PO 8411 MOLECULAR CHARACTERISATION OF GP41 AND GP120 V3 LOOP IN HIV-1C PATIENTS FAILING SALVAGE THERAPY IN BOTSWANA

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Background Triple class drug-resistant HIV-1 infection remains a global challenge in individuals with extensive antiretroviral treatment (ART) experience, in terms of high mortality and probability of onward transmission. New therapeutic options within old and new drug classes are therefore essential. We determined if patients failing salvage therapy in Botswana are eligible for maraviroc (MVC) and enfuvirtide (T20) viral entry inhibitors based on the coreceptor usage and drug-resistant mutations in envelope gp120 and gp41.

Methods A total of 38 deep salvage patients were included in the analysis. We amplified and sequenced gp41 and V3 regions of HIV-1 envelope. Drug resistance mutations were analysed according to the IAS-USA 2017 reference mutation lists. Coreceptor usage was determined using PSSM and Geno2Pheno using a false-positive rate (FPR) of 10%.

Results Among 38 participants, 34 (89%) were successfully sequenced and amplified gp41 and 26 (68%) gp120 V3 loop sequences were obtained. Major T20 mutation G36S was obtained in 1/34 samples (5.8%) within the study population. Polymorphisms I169V(97%), I135L(100%), E151A(70.6%) and N42S(70.6%) were detected in HR1 and HR2 of gp41. CXCR4 coreceptor associated use, mutation L34M in gp41 HR1 was detected in 2 samples (5%). Analysis of coreceptor usage showed (17/26) 65.4% use of CCR5, and a (9/26) 34.6% use of the CXCR4 coreceptor.

Conclusion A moderately high proportion of treatment-experienced (deep salvage) participants had CXCR4 coreceptor using strains. The use of maraviroc in Botswana would require coreceptor tropism testing. Non-T20 treatment experience in Botswana reduces the prevalence of the major mutations that confer resistance to the drug. T20 is therefore a potential alternative drug for patients failing salvage therapy in Botswana.

PO 8414 EVALUATION OF MYCOBACTERIUM TUBERCULOSIS COMPLEX (MTBC) CULTURE METHODS IN MYCOBACTERIUM AFRICANUM-ENDEMIC REGION OF WEST AFRICA

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Background With the endemic *Mycobacterium africanum* (Maf), West African laboratories use glycerol and pyruvate in separate LJ cultures (LJG and LJP) for isolation of MTBC. The aim of this work is to evaluate if combining both glycerol and pyruvate in a single LJ medium (LJGP) will lead to comparable growth characteristics and time to detection in comparison to LJG, LJP and MGIT 960.

Method Total of 118 smear-positive sputum samples were processed using 4% NaOH-NALC decontamination method.

The decontaminated samples were inoculated parallel on LJG, LJP, MGIT 960 and LJGP. Positive cultures were confirmed using Ziehl-Neelsen staining method. MTBC identification was done using the Capilia TBNeo kit and spoligotyping used for speciation.

Results The recovery rate for LJG, LJP, LJPG and MGIT was found to be 73.7% (87/118), 82.2% (96/118), 83.9% (99/118) and 93.2% (110/118) respectively. No significant agreement was observed between the LJPG and MGIT 960 with Kappa values of -0.105 (p-value=0.199). However, there was significant agreement between LJGP and LJG and LJP with Kappa value of 0.736 (p-value<0.001) and 0.756 (p-value<0.001), respectively. There were 70 Euro-American, 34 Maf, 9 East-Asian, 2 Indo-Oceanic, 2 East-African-Indian and 1 *M. Bovis*. LJGP have better Maf recovery rate, 85.3% (29/34) in comparison to MGIT 960, 79.4% (27/34), LJP, 76.5% (26/34) and LJG, 61.8% (21/34). Seven of the 8 MGIT negatives that were LJPG positive were *M. africanum* and 1 *M. bovis*.

Conclusion LJPG has a better detection rate and time to positivity compared to LJG and LJP and was shown to have a better Maf recovery than other LJ methods and MGIT 960. It is evident that LJGP is a promising culture tool for Maf-endemic West African countries that will not only increase MTBC recovery rate in combination with MGIT, but also leads to better detection of Maf.

PO 8417 RISING TRENDS IN TB MORTALITY AMID DECLINE IN CASES NOTIFIED IN A RURAL COUNTY IN KENYA: COHORT STUDY

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Background Despite introduction of rapid and accurate diagnostic tools and aggressive treatment for tuberculosis (TB), it is still a global health problem. In 2016, globally, 1.7 million people died of TB, 95% from resource-poor countries. This study aimed to estimate changing trends in all-cause mortality rate and identify features associated with mortality among suspected TB patients on treatment.

Methods A cohort study of patients registered in a TB surveillance system from 2012 to 2016 and followed up for six months during TB treatment. The outcome was all-cause mortality within six months of TB treatment. The exposures examined were demographic and clinical features at the time of starting TB treatment.

Results A total of 10,717 participants, median (IQR) age 33 (24–45) years, of which 3163 (30%) were HIV-infected were included in the analyses. During follow-up of 5175.5 person-years (PY), 585/10,717 (5.5%) participants died; mortality rate was 12.2 (95% CI 11.3,13.3) deaths per 100PY. The yearly mortality rate increased from 7.79 (95% CI 6.35, 9.54) in 2012 to 17.73 (95% CI 14.93, 21.06) in 2016 per 100PY ($P_{\text{trend}} < 0.001$) but the number of suspected-TB notifications declined from 2610 (24%) in 2012 to 1689 (16%) in 2016 ($P_{\text{trend}} = 0.02$). 77% of all deaths occurred by month three. Mortality among HIV-infected participants was higher (325/3163; 10.3%) than among HIV-non-infected participants (251/7413; 3.4%; $p < 0.001$). Old age, being a female, type of TB diagnosis used, body mass index (BMI) <18.5, HIV status and