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Abstracts

Infectious Diseases and STD-AIDS

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Robert Vulic Mashkani, J Transm Dis Immun 2018 Volume 2
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HERPES SIMPLEX VIRUS 2 INFECTION: NEGLECTED, BUT SERIOUS ISSUE IN PREGNANCY

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Introduction: Genital herpes is a dangerous obstetrical-neonatal disease. Transmission can occur intra-uterinal, perinatal and postnatal. The infection can be presented as a primary, non-primary first episode and recurrent episode. Primary maternal HSV infection has higher risk of complications than recurrent episodes. A high titer of maternal neutralizing antibodies is associated with a lower risk of neonatal infection. Seroprevalence among pregnant women varies between 7 and 33%. Transplacentarily acquired HSV infection before 20th week of pregnancy causes an increasing percentage of miscarriages or multiple malformations.

Methods and Materials: Reviewing of clinical monitored pregnancy and childbirth with a recurrent HSV infection present and analysis of available literature.

Results: The first pregnancy of a 30 year old, at the time who had a genital herpes in the early stage of her pregnancy ended by medically indicated abortion after 23 weeks of pregnancy because of multiple fetal malformations. Given the patient's fear of the uncertainty of future pregnancies, detailed advicing encouraged the pregnancy that followed after 3 and 5 years. The pregnancies were intensively monitored clinically and serologically. Considering the HSV IgM+ and prodromal symptoms at the end of the second pregnancy it was completed by Caesarean section given the child's best interest. In the third pregnancy, the patient was seronegative to HSV infection. From birth, 9/2015 the patient three times has developed clinically manifested herpes infection of the genital area.

Discussion: The decision to complete the pregnancy by Caesarean section to prevent vertical transmission at the pregnant woman who had symptoms of genital herpes, has resulted in a birth of a healthy child. The guidelines recommend such a manner of childbirth also in those who have prodromal symptoms with genital herpes in history. Pregnant women with a history of reccurent genital herpes, from 36 weeks of pregnancy should be administered antiviral prophylaxis.

Conclusion: All pregnant women with the history of reccurent herpes simplex infection should be closely monitored and treated according to the current guidelines.

Biography

Robert Vulic is currently working under a private practice in gynecology and obstetrics, Split, Croatia

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Marcondes Juliana Scarlatte et al., J Transm Dis Immun 2018 Volume 2
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MAGNETIC RESONANCE IMAGING OF CHAGASIC MENINGOENCEPHALITIS IN HIV PATIENTS

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Introduction: Acquired Immunodeficiency Syndrome is a disease caused by the Human Immunodeficiency Virus (HIV), with a major involvement of the Thymus Cluster of Differentiation-CD4+ lymphocytes, leaving the organism at the mercy of opportunistic infections such as renal failure, degeneration of the central nervous system, microorganisms and parasites. As a focus of one of the parasitic opportunistic infections, American trypanosomiasis can be recognized, with the etiologic agent Trypanosoma cruzi, which has several mechanisms of transmission. Immunosuppression in patients previously infected by the parasite leads to the reactivation of the chronic disease, with manifestations of exacerbation. HIV-infected individuals often demonstrate secondary involvement of the brain by different infectious agents, and Chagas disease is known as chagasic meningoencephalitis. In this condition, the widening of the turns and narrowing of the brain grooves occurs, being observed less assiduously, in the brainstem and in the cerebellum. Images provided by magnetic resonance imaging (MRI) are better able to demonstrate structures in the brain with minimal changes by exploring the regional and functional anatomy of the brain in remarkably accurate details in most diseases. Among the articles studied, the most common alteration was a hyper signal lesion in TIME (T) 2 and fluid attenuation inversion recovery (FLAIR) and hypo signal weights in T1 weights in the parieto-occipital region.

Objectives: The objective is to demonstrate chagasic meningoencephalitis by MRI in seropositive patients.

Methods: A bibliographical survey was conducted in the Medline, PubMed and Academic databases in 2015. The selection criteria used were articles published in Portuguese and English.

Results: Among the articles surveyed, four emphasized that the most common alteration was a hyper signal lesion in T2 and FLAIR and hypo signal weights in T1 weights in the parieto-occipital region.

Conclusion: Imaging diagnosis, particularly MRI, is the method most used in clinical practice to evaluate meningoencephalitis in seropositive patients because it presents a specific radiological signal.

Biography

Marcondes Juliana Scarlatte has completed her graduation by Sao Camilo University Center (2016), qualified in imaging. Postgraduate in Biomedicine in Diagnostic Imaging by Albert Einstein Israel Institute for Teaching and Research (2018). Currently works at CURA Image and Diagnosis.

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ASPERGILLOSIS: HUMAN AND ANIMALS HEALTH RISK IN UNDER DEVELOPED COUNTRIES

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Aspergillus flavus **and** ***Aspergillsu parasiticus*** **are the toxigenic fungi that cause serious threat to health of human and animals. Arpergillus has 4 types AFB1, AFB2, AFG1 and AFG2. The affect is more intrigued in the patients suffering from any disease or are immunocompromised. This disease status and load is further enhanced by the poor sanitation and living conditions in an area. This is a major concern in the part of the world where basic necessities of life are not up to the mark and not follow the international guidelines. Different countries in Asia include Pakistan, India, Bangladesh, Bhutan, Sri Lanka, Russia, China and Thailand. Our major concern is the countries where sanitation and living conditions are poor. This will affect the humans as well as animals in that particular area. A study was focused in Faisalabad region, which included poultry that were fed with diet which had high levels of AFB1. This predisposed is causing clinical signs, disease and pathogenesis to the poultry. Animals that became lethargic were mostly sold to local vendors and ultimately the humans consumed them. The feed when quantified by HPLC for AFB1 had 1065 ppb while the tissue residues contained 171 ppb of AFB1. The humans when their serum was analyzed by HPLC had 29 ppb of AFB1 in them. Results showed that there is lot of Aflatoxin load in the underdeveloped area.**

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COMMUNITY OR HOME BASE CARE (CHBC) TO PEOPLE WITH HIVS IN NEPAL

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In Kanchanpur district, 4.5 million populations are living and among them 70-80% adult people are migrating to India for labor employment. Among the 70-80% of migrants, 20-25 population is from Dalit Community (Caste Based Discriminated Community). As data showed, in voluntary blood testing center in NNSWA, it is found that mostly migrated population in India has high prevalence of HIV infection. Currently in Kanchanpur, 484 (260 M, 232 F and 1 TG) people are in HIV positive status and 137 were died. These 484 HIV+ people were cared by NNSWA through community/home base care (CHBC) approach by regular health checkup, testing the viral loads to know the status of antibody for starting the ART. CHBC team has been created with basic health training and mobilizing under health technical person along with PLHIVs. The CHBC team will be moving to the PLHIVs home in weekly basis to see the health condition. For ART (Anti Pectoral Viral Therapy) users, the team checked their medicine, storages and time schedule has been followed correctly or not. If the HIV+ person is found with any opportunistic disease or any other nutritional problems or in PMTC (Pregnant Mother to Child) condition, the CHBC team suggested to checkup their condition or they referred to VCT (Voluntarily Counselling and Blood Testing) center or CCC (Community Care Centre) NNSWA health facility for further health examination. A medical doctor will diagnose and prescribes all necessary medicines to the person. Sometimes the doctor will suggest a need for observation for the person on that condition and the person's stay within community care center taking all health services including nourished food as suggested with in the time period by doctor. In community care center, the staff nurses and heath assistants will be taking care. From 2012 to till date we have supported to 350 of PLHIVs.

