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Adopting Policies to Integrate Hepatitis-B Virus Prevention into HIV Services: Before it is Too Late for Nigeria

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Opinion

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Abstract

Nigeria in the last few years succeeded in reversing HIV incidence and HIV-related deaths. This was attributed to the multi-sector response and the strengthening of maternal and child health system to specifically meet the needs of HIV/AIDS prevention and control. Despite epidemiological similarities of hepatitis B and HIV infections, hepatitis B incidence and mortalities were on the increase. An estimated 95% of individuals with viral hepatitis were unaware of their infection and so did not benefit from clinical care, treatment, and interventions that are designed to reduced transmission. We suggest that hepatitis B endemic settings adopt best practices that integrate hepatitis B prevention into HIV services at all levels of health care to reduce new infection.

Keywords: Hepatitis-B; HIV; Maternal and Child Health

Abbreviations: SSA: Sub-Saharan African; PEPFAR: President's Emergency Plan for AIDS Relief; CDC: Centers for Disease Control; HBV: Hepatitis B virus; TDF: Tenofovir Disoproxil Fumarate.

Introduction

Maternal and child health systems are weak in Nigeria and most sub-Saharan African (SSA) countries with grave public health consequences [1]. At the peak of HIV/AIDS epidemic in resource-poor nations, the health systems were overwhelmed resulting in higher horizontal and vertical transmission of HIV from mothers living with HIV infection [2,3]. Life expectancy was reduced and infants living with HIV could hardly celebrate their first birthday [2,4-6].

In resource-limited countries, the health systems were basically public sector driven with limited private sector participation and little budgetary provision to meet up with the scourge of HIV disease [1]. In addition, only a few federal public sector workers benefited from the national health insurance scheme with over 90% of the general population having out-of-pocket payment for health care services [7,8].

In 2004, the Government of United States of America started supporting SSA countries most affected by HIV/AIDS epidemics through the President's Emergency Plan for AIDS Relief (PEPFAR) [9,10]. This was the turning point in the fight against HIV epidemics as this led to the establishment of strong health institutions for the HIV/AIDS response. Initially, the HIV response was limited to tertiary health institutions and few secondary

health facilities, by 2010 the response was decentralized to primary health facilities in both rural and urban settings [11].

Beside institutional structures built to provide accommodation for clinical and laboratory services, a robust logistics arrangement for drug supplies was established to meet up with the demand for anti-retroviral treatment in the most affected settings. Under the guidance of U.S health institutions especially Centers for Disease Control and Prevention (CDC), the hub and spoke model of response was adopted with the tertiary health centers serving as hub and secondary and primary health centers serving as the spoke [10]. The capacities of the health workforce were built and additional personnel employed in to the health sector to manned various sections. Task shifting was adopted to enable community health officers provide some services to HIV patients in rural and hard-to-reach settlements [10].

In the maternal and child health section, prenatal women were screened for HIV at no cost to the patients. For test results that were reactive for HIV, further laboratory evaluations were done and anti-retroviral drugs were administered for improvement of maternal health and for prevention of mother-to-child transmission of HIV. The HIV-exposed infants were followed up at the pediatric HIV unit with post-exposure prophylaxis with anti-retroviral drugs until the child was HIV-free or transferred to adult's HIV clinic. This multi-disciplinary response led to the marked reduction in incidence of HIV in the general population and reduction in vertical transmission of HIV in Nigeria that once had the highest rate of mother-to-child transmission of HIV in the world [10].

Hepatitis B virus (HBV) infection had been endemic in sub-Saharan Africa (SSA), where the lifetime risk of HBV infection is over 60% and more than 8% of the population remains chronic HBV carriers [12]. Nigeria with the highest population in the African continent is home to an estimated 24 million people living with chronic HBV infection [13]. HBV Infection before the age of one year accounts for 70% to 90% of chronic HBV infection, unlike HBV infection occurring between the age of one to five years accounting for 20% to 50% risk of chronic HBV infection and infection after six years accounting for 5% to 10% of chronic HBV infection [14,15]. Between 15% and 40% of persons with chronic HBV infection develop cirrhosis, hepatocellular carcinoma, or liver failure, and 25% die prematurely from these complications [1-3].

