PO 8382 CLINICAL AND LABORATORY ASSESSMENT OF LOA LOA INFECTIONS IN GABON

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Background Loiasis is a parasitic infection highly endemic in West and Central Africa. Previously often considered as a benign infection, recent studies have suggested that high microfilaria loads in loiasis patients may be associated with increased mortality. The true impact of loiasis on affected communities is unknown. Reports on clinical symptoms and changes in laboratory values due to loiasis infection are focused mostly on returning travellers. Assessments in endemic populations have scarcely been performed. Laboratory alterations such as eosinophilia are thought to be present mostly in patients from non-endemic areas.

Methods This cross-sectional study was performed in rural Gabon to investigate the clinical symptoms and laboratory changes caused by loiasis in an endemic population. Inclusion criteria were local residency for at least two years and an age above two years. Participants were interviewed with a questionnaire covering loiasis-specific symptoms, exploratory questions and history of eye worm. Local vocabulary was employed if needed. At the same time *L. loa* microfilaria diagnostics were performed including thick blood smear preparation and concentration techniques. Additionally, differential blood count and haemoglobin measurements were performed. Peripheral blood withdrawals were done between 10 am and 3 pm.

Results A total of 1030 participants were recruited, of whom 56% were female; they were between 2 and 98 years of age. *L. loa* microfilariae were detectable in 27% of all participants. Microfilariae densities ranged from 1 to 76 250 Mf/mL. Overall a positive history of eye worm was reported in 56%, with 25% of participants reporting eye worm passage and 36% Calabar swelling within the last year. Also, an analysis of laboratory parameters in comparison to clinical data and infection status was performed.

Conclusion Loiasis infection should receive more attention by the scientific community and further studies are needed, as the disease causes substantial morbidity in endemic populations.

PO 8383 THE ROLE OF PLASMA B CELLS IN MYCOBACTERIUM TUBERCULOSIS INFECTION AND DISEASE

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Background Tuberculosis (TB) is still a major global health problem with about one-quarter of the global population infected with the causative pathogen, *Mycobacterium tuberculosis* (Mtb). The role of T-cells in the adaptive immune response

against Mtb has been extensively studied with little information on the role of B-cells. B-cells produce antibodies and differentiate into plasma and memory B-cells. Plasmablasts are a subset of plasma cells only present in the peripheral circulation following an ongoing infection or vaccination. Immunoglobulin G (IgG) especially IgG2 mounts more efficient immune response against bacterial infections, mainly attributed to the high affinity of IgG2 binding to the Fcγ receptor. Therefore, we hypothesised that Mtb-specific IgG +plasmablasts may be a useful biomarker of TB infection status.

Methods *Ex-vivo* B-cell enzyme-linked immunospot (ELISPOT) was used to identify plasmablasts responses to Mtb-specific antigens ESAT-6/CFP-10 (EC), together with non-specific Mtb purified protein derivative (PPD) and a positive (total IgG) and negative (media only) control from adults with active TB pre- and post-treatment (n=20) or with latent TB infection (LTBI; n=20) in The Gambia.

Results Frequencies of Mtb-specific plasmablasts were significantly higher in active TB cases pre-treatment compared to post-treatment (p<0.0001) and LTBI with no difference seen following PPD stimulation. Interestingly, total IgG +cells were lower in the cases at recruitment but increased following treatment indicating the relative proportion of Mtb-specific responses were also significantly different (p=0.034) prior to therapy.

Conclusion These data show that B-cell responses are differentially modulated during active and latent TB infection, suggesting that plasmablasts may be a useful biomarker for TB infection in TB-endemic settings.

PO 8388 THE GLOBAL HEALTH TRAINING CENTRE PROFESSIONAL DEVELOPMENT SCHEME: CAPACITY DEVELOPMENT AND CAREER TRACKING FOR RESEARCHERS

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Background Health researchers need a free, online and reliable mechanism to record their skill set, track their career development, and identify gaps in their knowledge. Research teams also require ways to monitor and report their team's capacity development over time. The Global Health Network, a trusted and respected digital platform, is now able to provide researchers with these tools (www.globalhealthtrainingcentre.org/pds).

Methods The Global Health Network compared diverse data types and took into account user feedback to create a professional development scheme (PDS). Together with TDR (The Special Programme for Research and Training in Tropical Diseases), a framework was developed with a list of the core competencies that a research team needs to demonstrate to carry out a study successfully. A multi-functional dashboard was designed for team coordinators to assess the capacity development of individuals and groups.

Results The PDS provides researchers with a step by step process for recording their career and core competencies. The core competency framework can be applied to any research study, regardless of size of the team, place, disease focus or type of research. Team coordinators can quickly and easily produce visual records of the strengths and weaknesses in the competencies of their team and implement plans to address these gaps. Together with supporting tools in the PDS, research teams can plan staffing requirements for a study,

carry out appraisals and guide the career development and training programme of research staff.