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MUTATION OF LYS-154 IN HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 REVERSE TRANSCRIPTASE MAY INFLUENCE ITS FIDELITY WITH DECREASED SENSITIVITY TO NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS

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Since the advent of the first human immunodeficiency virus type one (HIV-1), many antiHIV-1 drugs have been discovered to treat HIV infected and AIDS patients. Most of the antiHIV-1 drugs target HIV-1 reverse transcriptase (HIV-1RT), an enzyme responsible for synthesis of proviral cDNA. Also, the HIV-1 RT exhibits high propensity for misinsertion and mispair extension. While exploring the role of a mutant RT in this context, an analysis of the three-dimensional crystal structure of this enzyme reflects that the interaction of the side chain of K154 in HIV-1RT with the penultimate nucleotide of the template may be crucial in determining fidelity of proviral DNA synthesis as well as sensitivity to antiHIV regimen. This hypothesis was tested by steady-state kinetic studies using wild-type HIV-1 RT and five K154 mutants. These mutants contained replacement of positively charged side chain of Lysine with two amino acids with hydrophobic side chains and two amino acids with negatively charged side chains. In one of the mutants, the positive charge of Lysine was retained but the side chain was enlarged by one carbon atom while replacing it with Arginine. The results indicated that the HIV-1 RT mutants with only negatively charged side chains displayed significant decrease in enzyme activity. Other mutants exhibited almost the wild type activities. Excepting the mutants with negatively charged side chains which displayed higher fidelity than wild type, all other mutants registered enhanced levels of misinsertion and mispair extension; K154R being the most prominent. All of these mutant derivatives of HIV-1 RT when tested for their response to 3TC and other dideoxy nucleotides, displayed significant resistance to these drugs. The mechanism of drug resistance would be explained in the light of 3D crystal structures of apoenzyme, binary and ternary complexes of both the wild type and mutant HIV-1 RTs.

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DISSECTING THE EARLY EVENTS OF HIV MUCOSAL TRANSMISSION

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Sexual transmission of HIV is the main route for HIV acquisition. Infection frequently occurs through colorectal mucosa where mononuclear phagocytes (MP), comprising dendritic cells (DC) and macrophages (Mf), are among the first target cells of the virus. We showed that human colonic lamina propria CD11c+DCSIGN+CD68- cells sample luminal R5 HIV in an ex vivo model, a mechanism exploited by HIV to bypass the intact epithelial barrier. However, little to nothing is known about resident DC and Mf in the lower intestinal tract, the extent to which different subsets exist, and their role in HIV acquisition.

We used multicolor flow cytometry, immunofluorescence and *ex vivo* explant culture of colorectal mucosa obtained from healthy human donors and *Cynomolgus macaques*, to define MP distribution and their susceptibility to HIV/SIV infection.

CD64 allowed to differentiating colonic DC (CD11c+CD64-) and Mf (CD11c+CD64+). Three major DC subsets were identified on the basis of CD103 and the fractalkine receptor (CX3CR1) expression. The totality of colonic Mf was CX3CR1+ while about 50% expressed the M2 marker CD163. Cells were further characterized for the expression of the CD172a and CD11b. At steady state, CD11c+CD103+ DC were detected underneath the luminal epithelium and at cript level. Following ex vivo R5 HIV-1 stimulation, both CD11c+CD64+ and CDtransmission at mucosal sites.

11c+CX3CR1+ cells penetrated the intestinal epithelium, whereas an increase in CD11c+CD103+ cells migration was not observed. Interestingly, CCR5, that we showed to drive CD11c+ cells migration toward the intestinal lumen, was preferentially expressed by the CD11c+CD64+CX3CR1+ cells, which support their involvement in active sampling of HIV and in transmission of infection in situ.

In conclusion we have unravel a previously underestimated complexity in the phenotype and function of the intestinal MP in human and NHP and discuss the relative contribution of different subsets of DC and Mf in the early events of HIV

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HEALTH INEQUALITIES AND AIDS: PILOT STUDY ON KNOWLEDGE IN THE NURSING PROFESSION

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Background: The different allocation of the resources and the healthcare services accessibility show the equity in the healthcare system either horizontally or vertically: the first one as equality of the treatments in the same need conditions and the second one as based on socioeconomic conditions. STD and AIDS also are affected by the social health determinants (Penman-Aguilar et Al, 2013). Different nursing aspects present the equity as values and rules. The ICN equity form (2011) shows the importance of nurse's knowledge about this subject.

Aim: The aim of this study was to test the nurse's perception about the equity connected to scientific outputs.

Method: Quantitative assessment of PubMed's results has been done using the words "AIDS" and "nurse", linked with health inequalities synonyms as equity, disparities, inequities and inequalities. Qualitative appraisal of the inequalities perceptions has been carried out in a healthcare professional population (n=366) by questionnaire.

Results: The numbers noticed, in comparison with the words, are: equity (n=46), disparities (n=144), inequities (n=18) and inequalities (n=711). Those numbers are lower if the research is made within the title. The questionnaire answers showed a different perception of disparities in healthcare: horizontal equity=22%, vertical equity=63%, no perceptions=15%.

Discussion: The audit shows that bibliography needs to develop, even if few articles already take in consideration the main elements of nursing care for patient with HIV, as health education (Holzer et Al, 2004) or stigma's fight (Philips et Al, 2016). Generally, the assessed population pointed out functional healthcare inequalities knowledge by the nurses, especially for AIDS positive patients.

Conclusions: Nurse's assistance to AIDS positive patients is strictly associated to the improvement of the perception and the bibliography about healthcare inequalities, which is useful for an appropriate access to the healthcare system and for patients care.

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EVALUATION OF THE BACTEC MGIT 320 TB SYSTEM FOR THE RECOVERY AND IDENTIFICATION OF MYCOBACTERIUM TUBERCULOSIS AT AMHARA PUBLIC HEALTH INSTITUTE, BAHIR DAR, NORTH WEST ETHIOPIA

Derese Hailu, Gashaw Yitayew, Yosef Gashaw, Eyaya Wondifraw, Kefale Ejigu and Gizachew Yismaw

Amhara Public Health Institute, Ethiopia

Background: Tuberculosis (TB) is still a serious global public health problem and a leading cause of morbidity and mortality throughout the world. A major factor driving the spread of tuberculosis is the considerable delay in diagnosis and treatment. For this reason, early detection is paramount. The present study was carried out to compare the automated BACTEC MGIT 320 with conventional LJ culture media and direct AFB smear examination.

Methods: This prospective study was carried out in Amhara Public Health Institute (APHI) microbiology department tuberculosis laboratory which is equipped with gene expert, BACTEC™ MGIT™ 320 and Löwenstein-Jensen (LJ) culture infrastructures over a period of nine months, from November 2016 to July 2017. A total of 282 consecutive clinical sputum samples were obtained through postal system from 273 follow up and nine new suspected cases of TB from different parts of Amhara region.

