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Prevalence of Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) Co-infection among the Primitive Koma Tribe in Nigeria.

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ABSTRACT

The Koma tribes are a group of isolated and primitive people along the mountains bordering Nigeria and Cameroun with over 70% of the population still on the mountains. Two communities were selected for the study (n=160). One homogeneous community by the foot of the mountains, predominantly Koma (n=86), while the other was a heterogeneous population, about 3 Kilometers from the homogeneous community (n=74) screened for Hepatitis B and HIV respectively.15% of the population (6.25% female, 8.75% male) tested positive for Hepatitis B while 7.5% (4.4% female, 3.1% male) tested positive for HIV. 11.25% and 3.75% of the Hepatitis B occurred in the homogeneous and heterogeneous populations respectively. 3.1% and 4.4% of the homogeneous and heterogeneous groups tested positive for HIV respectively. Two of the samples in the homogeneous population were Hepatitis B and HIV co- infected. This study has shown that HIV has eaten deep into all nooks and crannies and even to the most remote societies like Koma. The presence of about 15% of hepatitis B virus infection can fan the progression of HIV to AIDS with no or very poor medical services.

Key words: Koma people, Hepatitis B, Homogeneous and Heterogeneous

INTRODUCTION:

Hepatitis B virus (HBV) infection is well recognized and a major global public health problem. Of the approximately 2 billion people who have been infected worldwide, more than 350 million are chronic carriers of HBV (31). Approximately 15-40% of infected patients will develop cirrhosis, liver failure, or hepatocellular carcinoma (HCC) (6).The virus causes acute hepatitis of varying severity (10) and persists in 95% of children and 2–10 % of adult patients (3) leading to chronic liver disease, cirrhosis, hepatocellular carcinoma (1) and even fulminant hepatitis (15) causing 1.2 million deaths each year (14, 18), and is the 10th leading cause of death worldwide. Hepatocellular carcinoma incidence has increased worldwide, and the disease is now the 5th most frequent cancer, killing 300, 000-500, 000 people each year (22).The prevalence of HBV infection varies markedly in different geographical areas of the world, as well as in different population subgroups (30, 32). Overall, approximately 45% of the global population live in areas of high chronic HBV prevalence (18). In sub-Saharan Africa, the Pacific, and particularly Asia, HBV infection is highly endemic, with the majority of individuals becoming infected during childhood (29). Outside of the endemic areas, regions with high rates of chronic HBV infection include the southern parts of Eastern and Central Europe, the Amazon basin, the Middle East, and the Indian subcontinent. In western and northern European countries and North America, HBV infection is relatively rare and acquired primarily in adulthood (19).

Both HBV and HIV share similar mode of transmission and risk factors, HIV-infected people are frequently co-infected with HBV. Hepatitis B virus infection is associated with significant morbidity and mortality in patients with HIV infection (3, 10).

Among people with HIV, 70 to 90% have been found to have HBV exposure, while 10 to 15% have chronic HBV infection (12). Although very few co-infection studies have been carried out in Africa but since sub-Saharan Africa is the home of about 29.4 million HIV- infected people, high HIV/HBV confection is expected. However, results are contradictory. While in Kenya, 32 (78%) out of 41 patients with AIDS had serological evidence of exposure to HBV, a study among pregnant women attending ante-natal clinics in Burkina Faso, showed a low co-infection rate of 0.88% (8).

SUBJECTS AND METHOD

Two communities were selected for the study (n=160). One homogeneous community by the foot of the mountains (n=86). They are predominantly Koma and primitive in lifestyle. The other was a heterogeneous population, about 3Kms from the first (n=74). They are mixed up with other ethnic groups and also exposed to the civilized world.

The people were given a group lecture on the importance of the two diseases (HIV and Hepatitis B infections). Six milliliters (6ml) of intravenous blood was drawn from those who were willing to participate in the research using a butterfly needle into a well labeled vacutainer cell preparation tube. The plasma was separated into a screw capped blood container and frozen immediately for transportation to Human Virology laboratory, Department of Microbiology Human Virology and Biotechnology, National Institute for Pharmaceutical Research Idu- Abuja for the tests.

