TREATMENT RESPONSE AMONG CAMEROONIAN ADOLESCENTS RECEIVING ANTIRETROVIRAL THERAPY IN URBAN AND RURAL SETTINGS: PRELIMINARY FINDINGS FROM THE READY STUDY

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Background Transitioning from paediatric to adult healthcare requires successful antiretroviral treatment (ART) for adolescents living with HIV (ADLHIV). Implementing such a policy implies monitoring ART response and selecting for therapeutic options for ADLHIV in resource-limited settings (RLS) like Cameroon.

Methods The Ready study (EDCTP-CDF-1027) is conducted amongst ART-experienced ADLHIV (10–19 years old) in the Centre region, Cameroon. WHO-clinical staging, CD4-counts and viraemia were determined; in case of virological failure [VF] (viraemia $\geq$1000 copies/ml), HIV drug resistance (HIVDR) and subtyping were performed, and $p<0.05$ considered significant.

Results Out of 279 ADLHIV (212 urban vs 67 rural), the gender distribution was similar (54.5% female); median age was higher in urban (15 [IQR: 13–17] years) compared to rural (13 [IQR: 11–17] years), as well as the median duration on ART (7 [IQR: 3–10] years compared to 4 [IQR: 2–7] years, respectively); and the majority was on first-line ART (79.4% [162/204] urban vs 98.5% [66/67] rural, $p<0.0004$). Following treatment response, clinical failure (WHO-stage 3/4) was similarly low in both urban (5.7% [12/210]) and rural (4.5% [3/67]), $p=0.938$; CD4 increased similarly ($p=0.298$) from ART-initiation (370 cells/mm^3[urban] vs 332 cells/mm^3[rural]) to 6 years after initiation (938 cells/mm^3[urban] vs 548 cells/mm^3[rural]) and rate of immunodeficiency (<500 CD4 cells/mm^3) was 41.0% (87/208) in urban vs 47.5% (29/61) in rural, $p=0.428$. VF was 43.2% (41/95) in urban vs 60.9% (14/23) in rural, $p=0.126$. Among nine (9) sequences available from those experiencing VF, overall HIVDR was found in 88.8%, with 77.7% NNRTI, 55.6% NRTI and 22.2% PI/r. All were HIV-1 group M, with 55.6% CRF02_AG, 22.0% F1 and 22.4% others.

Conclusion ADLHIV appear clinically asymptomatic, with considerable immune recovery overtime. Despite differences in ART duration between urban and rural settings, VF was similarly high, associated with HIVDR mainly to NNRTI-based regimens. Thus, NNRTI-sparing regimens might be highly convenient when transitioning ADLHIV to adult ART-regimens in RLS like Cameroon.

ZOONOTIC VIRAL ANTIGENS SURVEILLANCE IN HEALTHY POPULATIONS LIVING IN LAMBARÉNÉ, GABON

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Background Worldwide, viral zoonotic infections such as filoviruses, flaviviruses, nairoviruses and arenaviruses cause self-limiting to severe diseases. They are endemic in sub-Saharan Africa, causing sporadic outbreaks warranting the development of sustainable surveillance systems. In Gabon, Ebola outbreaks occurred from 1994 to 2002 causing 214 human cases and 150 deaths, while Dengue, Zika and Chikungunya virus outbreaks occurred between 2007 and 2010. Beyond these outbreaks, little is known about the epidemiology. Recently, in collaboration with the Japanese government, the Research and Health Ministries of Gabon supported the implementation of a biosecurity level-3 (BSL-3) laboratory at CERMEL in Lambaréné as a zoonotic disease surveillance unit. Start-off involved antigen detection and characterisation of circulating antibodies to targeted viral antigens in healthy populations. This study reports data from healthy participants (18–50 years) in a phase I rVSV-ZEBOV-GP Ebola vaccine trial.

Methods Hundred-six (106) baseline samples were screened for Ebola, Dengue (serotypes) 1–4 and Chikungunya viral RNA by RT-PCR on serum. IgG ELISA on plasma was used to identify antibodies against: Zaire-Ebola-(EBOV-GP and EBOV-VP40), Marburg-(MARV-GP and MARV-VP40), Crimean Congo Haemorrhagic Fever-(CCHFV-GP), Lasa-(LASV-GPC and LASV-NP), Yellow Fever-(YFV-NS1), West-Nile-(WNV-NS1), Zika virus-(ZIKV-NS1), Chikungunya-(CHIKV-VLP) and Dengue-(DENV1-NS1,DENV2-NS1,DENV3-NS1,DENV4-NS1) virus antigens.

Results No viral RNA was isolated by RT-PCR in 106 samples. About 9% (10/106), 3% (3/106), 6% (6/106), 24% (25/106), 51% (54/106), 38% (40/106) and 36% (38/106) participants were seropositive for antibodies specific to EBOV-GP, MARV-GP, CCHFV-GP, YFV-NS1, WNV-NS1, ZIKV-NS1 and CHIKV-VLP, respectively. Twelve percent (12%; 13/106) of participants possessed antibodies specific to Zika, Chikungunya and Dengue 1–4 antigens. Six percent (6%; 6/106) of participants were seropositive for EBOV-GP and CCHFV-GP.

Conclusion We found antibodies to viral zoonotic infections among our healthy volunteers. Further assays, including neutralisation assays are being performed to ascertain the specificity of the antibodies. These findings, once confirmed, will provide insights into disease surveillance, vaccine trial designs, evaluation of post-vaccine immune responses, variability in adverse events and overall disease transmission patterns.

MULTIPLEXED MOLECULAR DETECTION OF MALARIA IN SIERRA LEONE

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Background Despite several control measures and policy changes in Africa, malaria remains one of the most prevalent diseases in West Africa. The gold standard for malaria diagnosis is microscopy. However, due to low technical capacities in resource-poor countries, rapid immunochromatographic tests are commonly used. In Sierra Leone, *P. falciparum*-specific ICT with histidine-rich proteins2(HRP-2) are used. HRP2 is specific to *P. falciparum* and the kit cannot be used to detect other species of malaria which are also present in the disease ecology in Sierra Leone.

Methods In this study, we assessed 182 febrile subjects for malaria between April 2017-July 2018 at the Mercy Hospital