Results: A total of 282 sputum samples were processed on conventional LJ solid media, MGIT 320 and direct AFB smear examination methods. Out of 282 specimens, 50 (17.7%) were positive with either MGIT or conventional culture from which 16 (32%) were smear positive and 34 (68%) were smear negative. The recovery rate of MGIT and LJ from smear positive samples was 77.8% (14/18) and 66.7% (12/18), respectively while smear negative samples was 11.7% (31/264) and 4.5% (12/264) for MGIT and LJ methods, respectively. On comparing the overall mycobacterial recovery rate of MGIT and LJ culture, 45 (16%) were positive with MGIT-320 whereas 24 (8.5 %) were positive with LJ culture. The MDGIT320 has improved significantly the recovery rate of *M. tuberculosis* complex (MTBC) (P<0.005). For MGIT, 88% *Mycobacterium* were recovered within the first two weeks whereas for LJ, 76% were recovered within fourth to eight weeks. Relatively fair agreement has been observed between MGIT 320 and LJ methods with Kappa value of 0.277. Contamination rates for MGIT and LJ were 18.1% and 4.6% respectively.

Conclusion: The BACTEC MGIT 320 liquid culture system showed better performance than conventional LJ method for rapid recovery of *Mycobacterium tuberculosis* complex with shorter turnaround time for both smear positive and negative clinical specimens. However, the high contamination rate is a concern that should be carefully managed.

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DRUG RESISTANT PATTERN OF BACTERIAL ISOLATES IN INFECTED WOUNDS AT BAHIR DAR REGIONAL HEALTH RESEARCH LABORATORY CENTER, NORTHWEST ETHIOPIA

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Background: An increased antibiotic resistance of bacterial isolates from wound infections is a major therapeutic challenge for clinicians. The aim of this study was to describe bacterial isolates that caused wound infection and determine their current antimicrobial susceptibility pattern.

Methods: We analyzed the records of 380 wound swab samples that have been cultured at Bahir Dar regional health research laboratory, Ethiopia from January 2013 to December 2015. Swabs from different wound types were collected aseptically. Antimicrobial susceptibility test was performed using disc diffusion technique as per the standard protocol. Bacteriological and socio-demographic data were collected using a standard data collection format. The data was cleared, entered and analyzed for descriptive statistics using SPSS version 20.

Result: The overall bacterial isolation rate in this study was at 61.6% (234/380). About 123 (52.6%) of the isolates were Gram positive cocci and 111 (47.4%) were Gram negative rods. The predominant isolate was S. aureus at 100 (42.7%) followed by E. coli 33 (14.1%), P. aeruginosa 26 (11.1%) and S. pyogenes 23 (9.8%). The overall rate of multidrug resistant (MDR) bacterial pathogens that caused wound infection was 54.7%. Out of these, 35 (15.1%) of the isolates were resistant to more than five antibiotics. Ampicillin had the highest resistance rate at 85.9% among Gram negative isolates. Whereas, the highest resistance rate among Gram positive isolates was in Erythromycin at 31.1%.

Conclusion: In the studied region, higher frequency of mono and multi drug resistance of bacterial pathogens that caused wound infection was documented. Thus, a new method to the causative agent and antimicrobial susceptibility testing surveillance in areas where there is no culture facility is needed to assist the health professionals in the selection of appropriate antibiotics.

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SEROPREVALENCE OF *CHLAMYDIA TRACHOMATIS* INFECTION AMONG INFERTILE WOMEN ATTENDING AMINU KANO TEACHING HOSPITAL, KANO, NIGERIA

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Background: Infertility is the biological inability of a man or woman to contribute to conception. Chlamydia trachomatis is the most implicated organism in infertility.

Objective: The objective of this study was to determine the prevalence of Chlamydia infection and some risk factors associated with the infection.

Methods: One hundred and fifty four subjects comprising 136 infertile women as test group and 18 postnatal women as control group attending infertility and post natal clinics respectively of Aminu Kano teaching hospital were recruited. For the study, endocervical swabs were collected and screened using Chlamydia rapid test device-swab/urine (Swelab limited, China).

Results: The overall prevalence rate of Chlamydia infection was 20.6% for the infertile groups and 5.6% for the control. The prevalence rate was higher in age groups 34-38 years of age. It appeared that antigen positivity was higher in secondary infertile women (25.9%) than the primary infertile women (11.8%). Majority of the patients (93.4%) were not aware of the existence of the infection and its complications. Previous exposure to sexually transmitted disease (STD) and abortion were associated with increased risk of Chlamydia infection.

Conclusion: Thus, this study reveals an increased prevalence for Chlamydia infection among infertile women, as one in ten is likely to harbor the infection and its occurrence may be associated with awareness about the infection and asymptomatic nature of the disease.

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ENEMA DELIVERED MICROBICIDE, A POTENTIAL ALTERNATIVE TO PREP

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Oral PrEP (tenofovir disoproxil fumarate/emtricitabine) has been approved for pre-exposure prophylaxis of HIV-1 transmission, but is associated with high costs and issues of adherence. Protection from receptive anal transmission of HIV using topical microbicides using methods more congruent with sexual behavior offers the promise of improved adherence. However, there are limited data evaluating the pharmacokinetic (PK) and pharmacodynamic effects of topical prevention. We compared the PK and ex vivo efficacy of iso-osmolar (IOsm) and hypo-osmolar (HOsm) rectal enema formulations of tenofovir (TFV) in a macaque model. Single-dose PK of IOsm or HOsm high (5.28 mg/mL) and low (1.76 mg/mL) dose formulations of TFV enemas were evaluated for systemic uptake in blood, colorectal biopsies and rectal CD4+ T cells. Markedly higher TFV concentrations were observed in plasma as well as in tissues after administration of the HOsm high dose formulation than all other formulations tested. TFV and TFV diphosphate (TFV-DP) concentrations in tissue were highly correlated for the HOsm high dose formulation (1 h: r=0.8986, p=0.0333; 24 h: r=0.9411, p=0.0167), demonstrating rapid uptake and transformation of TFV to TFV-DP in tissues. TFV-DP concentrations in colorectal tissues collected at 1 hour (4783.77±1390.85 fmol/mg) and 24 hours (2407.26±762.89 fmol/mg) were 7 and 5 fold higher, respectively (p<0.01) compared to the same high dose formulated as IOsm enema. HOsm high dose (5.28 mg/mL) formulation was safe and highly effective in preventing SHIV162p3 and SIVmac251 infection in ex vivo challenges of rectal tissues collected at 1, 24 and 72 hours after the intrarectal dosing, whereas the same TFV dose formulated as IOsm enema was less effective. Thus, rectally applied HOsm high dose formulation of TFV enema promotes far more rapid TFV uptake and TFV-DP transformation to achieve colon tissue protective target drug concentrations compared to IOsm formulation of the same TFV dose.

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STRENGTHENED TUBERCULOSIS CASE DETECTION IN MOTHER AND CHILD HIV TRANSMISSION CLINICS TO IMPROVE THE DETECTION OF TUBERCULOSIS CASES AMONG PREGNANT WOMEN IN KASAI CENTRAL /DR CONGO

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Context: HIV prevalence in the Congo is estimated at 10.3% among adults aged 15-64 years. Women are more likely to be infected (28.5%). Congo ranks 16th among the 22 countries with high tuberculosis suffering from tuberculosis in Sub-Saharan Africa and an estimated TB/HIV co-infection rate of 60%. HIV testing at the antenatal clinic increased steadily between April 2014 and September 2016, with HIV testing rates of up to 93% among women.