The samples were screened for HIV using GENESCREEN® PLUS HIV Ag-Ab kits (BIO-RAD, FRANCE). The Hepatitis screening was done using the MONOLISA® Ag HBs PLUS according to the manufacturer's instruction.

RESULT

Twenty four (24), 15% of the population (10, 6.25% females, 14, 8.75% males) tested positive for Hepatitis B virus, Eighteen (18) 11.25% were in homogenous community and six (6), 3.75 % were in heterogeneous community.

Twelve (12), 7.5% of the population were found to be HIV- positive (7, 4.4% female, 5, 3.1% male). Five (5), 3.1% of the HIV infected people are from homogenous community, while seven (7), 4.4 % were from the heterogeneous community. Two (2) people from the heterogeneous community have HIV/HbsAg co-infection (Table 1).

Table 1.

	TOTAL NO SCREENED		TOTAL POSITIVE		COINFECTION	
	HMC	HTC	HMC	HTC	HMC	HTC
HbsAg	86	74	18, (11.25%)	6, (3.75%)	0	2
HIV	86	74	5, (3.1%)	7, (4.4%)	0	2

Key words: HMC = Homogeneous community, HTC = Heterogeneous community

DISCUSSION

Co-infection with HIV and HBV is more common than that with HIV and hepatitis C virus (HCV), although more attention has been given to HCV co-infection as a result of its higher frequency of chronic disease (5). In this study, 11.25% and 3.75% of the homogeneous and heterogeneous communities were infected with hepatitis B virus. Koma people are primitive people living on top of the mountains of the Mambilla Plateau. Though some of them have changed their lifestyle as a result of the penetration of the Government and non-governmental organizations with essential commodities of life, some are very strict with their traditional culture. Tattooing is one aspect of their culture and could possibly be responsible for the endemicity of the virus in that community since hepatitis B is transmitted through body fluid contact. HIV is less prevalent though 5% may be considered significant, a study of a larger sample size may reveal the real situation. But it is evident that even though the two viruses share common route of transmission, the HIV is less prevalent according to this study; therefore there may be need for a further study to determine the possible reason for the discrepancy in the infection rate. Hepatitis B virus is less prevalent among the heterogeneous community; this may be attributable the change in lifestyle.

HIV is also evidently lower in rate among the homogeneous community (5%) but higher among the heterogeneous community (7%). This could be as a result of social interaction among the people of heterogeneous community. However, with the HIV prevalence rate of 7%, it should be expected that the rate of co- infection with hepatitis B should be high, but the opposite is the case. There is need for more detailed research to achieve a better understanding of the reasons for these varying patterns. The global prevalence of chronic HBV infection varies widely, from high (>/=8%, e.g., Africa, Asia and the Western Pacific) to intermediate (2-7% e.g., Southern and Eastern Europe) and low (<2%, e.g., Western Europe, North America and Australia) (4, 17). Viral hepatitis is endemic in Pakistan with an estimated rate of 3–4% (2). According to various study groups, the HBV prevalence rate has been reported as 2–10% among healthy blood donors; 5–9% among health care personnel; 3.6–18.66% among the general population; 3.16% among pregnant women; 10–20% in patients with provisional diagnosis of hepatitis and 3.16–10.4% among professional blood donors (6). These reports highlight the lack of country wide epidemiological studies that can present the overall disease status in the whole country. Similar rates of active HBV infection (14.8%) were found in a Nigerian clinic by Agbaji *et al.* This is an important issue in countries where agents active against HBV may not be routinely available (33)

CONCLUSSION

The large reservoir of patients worldwide who are chronically infected with HBV creates an enormous burden of illness related to chronic infection, cirrhosis, liver failure and HCC. Only through a dual approach of integrating HBV vaccine into all national immunization programs and providing safe, effective treatment of HBV infection, can the burden of the disease be eliminated and HBV-related morbidity and mortality contained. It is evident that both Hepatitis B and HIV infections are found in these communities and emergence of HIV can fan the Hepatitis B infection. Without adequate and timely intervention, the wrath of the sister scourges can easily devastate these communities. This is because the level of education and awareness in these communities are very low. There is need for Government intervention to reach out for this people with Hepatitis B vaccine and HIV care and support programmes before the scourge of these two chronic diseases overwhelm these societies.

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