Conclusion The Global Health Network has created a flexible method and set of tools (PDS) to support researchers and teams to document their professional career and core competencies. It enables individuals and groups to easily identify and track capacity development; an essential requirement for conducting effective health research.

PO 8392 SPUTUM MYCOBACTERIUM LOAD AND CYTOKINES BIOMARKER OF STIMULATED WHOLE BLOOD CELLS IN SPUTUM SMEAR-NEGATIVE PULMONARY TUBERCULOSIS SUDANESE PATIENTS

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Background Improvement of the diagnosis of smear-negative pulmonary tuberculosis (PTB) patients and identification of possible immune factors associated with the negative result of sputum will enable early and accurate diagnosis of smear-negative PTB. This study aimed to measure the *Mycobacterium* load in sputum samples of smear-negative patients and identify cytokines markers associated with smear-negative active pulmonary tuberculosis.

Methods Sputum and heparinised blood samples were collected from 40 smear-negative, 40 smear-positive PTB patients and 21 healthy controls. All sputum samples were analysed by direct ZN stain and conventional PCR to confirm the infection and characterise the bacteria. The load of bacteria in sputum samples was measured using real-time PCR. Blood samples were stimulated with sonicated MTB H37Rv. TH1 (TNF- α , IFN- γ , IL-1 β) and TH2 (IL-10) cytokines were measured using ELISA technique.

Results Eight patients were grade 3+, 23 were grade 2+, 9 were grade 1+ and 40 were negative on smear. 87.5% of smear-negative patients were positive by PCR. Smear-negative PTB patients produced high concentration of IFN- γ compared with smear-positive. IL-10 and TNF- α concentration were significantly lower in smear-negative compared with smear-positive. IL-1 β was not significantly different between smear-negatives and smear-positives. Both smear-negative and smear-positive samples produced significantly high IL-10 and TNF- α cytokine compared with the healthy controls, while IFN- γ production was significantly lower in MTB patients. A highly significant correlation between MTB load and cytokines was detected. The mean concentration of IFN- γ was higher in stimulated blood samples of patients with lower bacterial load. In contrast, IL-10 and TNF- α concentration were higher in patients with high bacterial load. The TNF- α and IL-1 β were good biomarkers for diagnosis of smear-negatives.

Conclusion Smear-negative PTB produced high TH1 cytokine and low regulatory cytokine compared to smear-positive.

PO 8394 SOUTH-SOUTH AND NORTH-SOUTH CAPACITY STRENGTHENING WITHIN THE SCREENTB CONSORTIUM: WHAT HAVE WE LEARNT?

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Background Most research consortia and multicentre trials include capacity strengthening as one of their objectives. Activities are included in annual reports but the overall success or otherwise of these is hard to evaluate.

Methods The training and capacity building work package in the EDCTP2-funded ScreenTB Consortium includes support for the individual career development of young researchers. We have made mentoring the central activity, building on what we had learnt in the previous AE-TBC Consortium. We carried out formal training sessions and provided dedicated time-slots for meetings of mentee and mentor during annual meetings. We also introduced the concept of personal development plans through presentations and small group work.

Results Formal timetabled presentations and mentoring sessions have helped make capacity strengthening work. Challenges and solutions have been identified in group sessions and will be presented. This has enabled us to evaluate what works well and what is more challenging, when including capacity strengthening activities within a consortium with 5 African and 3 European partners.

Conclusion Dedicated time and commitment are required to make capacity strengthening work, but when it does, mentoring and personal development planning can provide both African and European researchers with an impartial opportunity to find solutions to their current challenges and to discuss their longer-term goals.

PO 8397 VIRAL SUPPRESSION AMONG CAMEROONIAN ADULTS, ADOLESCENTS AND CHILDREN RECEIVING ANTIRETROVIRAL THERAPY IN THE 'TEST & TREAT' ERA

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Background Global efforts in meeting the 90–90–90 targets reveal that 70% of infected people know their HIV status, 77% of these are receiving antiretroviral therapy (ART) and 82% of treated patients have viral suppression. Since launching the 'test and treat' strategy and wider access to drugs that bring down the viral load (VL), evaluating viral suppression would help to identify those requiring interventions and to make progress towards meeting the targets in Cameroon.

Methods A study was conducted from October 2015 to August 2017 amongst adults (≥ 20 years), adolescents (10–19) and children (0–9) at 12, 24, 36 and ≥ 48 months on ART, monitored at the Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management (CIRCB) in Yaoundé, Cameroon. VL was established using Abbott m2000RT-PCR. VS was defined as VL < 1000 copies/ml; with $p < 0.05$ considered significant.

Results A total of 1979 patients (70% female) were enrolled (1825 adults, 112 adolescents, 42 children); 1865 were on first-line (NNRTI-based, duration: 48 [IQR 24–48] months) vs. 114 on second-line (PI/r-based, duration: 48 [IQR 36–48] months); with 19%(368) at Month2, 14%(274) at Month24, 10%(207) at Month36 and 54% (1130) at $\geq$ Month48.