Methodology: Tuberculosis screening forms have been used in health centers at clinics for the prevention of mother-to-child transmission of HIV, followed by on-job support through on-going training and employment. Health care workers who are: nurses, clinicians and doctors have used TB testing tool in PMTC clinics.

Results: 56,010 pregnant mothers followed a clinic over an 18-month period, 52,144 (93%) were tested for HIV and 4567 (9%) were HIV-positive. Among positive clients, 4567 (100%) were screened by ICF and 310 (7%) were symptomatic, 22 (7%) diagnosed with active tuberculosis. 4 (18%) cases of smear-positive tuberculosis were diagnosed, 14 (64%) smear negative and 4 (18%) extra pulmonary and all 22 (100%) started treatment and placed on anti-tuberculosis treatment.

Conclusion: ICF management was 100% high in pregnant HIV-positive women. CIF has been operationally feasible and has become a routine aspect of tuberculosis and integrated HIV care in clinics for the prevention of mother-to-child transmission of HIV.

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COMPREHENSIVE INTEGRATED HIV PREVENTION APPROACH TO RAISING AWARENESS OF HIV INFECTION AMONG AT-RISK RACIAL AND ETHICS MINORITY YOUNG ADULT POPULATIONSRACIAL AND ETHICS MINORITY YOUNG ADULT POPULATIONS

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Aim: The aim of the study is to present dimensions and outcomes of comprehensive integrated HIV prevention approach to raising awareness of HIV infection among at-risk racial & ethics minority young adult populations.

Methods: Performed a need assessment of the at-risk racial/ethnic minority young adult target populations and identified level and magnitude of risk and protective factors of HIV prevention. Using identified needs to develop a strategic plan along the continuum of HIV prevention and care, including social marketing, HIV Testing, HIV evidence-based intervention for HIV positive persons, evidence-based intervention for at risk HIV negative persons, evidenced-based intervention for both HIV positive and at-risk HIV negative persons and environmental intervention to change cultural, policy and societal norms that promote HIV infection, implementation of CIHPP and monitoring and evaluation of CIHPP outcomes.

Results: Significant positive change was observed in level of awareness of the risk of HIV infection among at-risk young adult minority populations.

Conclusion: CIHPP approach should be adopted in other countries with elevated HIV infection.

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THE USE OF A MOBILE PHONE-BASED APPLICATION (MAGPI) FOR DATA COLLECTION DURING DENGUE LARVAL SURVEY IN BANGLADESH - AN OPERATIONAL FEASIBILITY STUDY

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Background: Usage of information technology has provided great opportunities in data collection by improving decision support for surveillance, prevention and control of vectors. Despite the increased mobile phone penetration in Bangladesh, the use of mobile phones for data collection continues to be scarce.

Methods: The study was conducted in two divisions within the central and southern part of Bangladesh. Timeliness of reporting was assessed according to the difference between a date and/or time of data collection and of submission through Magpi and manual submissions. Completeness of reporting was determined according to the number of complete questions divided by the total number of questions in both Magpi and paper-based collection. Questionnaires were distributed to participating health inspectors before the training and after field survey to determine the participants perceptions and attitude towards the use of Magpi. Prior to implementation, an interview with the relevant Senior Program Manager was carried out and group-depth interviews were conducted with the health inspectors after field survey. A Wilcoxon Signed Rank test was used to calculate the difference of perceptions, attitude and use of the Magpi system for the health inspectors between the observed measurements.

Results: Findings had determined an improved timeliness and completeness of records in using Magpi system compared to paper collection. However, there was no change in perceived usefulness, attitude and use of the proposed Magpi system after using the proposed system in the field for data collection. Perceived ease of use indicated a positive change after using Magpi but was obviously noted to have no effect in the change of perceptions and attitude of the health inspectors towards the use of Magpi for data collection.

Conclusions: Compared to paper-based data collection, Magpi system produced a higher proportion of complete data and delivered data records faster for access. Although the change in perceived ease of use for Magpi system was indicated, perceptions on its usefulness and attitude were inadequate to enhance the use of the system. Magpi system nonetheless has the potential to improve timeliness and completeness of data.

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STUDY ON THE ASSOCIATION BETWEEN BEIJING GENOTYPE *MYCOBACTERIUM TUBERCULOSIS* AND DRUG-RESISTANCE

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Although there were some molecular epidemiology studies of Mycobacterium tuberculosis (Mtb) in Beijing, however, the study on revealing the association between drug resistance and Beijing genotype was still lack. As a retrospective study, isolates from patients with smear-positive tuberculosis were subjected to drug susceptibility testing (DST) and analyzed by spoligotyping and variable number of tandem repeats (VNTR) typing. We analyzed association relationship by statistics methods. Among the 1189 Mtb strains Beijing genotype family was the dominated genotype. We found a significant difference between Beijing and non-Beijing genotype strains when considering risk factors sex, age and registered residence. 849 (71.4%) strains were fully sensitive to first-line drugs, while 340 (28.6%) strains were resistant to at least one of the drugs. Meanwhile, 9% (107/1189) was MDR-TB. Statistics analysis results indicated that the frequencies of INH-resistance of Beijing genotype strains were significantly lower than that of non-Beijing genotype strains. Our results indicated that there was a correlation relationship between Beijing genotype and drug resistance only in INH. This study provided a broader profile of drug resistance levels and the distribution of Mtb genotypes in Beijing.

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EPIDEMIOLOGY AND APPLIED BIO TECHNIQUES IN ASSESSMENT OF LYMPHATIC FILIARIASIS IN TARABA STATE, NIGERIA

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Lymphatic filariasis caused by a mosquito-borne filarial nematode is a major public health problem which affects people of all ages and both sexes. The disease inflicts considerable social and economic burden, and the second leading cause of long-term disability in the tropics and subtropics. The study employed the following methods: Rapid assessment method to search for clinical manifestation, use of immunochromatgraphic card test to determine circulating filarial antigen (CFA) in diurnal blood, standard parasitological technique (using thick blood film preparation) to detect microfilaria of W. bancrofti, interviews, focus group discussion and administration of questionnaires to obtain socio-cultural data. 1,554 night blood samples of individuals from Taraba state were collected by finger prick method and analyzed for the presence of W. bancrofti. 494 (31.99%) of individuals were infected with W. bancrofti with mean microfilarial density of 5.23 mf/60 µL blood. Infection rates among the twenty communities surveyed differed significantly (ANOVA, P<0.05). There was no significant (x2=0.13, df=1, P>0.05,) difference in sex-related infection. There was however, significant (x2=39.649, df=7, P<0.05) difference in infection among the different age groups. Various clinical manifestations were observed, close association between microfilaraemia and itching (r=0.742, P<0.05), ADL (r=0.83, P<0.05), Dermatitis (r=0.92, P<0.05) and Hydrocele (r=0.69, P<0.05) were recorded. However, microfilaraemia was not significantly (r=0.39, P>0.05) related to elephantiasis and lymphoedema of breast (r=0.40, P>0.05). Serological examination using immunochromatographic whole blood card test in diurnal blood from 336 persons (181 males and 155 females) in 11 communities gave antigenaemia prevalence of 30.05%. Analysis of the performance of immunochromatographic card recorded 73.27% specificity with confidence interval of (66.86%-79.04%) and sensitivity of 44.16% with confidence interval of (32.84%-55.93%). Our findings in the current study has confirmed that lymphatic filariasis is a Public Health problem and already integrated intervention programs had been instituted in the endemic areas.

