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## The clinicopathological spectrum of liver pathology in a high HIV/AIDS burden country

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South Africa is the epicentre of the HIV/AIDS pandemic with an estimated 6.4 million HIV infected people, approximately 3.1 million of whom have initiated antiretroviral therapy (ART) through the national public sector program. TB-HIV co-infection is a significant burden with up to 65% of newly diagnosed sputum positive TB patients and HIV positive whilst viral hepatitis co-infection, notably hepatitis B, being common with 5-15% of the South African population who are positive for HBsAg. HIV-related liver disease has emerged as a significant cause of morbidity and mortality, both in the pre-HAART, but particularly in the HAART era of HIV/AIDS. Most data in this regard has come from high income countries, from high HIV burden countries and very limited and invariable difference existing between high and middle/low income countries. Liver enzyme elevations following the initiation of highly active antiretroviral therapy has been a frequently observed complication of HIV treatment, with grade 3 and 4 hepatotoxicity observed in 8.5-23% of patients. Drug- induced liver injuries (DILI) occur at a greater frequency in HIV positive patients than they do in HIV negative patients and this is unclear. DILI has been observed to be a frequent finding in a longitudinal study of liver pathology in patients with HIV/AIDS in South Africa. More recently, a unique pattern of DILI related to efavirenz has been observed in patients, typically in woman with high baseline CD4 initiating efavirenz based ART. Morbidity and mortality are significant. Findings suggest a disproportionate burden of liver related disease in countries with high HIV burden.

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## The potential use of saliva and dried blood spot for viral hepatitis diagnosis

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Hepatitis B and C viruses are responsible for the most of chronic liver disease worldwide. In order to conduct HBV and HCV diagnosis, it is necessary blood sample collection by venipuncture in order to obtain sera or plasma samples. However, venipuncture is difficult in some individuals like drug users, haemodialysis, obese and elder individuals. In addition, the transport of these samples from remote areas to laboratories could be difficult. This situation has led to development of methods for HBV and HCV diagnosis in alternative fluids, like saliva or dried blood spot (DBS) samples. We optimized a commercial immunoassay (EIA) for HBsAg detection among saliva samples demonstrating sensitivities and specificities higher than 90%. Using DBS samples along to EIA, sensitivity was 90.5%, 97.6%, and 78% for anti-HBc, HBsAg, anti-HBs assays, respectively. Specificity was 92.6%, 96.7%, and 97.3% for anti-HBc, HBsAg, and anti-HBs assays, respectively. HBV markers could be detected in DBS samples using EIA until 60 days of storage in room temperature. Anti-HCV assays using saliva and DBS samples showed sensitivity and specificity higher than 90% and DBS samples can be stored for a period of 117 days at room temperature. HBV DNA was also detected in artificially contaminated saliva while HCV RNA was detected, quantified and genotyped in saliva and DBS samples showing good concordance to paired sera samples. These results showed the usefulness of saliva and DBS to increase the access of diagnosis in remote areas or individuals with poor venous access.

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