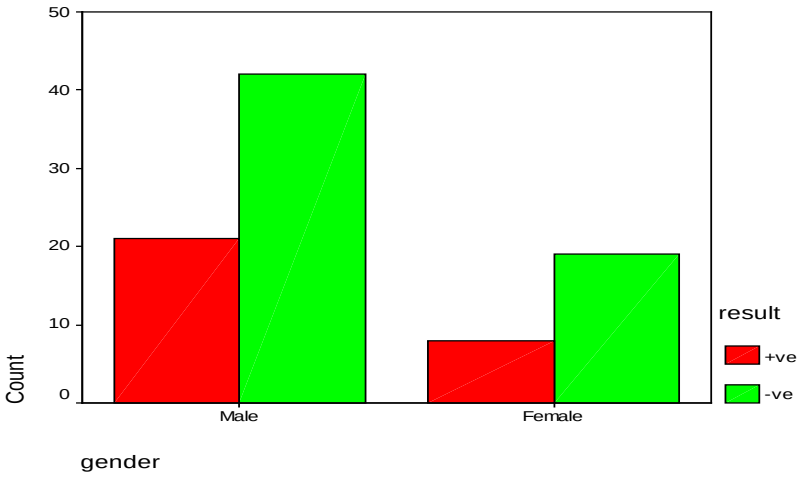

Figure 2: SerofrequencyofHIV among study population according to their gender.

Table 1: Serofrequency of HIV among study population according to their age.

Age range years	Positive, NO (%)	Negative, NO (%)	Total, No (%)
10-20	6(6.7)	6(6.7)	12(13.3)
20-30	12(13.3)	23(25.6)	35(38.9)
30-40	9(10.2)	22(24.4)	31(34.4)
40-50	2(2.2)	9(10)	11(12.2)
50-60	0(.0)	1(1.1)	1(1.1)
Total	29(32.2)	61(67.8)	90(100)

P value: 0.941

P value insignificant> 0.05 level.

Table 2: Serofrequency of HDV among HBsAg patients in relation to demographic data and risk factors.

Risk factors	HBsAg positive, No. (%)	HIVpositive, No. (%)	P value
Gender			0.730
Males	63 (70)	21(23.3)	
Females	27 (30)	8(8.9)	
Positive family history			0.425
Yes	60 (66.7)	21(23.3)	
	30 (33.3)	8(8.9)	
cupping			0.763
Yes	20(22.2)	7(7.8)	
No	70(77.8)	22(24.4)	
Surgery			0.873
Yes	10(11.1)	3(3.3)	
No	80(88.9)	26(28.9)	
Dental surgery			0.586
Yes	2(2.2)	1(1.1)	
No	88(97.8)	28(31.1)	
Blood transfusion			0.142
Yes	7(7.8)	4(4.4)	
No	83(92.2)	25(27.8)	
Not identified			0.084
Yes	19(21.1)	3(3.3)	
No	71(78.9)	26(28.9)	

P > 0.05 is not significant

Table 3: Cross tabulation between seropositivity of HDV and duration of HBsAg among study population.

Duration	Positive, NO (%)	Negative, NO (%)	Total, No (%)
Less than one month	6(6.7)	11(12.2)	17(18.9)
one month Less than 1 year	0(.0)	1(1.1)	1(11)
1 year	8(8.9)	13(14.4)	2123.3)
2 years	8(8.9)	16(17.8)	24(26.7)
3 years	5(5.6)	17(18.9)	22(4.4)
4 years	2(2.2)	3(3.3)	5(5.6)
Total	29(32.2)	61(67.8)	90(100)

P value: 0.857

P > 0.05 is not significant

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REFERENCES:

1. Ocama P, Opio CK, Lee WM. Hepatitis B virus infection: Current status. *Am J Med*. 2005; 118: 1413.
2. McGovern BH. The epidemiology, natural history and prevention of hepatitis B: implications of HIV coinfection. AntivirTher2007; 12(Suppl3):H3-H13.
3. Alter MJ. Epidemiology of viral hepatitis and HIV co-infection. *J Hepatol* . 2006; 44(1 Suppl):S6-S9.
4. Puoti M, Airoldi M, Bruno R, Zanini B, Spinetti A, Pezzoli C, et al. Hepatitis B virus co infection in human immunodeficiency virus infected subjects. *AIDS Rev*. 2002; 4:27.
5. Palella FJ Jr, Baker RK, Moorman AC, Chmiel JS, Wood KC, Brooks JT, *et al*.Mortality in the highly active antiretroviral therapy era: changing causes of death and disease in the HIV outpatient study. *J Acquir Immune Defic Syndr* 2006; 43: 27-34.
6. Lewden C, Salmon D, Morlat P, Bevilacqua S, Jougla E, Bonnet F, *etal*.Causes of death among human immunodeficiency virus (HIV) infected adults in the era of potent anti retroviral therapy: emerging role of hepatitis and cancers, persistent role of AIDS. *Int J Epidemiol* 2005; 34: 121-130.
7. Sulkowski MS, Mehta SH, Chaisson RE, Thomas DL, Moore RD. Hepatotoxicity associated with protease inhibitor based antiretroviral regimens, with or without concurrent rotonavir. AIDS. 2004;18:2277–84.
8. Lee HC, Ko NY, Lee NY, Chang CM, Ko WC. Seroprevalence of viral hepatitis and sexually transmitted disease among adults with recently diagnosed HIV infection in Southern Taiwan, 2000-2005: upsurge in hepatitis C virus infections among injection drug users. *J Formos Med Assoc* 2008; 107:404-411.
9. Diop-Ndiaye H, Toure-Kane C, Etard JF, Lo G, Diaw P, Ngom-GueyeNF, et al. Hepatitis B, C seroprevalence and delta viruses in HIV-1Senegalese patients at HAART initiation (retrospective study). *J Med Virol* 2008; 80:1332-1336.
10. Harania RS, Karuru J, Nelson M, Stebbing J. HIV, hepatitis B and hepatitis C co-infection in Kenya. *AIDS* 2008; 22:1221-1222.
11. Moses P. Adoga; Edmund B. Human immunono deficiency virus, hepatitis B virus and hepatitis C virus: sero-prevalence, co-infection and risk factors among prison inmates in Nasarawa State, Nigeria. *J Infect Dev Ctries* 2009; 3(7):539-547.
12. Guimarães H Nebenzahl, Â Lopes, R Castro, F PereiraS;seroprevelance of human immunodeficiency virus ,hepatitis B virus and syphilis among individuals attending anonymoustes in launda angola .*Afr Med J* 2013;103(3):186-188.
13. Olawum H.O,. Olanrewaju D.O; effect of hepatitis-b virus co-infection on cd4 cell count and liver function of hiv infected patients, *ghana medical journal* 2014;48(2):69-100.
14. Lar, 1P., Pam. M ; prevalence and immune status of hiv/hbv co-infected, pregnant women *afr. j. cln. exper*. Microbiol2013; 14 (3): 120-126.
15. Koziel MJ, Peters MG. Viral hepatitis in HIV infection. *NEngl J Med*. 2007; **356**(14):1445-54.
16. Lodenyo H, Schoub B, Ailly R, Kairu S, Segal I. Hepatitis B and C virus infections and liver function in AIDS patients at Chris Hani Baragwanath Hospital, Johannesburg. *East Afr Med J* 2000; 77: 13-15.