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ASSESSING THE AWARENESS OF HIGH SCHOOLS BOYS IN IMMUNODEFICIENCY VIRUS TRANSMISSION AND THE RISK ACQUISITION

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Introduction: The surveillance of HIV/AIDS in Saudi Arabia still faces allot of challenges especially in the youth. This because of culture resistance of accepting the presence of the disease, underreporting, deny of any risky behaviour and the ignorance of most of the schools, parents to discuss this issue with their young adults.

Methodology: A questionnaire that contains 25 questions was distributed among three different boy's high schools to assess their knowledge about HIV and the risk that they might face.

Results: In total 708 students were enrolled of which 66% knew that HIV is a sexual transmitted disease. However, only 26% were aware that it can be acquired through sexual behaviour and 65% of them thought it can only be acquired through blood. A total of 71% of the students, confirmed that they will use the internet to know about the disease if they needed to and only 11% agreed to consult their parents in this regards. A total of 54% blamed the community for not talking about the disease then their schools 22%. Finally 66% agreed sex education will be helpful if it was part of their curriculum.

Conclusion: This sample of male students clearly indicates that the overall awareness of the HIV transmission in school boys is still poor. This might increase the risk of acquisition. Parents and schools need to play a major role in increasing the awareness of the disease in schools. Sex education under the umbrella of the religion is needed.

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VULNERABILITY OF YOUNG MALE UNIVERSITY STUDENTS TO HIV IN KINSHASA/DEMOCRATIC REPUBLIC OF CONGO: ANALYSIS OF SEXUAL BEHAVIOR AND FREQUENCY OF BACTERIAL URETHRITIS

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Unprotected sex is considered as the main route of HIV transmission in Kinshasa/Democratic Republic of Congo. This study aimed to analyze the vulnerability of young male university students to HIV through the analysis of their sexual behavior and the search for bacterial infections in the urinary tract. Morning urine samples were collected aseptically from 411 young male university students (19-25 years), and brought to the laboratory for bacterial research. Bacteriological techniques were used to isolate and identify bacteria present in urine. Socio-demographic and behavioral characteristics of these students were also collected. The result from the bacteriological analyses showed that at least one bacterium is isolated in 50.4% of the 411 samples analyzed. These results indicate the predominance of Staphylococcus aureus (22.3%), Streptococcus sp. (11.8%), and Coagulase-negative staphylococci (10.4%). It happens that these bacteria are not normal hosts of the urinary tract and are susceptible to transmission during unprotected sex intercourse. The analysis of socio-demographic and behavioral data had meanwhile indicated that 99.5% were sexually active, 86.7% had sex in the last three months, 22.3% had used a condom the last time they had sex, and only 10.4% were aware of their HIV status. These biological and socio-demographic results have demonstrated that young male university students in Kinshasa who participated in this study are highly vulnerable to HIV. This, given the fact it was observed among them a low rate of HIV testing and of the condom use, as well as a high prevalence of bacterial infections in the urinary tract. Hence there is need for a more in-depth analysis of the situation to enable the implementation of appropriate and effective strategies for HIV prevention for young male university students in Kinshasa/Democratic Republic of Congo.

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CAUSES OF DEATHS OF HIV-INFECTED PATIENTS AT THE HIV/AIDS CENTER OF EXCELLENCE OF THE UNIVERSITY OF LUBUMBASHI IN LUBUMBASHI, DEMOCRATIC REPUBLIC OF CONGO

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Antiretroviral therapy and its major scaling up over the past decade has contributed to improving the quality of life of people living with HIV, but the mortality associated with this pandemic remains a concern in our environment and opportunistic infections are the major causes of death in most patients. The objective is to determine the causes of patients' deaths living with HIV at the Lubumbashi University Center of Excellence. A documentary review of patients was conducted from May 2011 to December 2015. Death is considered HIV-related if it is the result of an opportunistic infection in any patient with CD4 less than 200/mm^3. 1717 patients were recruited to the center of excellence between May 2011 and December 2015, the mortality rate was 24.1% patient year, 67.95% women and 32.05% male 76.63% of patients had CD4 less than 200 mm3. 86% of the causes were directly related to HIV, cryptococcal neuro meningitis comes first with 16.6%, while tuberculosis follows with 15.3%; 8% of the causes were not directly related to HIV, it is notably hepatopathies with 2.6%.

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PREDICTORS OF OCULAR ABNORMALITIES IN PATIENTS WITH HIV/AIDS

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HIV affects all organ systems of body including eye and its appendages. There are many ocular abnormalities seen in patients with HIV/AIDS (life time risk 50-100%). 200 HIV positive patients (ages 18-50 years) were included in this cross sectional observational study done in Department of Medicine, PGIMER and Dr RML hospital, New Delhi (India). Patients with history of trauma/ surgical intervention to the eye or diabetes, hypertension, renal failure and other comorbidities were excluded. Visual acuity testing, slit lamp examination, tonometry, indirect, direct ophthalmoscopy were done. Of 200 patients, 41 (20.5%) had ocular abnormalities, majority of which were males. Of these 41, only 50% were symptomatic for any ocular pathology. Most of the patients had visual acuity of 6/9 and normal IOP. The most common finding was HIV retinopathy (soft exudates 5.5%, retinal haemorrhages 1.5%). Other findings included keratoconjunctivitis sicca (2.5%), cataract (3.5%), papilledema (2%), optic atrophy (1%), CMV retinitis (1%) and blepharitis, preseptal cellulitis, conjunctivitis, choroid tubercles, stye (0.5%). Amongst all factors studied, male gender, longer duration of disease, late initiation of HAART and low CD4 count were found to be the major predictors of ocular abnormalities ($p<0.05$). Ocular opportunistic infections were seen only in patients with CD4<100/microL. These abnormalities were not associated with the type of HAART. Ocular abnormalities are very common in patients with HIV/AIDS (20%) and most of them are asymptomatic. Majority of these are due HIV itself. Since ART in India is started late in the course of disease i.e. at CD4 count < 350/microL, the prevalence of ocular lesions are higher when compared to western population. Most of these eye problems go undiagnosed due to poor access to medical care and ophthalmologists and ignorance of physicians. The physician should be aware of these eye lesions and screen all the patients of HIV to prevent irreversible damage to the eye.