The epidemiology of HIV and HBV share similarities in modes of transmission, risk factors for infection and morbidity and mortality [16]. These risk factors included people from HBV endemic settings, sexual partners of HBV infected persons, and intravenous drug abuse, incarcerated persons and infants of HBV infected mothers [16]. Unlike MTCT of HIV which accounted for less than 10% of HIV transmissions in the general population globally, HBV infections are acquired through mother-to-child transmission of HBV in 25 – 50% of the general population worldwide [12-14,17,18].

In Nigeria, while routine screening for Hepatitis B infection is not part of standard care for antenatal clinic attendees, the HBV vaccination coverage is relatively poor and the vaccines are not readily available for the prevention of mother-to-child transmission of Hepatitis B infection in low-resource settings. The delay or absence of administration of Hepatitis B vaccinations may provide a window in which HBV is transmitted from infected close contacts to babies in the early weeks of life [13].

Mother-to-child transmission of Hepatitis B infection represents a significant global threat to health in most countries in SSA, and the prevention of HBV infection is a priority for WHO worldwide. Leveraging on the institutional framework established for HIV response, prevention of HBV in the general population and specifically mother-to-child transmission of Hepatitis B infection could be achieved.

Prevention of mother-to-child transmission of HIV units is almost universal across all levels of health care and across public, private and faith-based health facilities. These health facilities provided routinely and cost-free HIV screening at the antenatal care clinics, labor and delivery units, sexually transmitted infectious clinic and gynecology emergency units among other women and reproductive health services units. At these HIV screening points, HBV screening using rapid test kids for hepatitis B surface antigen (HBsAg) status could easily be integrated in to the screening services for HIV. This would require little or no additional infrastructural or laboratory supplies to achieve this HBV screening, but it is not the case in Nigeria.

In addition, pregnant women who were reactive or positive for HBsAg marker, the same laboratory facilities available for HIV evaluation could be used for HBV-DNA levels and for liver chemistry to determine the risk of HBV transmission from mother to child and for the health status of the mother. Also of importance are the anti-HBV

activities of most of the anti-retroviral drugs used for HIV which included lamivudine, tenofovir disoproxil fumarate (TDF), and telbivudine. The anti-retroviral drugs are known to reduce the viral load of HBV in infected pregnant women and reduce the chances of MTCT of HBV infection [19]. These services are however not available for pregnant women who are reactive or positive for HBsAg in Nigeria. The expensive HBV evaluations are available only to pregnant women who could afford such services.

The obstetric precautions taken for pregnant women living with HIV are about the same for women with HBV infection. These precautions included the avoidance of preterm delivery, invasive procedures during labor, prolonged labor and preference for caesarean delivery in women with high viral load [20]. The period around the immediate delivery of a baby is also critical for the prevention of HBV infection. The PEP with HBIG and HBV vaccines are administered almost immediately within twelve hours of delivery [12]. With well-established Pediatric HIV clinic, the HBV-exposed infant is supposed to be followed up and complete the three-dose HBV vaccine series at sixth, tenth and fourteenth weeks in that order. Completion of the HBV vaccine series is supposed to be followed by testing of the HBsAb titer after six months post-delivery. If the titer was below 10IU/mL, a booster dose of the HBV vaccine was administered to ensure that the infant is immune from contracting HBV infection. Once the immune titer was adequate, the infant is protected for at least 20 years if not for life. Again, what was described above only existed in settings with low HBV epidemic but not in Nigeria.

In addition, pregnant women who tested positive for hepatitis B infection could be used for contact tracing of their close contacts especially sexual partners within and outside the family unit. This would ensure wider coverage with hepatitis B screening, promptly identifying persons infected and linking them to care in the Gastro-Intestinal unit for further evaluation and liver surveillance for liver cancer.

Before it is too late, Nigeria would need to adopt global policies that integrate HBV prevention into HIV services at all levels of health care. This is important if the country is to meet the global goals and targets to eliminate hepatitis B by 2030. Nigeria must aggressively implement strategies aimed at increasing vaccination, screening at-risk women and providing linkage to care as a public health priority. These strategies were used in the US to maintain a low hepatitis B epidemic for many years, it is possible for Nigeria to leverage on the PEPFAR supported facilities to achieve low hepatitis B epidemic.

Conflict of Interest

The authors declare no conflict of interest.

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