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EDITORIAL

Chronic hepatitis B infection in sub-Saharan Africa: a grave challenge and a great hope

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In sub-Saharan Africa, chronic infection with the hepatitis B virus (HBV) is a profoundly important public health issue characterised by high prevalence, frequent co-infection with HIV, and sub-optimally applied ascertainment and management strategies. Prevalence of hepatitis B surface antigen (HBsAg) in the general population varies geographically, with the highest rates (>8%) measured in West Africa.[1] Among people living with HIV, between 6% and 25% are co-infected with HBV, and co-infection accelerates fibrosis and increases the risk of liver-related mortality and development of hepatocellular carcinoma (HCC) compared to HIV-negative controls.[2]

In part, as a consequence of reduced HIV-related mortality, both HCC and cirrhosis are increasing in sub-Saharan Africa.[3] The proportion of deaths due to cirrhosis increased by 31% between 1990 and 2010.[3] Lemoine et al. argue that if HCC and cirrhosis were grouped together, chronic viral hepatitis would rank within the top 10 causes of global mortality, above malaria and TB.[4] However, accurate epidemiological data on liver-related mortality in sub-Saharan Africa are lacking, and verbal autopsy remains the predominant method of ascertaining the cause of death, which is highly likely to underestimate the true burden of disease.[5]

World Hepatitis Day, on 28 July, is both a chance to celebrate the progress made in sub-Saharan Africa and an opportunity to focus on the action now needed to reverse the increasing tide of disease. There are multiple fronts on which the battle against viral hepatitis must be fought. First, we need to gain accurate epidemiological data on chronic viral hepatitis in sub-Saharan Africa so that the scope of the problem is properly understood and appropriate resources can be engaged.

Second, we must increase HBV vaccination. An effective vaccine for HBV has been available since 1982 and is included in routine immunisation programmes in 183 countries. Coverage in sub-Saharan Africa by 2013 was mean 76% and only 11% of neonates received HBV vaccination at birth, an essential method of preventing childhood infection.[6] In South Africa, a national sero-survey showed that the introduction of infant HBV vaccination in 1995 led to a reduction in chronic HBV from 4.3% in the pre-vaccination period to 1.4% by 2011.[7] As over 90% of HBV is transmitted in the first 5 years of life, improving vaccination coverage in neonates is essential.

Third, we must stop transfusion of infected blood. A mathematical model estimated that for every 1000 units transfused in sub-Saharan Africa, 4.3 transmit HBV and 2.5 transmit HCV, based on the prevalence of infection in donors and the incomplete provision of routine virological screening.[8] Resources must be targeted to ensure that quality assured screening methods are employed in all blood transfusion services in sub-Saharan Africa.

Fourth, we must stop the reuse of needles in healthcare settings. Up-to-date data is lacking but available WHO surveys from 2000 estimated that between 13 and 23% of needles in healthcare settings in sub-Saharan Africa were reused.[9] WHO has developed an injection safety policy, which aims to transition to the exclusive use of safety-engineered injection devices with needle injury and reuse prevention.[10]

Fifth, HIV programmes should transition to universal screening for HBsAg and offer co-infected patients antiretroviral regimens that are active against both HIV and HBV. These typically include tenofovir for its potency and lack of propensity to select for HBV drug-resistance. While tenofovir is recommended for first-line antiretroviral therapy in all patients with HIV in sub-Saharan Africa, availability is far from universal. Yet, HBV diagnosis and tenofovir use are the key strategy to counteract the risk of liver disease emerging as a prominent cause of non-AIDS related morbidity in this population. While data are still limited, there have been important steps forward. We recently reported on a cohort of HIV/HBV co-infected patients on long-term antiretroviral therapy in Ghana, where HIV co-infection with HBV shows a prevalence of 14%. Reflecting routine practice across sub-Saharan Africa, patients had received lamivudine as the sole HBV inhibitor for several years (median 45 months): over half of patients had detectable HBV DNA, one-third had DNA levels above 2000 IU/ml, one-third had HBV lamivudine resistance and one in eight had

advanced liver fibrosis as determined by transient elastography.[11] These initial findings led to the adoption of routine HBV screening in the local HIV clinic, and to HBV co-infected patients being prioritised for tenofovir use. In this cohort, within just a few months (median 8), the introduction of tenofovir led to substantial improvements in HBV DNA suppression and promising evidence of reversal of liver fibrosis. These observations offer encouragement that improved control of HIV co-infection with HBV is an achievable goal across Africa.[11]

Sixth, we must expand testing and treatment for HBV in other settings. Much remains to be done concerning the diagnosis and management of chronic HBV in populations without HIV. WHO issued guidelines for hepatitis B in 2015.[12] They recommend prioritising antiviral treatment for those with established cirrhosis (based on non-invasive measures of fibrosis), clinical evidence of decompensated liver disease, or evidence of active disease as indicated by abnormal transaminases and a high HBV DNA load (above 20 000 IU/ml).[12] These steps to promote HBV diagnosis, disease staging and treatment are highly encouraging: providing a consistent standard for treatment in resource limited settings, for which resources must now be committed.

The example of HIV patient groups pressing policy-makers to engage with the scientific evidence and deliver access to lifesaving treatment demonstrates the power of informed patients engaging in the political arena. Effective treatments for HBV (and hepatitis C) exist but currently high costs prohibit widespread access to treatment to all but a minority in sub-Saharan Africa. The incredible progress made in expanding access to HIV treatment must inspire campaigns for a similar commitment to universal access to treatment for viral hepatitis.

There is hope that with concerted action, prevention of transmission and reversal of the rising tide of liver-related morbidity is an achievable goal in sub-Saharan Africa. Collaborative action among epidemiologists, patient advocacy groups, research funders, public health doctors, policy-makers, physicians and patients will be essential to make this aspiration a reality for millions affected with viral hepatitis.

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