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NONE OF US WILL GET OUT OF HERE ALIVE: THE INTERSECTIONS OF HIV AWARENESS, RISK PERCEPTIONS, AND BEHAVIOR RISK

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The Human Immunodeficiency Virus (HIV) significantly impacts minority emerging adults, among whom the rate of new diagnoses remain alarming and health disparities are more pronounced. Unfortunately, the new emerging adults of today have limited knowledge of the earlier toll of the HIV when it was perceived as a death sentence. Among this population, perceptions of risk for HIV are low and sexual risk taking behaviors are high and often used as coping mechanisms. HIV risk perceptions have been shown to be significantly related to social and culture risk factors; however, current knowledge of the determinants related to HIV risk perceptions among emerging adults has been limited. The Get SMART Project, a behavioral HIV intervention aimed to increase the awareness of HIV, provide re-purposed HIV and substance abuse prevention education as well as HIV testing to African American emerging adult's ages 18-24 empowers youth to make well-informed decisions. The project is structured and guided by the Transtheoretical and socio-ecological models as well as a creative blend social networking, social media, social marketing, and community-based theater (CBT) which empowers individuals through creative arts. Three hundred and sixty-five emerging adults participated in population-based surveys and eight focus groups conducted with approximately 57 participants. Findings revealed that HIV acquisition is not a concern. Therefore, testing is low and behavioral health risks are escalated. There are significant gaps in knowledge regarding sex and gender differences in HIV acquisition. Emerging adults did not see themselves at risk for HIV but more importantly identified other risk priorities such as excessive police force, community violence, and environmental factors more of a concern. Specific risk priorities were identified and survival expectations strongly influenced risk behaviors.

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A NEW UNDERSTANDING OF HIV/AIDS IMMUNOBIOLOGY BY THE ADAPTATION MODEL OF IMMUNITY

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The immune system has a major role in limiting HIV infection by facilitating HIV dormancy rather than eliminating the infection. Dormant HIV could eventually resume replication and establish AIDS. A theoretical gap in our understanding of the immunobiology of HIV infection has hindered the development of effective immunotherapeutic for patients with AIDS. Current immunotherapeutic strategies are inspired by two schools of thought in immunology which include the self-nonself (SNS) model and the danger model. The SNS model solely emphasizes the foreignness of the antigen (signal I) or pathogen-associated molecular pattern, PAMP (signal II) inducing the immune response. The danger model emphasizes the damage-associated molecular pattern (DAMP) that induces co-stimulation of lymphocytes or signal II. These models explain how an immune response is induced but they fail to predict whether an immune response succeeds or fails. To this end, the adaptation model of immunity proposes that molecular crosstalk between the adaptation receptors (AR) and adaptation ligands (AL) in the immunological synapse determine the success or failure of the immune response. In fact, target cells determine the outcome of the immune response. Latency or dormancy of the HIV infection is perhaps because of the expression of AR on the infected cells. The engagement of AR facilitates survival of infected cells while inhibiting viral replication in the presence of the HIV-specific CD8+ T cells induced during a transient acute phase of the infection. However, immunoediting of the infected cells by chronic CD8+ T cell responses facilitates downregulation of AR and subsequent elimination of HIV-infected cells and progression to AIDS. On the other hand, anti-viral immune responses induced by the HIV infection fail to alter the AR and as a result do not progress to AIDS. This concept is supported by recent findings demonstrating that factors independent of antigen specificity determine the efficacy of the immune response against HIV.

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FACTORS AFFECTING TREATMENT OUTCOME OF HOSPITALIZED STROKE PATIENTS AT SHASHEMENE REFERRAL HOSPITAL, WEST ARSI ZONE, ETHIOPIA

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Background: The global burden of disease report indicates that 80% of stroke deaths occur in low and middle income regions. In Ethiopia, stroke has been consistently reported as one of the three leading causes of morbidity and mortality in the past years.

Objective: The objective of this study was to assess outcomes pattern and associated factors among hospitalized stroke patients from March 14/2012- March 8/2017 G.C in Shashemene Referral Hospital, Ethiopia.

Method: A retrospective review of all stroke patients who full fill the inclusion criteria from 2012-2017 was conducted. Demographic characteristics, risk factors, stroke types and their hospital outcome were reviewed. Data collectors were trained. Descriptive and logistic regressions were done. P<0.05 is considered to be significant.

Result: During the study period, a total of 73 stroke patients were recruited, of which 65.8% was ischemic stroke. Hypertension (52.05%) was the common co-morbid disease. More than half (54.79%) of the patients were improved. Dyslipidemics were prescribed to 68.49% of patients and the most popular antiplatelet was Aspirin, which was prescribed to 61.64%. Age, sex, type of stroke and type of co-morbidity were not significant predictors of stroke treatment outcome.

Conclusion: Ischemic stroke is the most common type of stroke encountered. More than half of the patients were improved. All of the independent variables considered in this study were not associated to treatment outcomes.

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ABORIGINAL PEOPLE LIVING WITH HIV/AIDS (APHA) PEER MENTOR TRAINING

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Objectives: The objective is to introduce Indigenous specific APHA peer mentor training (train the trainer). Discuss how to plan and implement APHA peer mentor training for Indigenous people living with HIV/AIDS.

Methods: This program is believed to be ground breaking, in that many AIDS Service Organizations, Indigenous or nonindigenous, do not have a formal manner in which to have peer mentors offer guidance to newly diagnosed APHAs (Aboriginal people living with HIV/AIDS). This program contains a number of documents and tools that can train peer mentors to fulfill this needed role and offer guidance and support to others in need. Stepping into this role can also help the peer mentor on their personal spiritual journey.

Results: Engaging indigenous people living with HIV/AIDS increase capacity, access to treatment and care for people living with HIV/AIDS, decrease transmission rates and reduce stigma and discrimination.

Conclusion: Peer mentors are essential to sustaining the indigenous response to HIV/AIDS. While this training is HIV/AIDS specific, it can be tailored to other target and priority populations involved in the healing journey.

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SHOWCASING GOOD PRACTICES OF SUPPORTING ADOLESCENT GIRLS AND YOUNG WOMEN LIVING WITH HIV LED DATA COLLECTION AND ADVOCACY

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The main objective of the study is to disseminate the findings of the SRHR data collected from public health facilities by the AGYW living with HIV from 5 districts of Uganda under the PITCH project. Uganda registers 570 new HIV infections among adolescent girls and young women (AGYW) every week. At least one in four adolescent girls has either had a child or is pregnant and 58% of adolescent girls have reported physical or sexual violence. At least 24% of adolescent girls are pregnant or with a child before the age of 18. The level of knowledge on HIV and SRHR(sexual and reproductive health and rights) among adolescent girls is low 36% compared to boys 38% of same age. The International Community of Women Living with HIV and AIDS Eastern Africa (ICWEA) with support from AIDS Fond implements the partnership to inspire, transform and connect the HIV response (PITCH) project in districts of Kampala, Wakiso, Mukono, Busia and Mubende. The project aims at creating awareness on the Sexual Reproductive Health and Rights of Adolescent Girls and Young Women living with HIV. ICWEA mandate in this intervention is to advocate for the SRHR that responds to the needs and realities of the AGYW living with HIV Based on the above background, ICWEA mobilized, recruited and trained AGYW living with HIV as SRHR Advocacy Champions. They were attached to public health facilities to collect data on SRHR for evidence based advocacy. The data collection was both qualitative and quantitative. The methods that were used for collecting HIV and SRHR data were literature review, structured questionnaires and dialogues with AGYW living with HIV, health care providers and popular opinion leaders.

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MICRONUTRIENTSUPPLEMENTATIONREDUCESHIV RELATED MORBIDITY AMONG WHO STAGE I/II ANTIRETROVIRAL (ART)-NAÏVE PATIENTS IN KADUNA, NORTHWEST NIGERIA

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Background: If untreated, HIV infection progresses from stage one (seroconversion) to stage four (AIDS) within a median period of five years, thus importance of early treatment to halt this progression. This research studied the effect of micronutrient supplementation on clinical indices among untreated HIV infected patients.

Materials & Methods: 90 ART-naïve adult patients attending HIV clinics in Kaduna and Zaria were recruited after informed consent. Inclusion criteria were WHO stage 1 and 2, CD4+ >500 cells/μL, absence of immunosuppressive and/or psychiatric illness. After sociodemographic data, clinical evaluations and laboratory investigations, each patient was given one capsule of SYNOVITTM supplement to take daily and re-evaluated every 12 weeks for 48 weeks. Patients who became pregnant, defaulted from one clinic visit or whose CD4+ reduced below 500 cells/μL were excluded.

Results: Patients comprised 75% females and 25% males respectively. They were aged 39±4.0 years and most were married, attained secondary education and earned less than 18,000.00 naira ($49.3) monthly. 63% of patients completed the study successfully at 48 weeks. Body mass index (kg/m^2) increased from 25.8 at baseline to 27.1 at 48 weeks ($p<0.005$) while general (non HIV-specific) morbidity and HIV-specific morbidity reduced from 31% and 18% at baseline to 10% ($p=0.00$) and 5% ($p=0.002$) at 48 weeks respectively.

Conclusion: These results showed that micronutrient supplementation reduced both HIV and non HIV specific morbidities in ART-naïve patients.

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EVALUATION OF HIV PREVENTION PROGRAMS IN ADDRESSING SEXUAL AND REPRODUCTIVE HEALTH NEEDS TARGETED ON CHANGING KNOWLEDGE, ATTITUDE AND BEHAVIORS AMONG STUDENTS AND YOUNG UNIVERSITY STAFF IN ETHIOPIA

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Background & Objective: HIV/AIDS is one of the worst population health and development crises in Africa where over 88 percent of HIV infection and sexual and reproductive health (SRH) problems affecting the youth is found between 15 and 25 years old, and over 60% are women. The university students and staff are not immune from the risks and impacts of the epidemic. This study sought to assess risks to HIV/SRH problems and trends of change in the level of knowledge, attitude and behaviors of students and young staff community in the selected higher education institutions in Ethiopia.

Method: A cross-sectional survey was conducted between April and July 2017. Mixed methods of combining structured survey questionnaire (conducted first), focus group discussions and key informant interviews (to draw out insights gained from the quantitative part) were conducted.

Results: Out of 1750 respondents, 1738 returned the questionnaire. The majority (79%) of respondents generally aware about the HIV related risk factors, ways of transmission (76%) and HIV prevention (72%) and related HIV/SRH problems. All respondents never perceive their specific risk for HIV. Unsafe sex and multiple concurrent sexual partnerships (MCP) were reported by 68% of female students joined the universities from rural settings, among all socio-cultural and religious groups, and 58% of young teaching staff. No significant change in the level of comprehensive knowledge on combination prevention programs and compatibility with the desired behavior change towards SRH problems and HIV. Qualitative data support this finding.

Conclusion: Positive changes in awareness and attitudes toward HIV/AIDS were identified, yet trends and levels of comprehensive knowledge and compatibility with safe behaviors are found inadequate or lacking. Based on the findings of the study a model for contextualized combination prevention intervention program is suggested for future actions of owning and sustaining feasible programs for the youth in the higher education institutions.

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MICRONUTRIENT SUPPLEMENTATION DECREASED PLASMA HIV RNA LOAD AND INTERLEUKIN-6 WITHOUT INCREASING CD4+ CELL COUNT IN HIV-INFECTED ANTIRETROVIRAL (ART-) NAÏVE PATIENTS

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Background: Continuous HIV RNA replication, elaboration of pro-inflammatory cytokines and progressive CD4+cell destruction are hallmarks of HIV infection progression to HIV disease. This research studied the effect of micronutrient supplementation on plasma HIV RNA load (pVL), interleukin 6 (IL-6), C-reactive protein (CRP) and CD4+ cell counts (CD4+cc) among ART- naive HIV infected patients.

Materials & Methods: 90 ART-naïve adults (aged 18-59 years) attending two HIV clinics in Kaduna State were recruited after informed consent. Inclusion criteria were: WHO clinical stage I and II, CD4+ ≥520 cells/µl, and absence of immunosuppressive and/or psychiatric illness. Patients who became eligible for ART (CD4+ cc ≤500 cells/µL or presence of AIDS-defining illness), or became pregnant or defaulted from one scheduled clinic visit in the course of the study were excluded. After history and physical examinations, venous blood was collected for baseline pVL, and serum IL-6 and CRP concentrations, after which each patient was given one capsule of SYNOVIT TM (micronutrient supplements) and 900 mg of co-trimoxazole to take daily for 48 weeks. Patients' CD4+ cc were evaluated quarterly, while pVL, IL-6 and CRP were evaluated at 24 and 48 weeks respectively.

Results: The pVL, IL-6, CRP and CD4+ cc decreased significantly from baseline to 48 weeks of micronutrient supplementation. The pVL decreased from 27,105.0 copies/mL to 585.0 copies/mL (p=0.00); serum IL-6 decreased from 1.9 pg/mL to 0.5 pg/mL (p=0.02); serum CRP reduced from 29.4 ng/mL to 25.8 ng/mL (p=0.03); while CD4+ cc also reduced from 704.5cells/µL to 595.0 cells/µL (p=0.00) respectively.

Conclusion: 48 weeks of micronutrient supplementation reduced pVL, IL-6 and CRP without increasing CD4+ cc in HIV-infected ART-naïve patients in Kaduna State, Nigeria.

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ADVANCES OF HAART TO THE IMMUNOTHERAPEUTIC TREATMENT OF HIV INFECTION: AN OPTIMAL CONTROL APPROACH

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Infectious diseases pose great threat in global public health. One of such devastating and killer diseases is Acquired Immunodeficiency Syndrome (AIDS) and its etiologic agent Human Immunodeficiency Virus (HIV) which is the world's most leading cause of mortality until today. In absence of vaccine, immunotherapy is the most effective treatment strategy for HIV positive patients. Highly Active Anti-Retroviral Therapy (HAART) has become important for such treatment of HIV infection aiming to develop the internal immunity of the HIV positive patients so that body itself can fight against the pathogen. In this talk, we discuss a HIV immunology model in terms of nonlinear ordinary differential equations (ODEs) with the help of optimal control techniques. Optimal control theory has long history in modelling the nonlinear behaviour of human physiological control system and thus plays significant role in obtaining optimal control strategy of infectious diseases. It has been challenging to understand the mysterious mechanism of host-pathogen interactions of the underlying disease inside human body. Optimal control of nonlinear ODEs in terms of mathematical modeling in biomedical engineering has been successfully modelled and designed to understand the evolution of disease dynamics. Since 1980 several models have been proposed and studied most of which were studied using optimal control techniques in absence of constraints. So application of optimal control with constraints in infectious diseases is sparse in existing literature. Here, we propose a modified HIV model introducing state constraint to the dynamics aiming to find optimal immunotherapeutic treatment strategy using optimal control technique where state constraint may play crucial role. This new model has been analysed numerically and the simulation results have been presented in support of analytical findings. We show that introduction of state constraint to the model have significant effect to the immunotherapeutic treatment for obtaining more realistic control strategies of such diseases.

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WAR ON TERROR CELLS: NOVEL SOURCES OF ANTIMICROBIALS

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With the worsening trends of drug resistance, there is a need for newer and more powerful antimicrobial agents. The search for new compounds originating from natural resources is a promising research area. We hypothesized that animals living in polluted environments are potential source of novel antimicrobial molecules. Under polluted milieus, organisms such as cockroaches encounter different types of microbes, including superbugs. Such creatures survive the onslaught of superbugs and are able to ward off diseases by producing antimicrobial substances. Here, we characterized antibacterial properties in extracts of various body organs of cockroaches (*Periplaneta americana*) and showed potent antibacterial activity in crude brain extract against methicillin-resistant *Staphylococcus aureus* and neuropathogenic E. coli K1. The size-exclusion spin columns revealed that the active compound(s) are less than 10 kDa in molecular mass. Using cytotoxicity assays, it was observed that pre-treatment of bacteria with lysates inhibited bacteria-mediated host cell cytotoxicity. Using spectra obtained with LC-MS on Agilent 1290 infinity liquid chromatograph, coupled with an Agilent 6460 triple quadruple mass spectrometer, tissues lysates were analysed. Among hundreds of compounds, only a few homologous compounds were identified that contained isoquinoline group, chromene derivatives, thiazine groups, imidazoles, pyrrole containing analogs, sulfonamides, furanones, flavanones, and known to possess broad-spectrum antimicrobial properties, and possess anti-inflammatory, anti-tumour, and analgesic properties. Further identification, characterization and functional studies using individual compounds can act as a breakthrough in developing novel therapeutics against various pathogens including superbugs.

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STUDIES ON THE CO-INFECTIVITY OF HIV AND ATYPICAL MYCOBACTERIA IN NSUKKA LOCAL GOVERNMENT AREAS OF ENUGU STATE

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The total number of tuberculosis cases in the world is increasing and the HIV epidemic is implicated for this increased incidence. Nigeria is ranked in top five countries for TB deaths worldwide. Due to the increasing level of immunocompromised individuals resulting from diseases like HIV/AIDS, other non-tuberculous Mycobacteria (NTM) are beginning to thrive and cause tuberculous infections. The information on the contribution of non-tuberculous Mycobacteria (NTM) to Mycobacterial infections in Africa including Nigeria is scarce due to limited laboratory culture for its isolation and identification. Studies on the co-infectivity of HIV and atypical Mycobacteria in Nsukka L.G.A. were carried out. Two hundred cases (100 HIV negative and 100 HIV positive patients) were identified out of which 46.5% were male and 53.5% were female. The age ranged between 15 and 71 with mean age of 37.5 years. HIV antibodies were screened using two HIV test kits: the Determine (for preliminary test) and the Gold which was used to check for consistency. CD4+ count was carried out using cytometry (CyFlow®). Acid fast bacilli (AFB) were detected by means of sputum smear microscopy using Ziehl-Neelson staining technique. AFB positive samples were subjected to nested PCR for species identification. T-test was employed to check for statistical significance between the mean prevalence in test and control groups and CD4 count of HIV single infection and co infection with TB. Correlation analysis was also employed to check for relationship between the demographic characteristics and the distribution of the disease. A preponderance of HIV infection was observed among the age group 21-50 years (72.5%) with overall HIV prevalence of 19.4%. The highest AFB prevalence of 26.6% was observed among patients aged 21-30 years, with overall prevalence of 24%. About 79.1% of TB infection occurred at CD4 count less than 400 cells/μL. Molecular analysis of the samples (using nested PCR) showed 97 (78.9%) *M. tuberculosis*, 14 (11.4%) M. bovis and 10 (8.1%) NTM. The NTM identified was M. avium complex. The prevalence rate of TB/HIV co-infection was 24 (24%) out of which 14 (53.8%) were *M. tuberculosis*, 5 (20.8%) were M. bovis and 3 (12.5%) were NTM. The highest NTM prevalence of 66.7% was observed among patients aged 21-30 years in the HIV positive group while the highest prevalence of 42.8% was observed among 41-50 years in the HIV negative group. TB co-infection was significantly associated with CD4+ cell count ($P<0.05$). Rural settlers and those with lower education were at higher risk to have TB co-infection with HIV (RR=1.40, P=0.002) and (RR=3.17, P=0.01) respectively. The data obtained in this study underscores the role of non-tuberculous AFB organisms in pulmonary tuberculosis especially in HIV patients, and is suggestive of the public health implications of DOTS administration without proper discrimination between TB and NTM. Introduction of molecular screening assays that include rapid detection of NTM infections in high burden resource limited settings like Nigeria should be a priority for strengthening the public health response.

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EFFECTIVE COMMUNITY AND CAMPUS PARTNERSHIPS FOR HIV AND STI PREVENTION, EDUCATION AND TREATMENT

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This session highlights effective strategies for HIV prevention, intervention and care for students in US higher education. This session will focus on tangible outreach initiatives, partnerships and tools for increasing awareness of HIV and STIs, and PrEP in Los Angeles. Further, intentional partnerships with campus and community organizations have increased access to counseling and mental health services, HIV and STI testing services, research participation and access to care for HIV+ individuals. UCLA's LGBT Campus Resource Center, the Center for AIDS Research and Education and the Connect 2 Protect Coalition have developed a comprehensive set of services to impact campus communities, broader LA and even impact national trends. UCLA is a leader in HIV/AIDS research and services. UCLA students, staff and faculty can get tested on campus or with mobile testing vans, access HIV education, fill PrEP prescriptions, engage in HIV-related community outreach, attend HIV support groups and connect with community resources and service providers. This interactive session will provide effective strategies and engage participants in reflective activities to develop effective strategies and networks for their respective communities.

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THE 2014-2015 EBOLA OUTBREAK: LESSONS LEARNED FROM THE RESPONSE

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The most recent Ebola outbreak demonstrated a clear lack of preparedness from the global health and humanitarian system for an outbreak of infectious disease and a number of weaknesses in the international health and emergency response infrastructure. The first case of the outbreak occurred in December 2013 in Meliandou in southeastern Guinea but was only confirmed as Ebola in March of 2014. It is clear that a number of factors affected the nature of response and that any possible combination of these factors could occur. During the post Ebola recovery period and in the interest of our study, we approached key stakeholders from relevant response organizations who were asked to describe how their organizations would have responded to a case study scenario in which a non-state actor claims responsibility for new cases of Ebola in an adjacent geographical area with a previously unexposed population just like it was the case in Guinee, Liberia and Sierra Leone just before the outbreak. The study subsequently sought the views of major bilateral donors to the Ebola response to better understand the challenges and approaches nations would take in the event of a deliberate use and its impact on a humanitarian disaster response. Our engagement aimed to bring together a selected group of multi-sector participants to glean what has been learned so far and develop firm proposals for action. Whatever the next event or outbreak is, and regardless of its source, the Ebola outbreak revealed weaknesses in the global health and humanitarian responses that must be fixed. Coordination between agencies should be increased, and efforts should not be duplicated. A one size fits all approach will not work for future outbreaks, nor did it work for Ebola, and flexibility should be engineered into the system and coordination to allow for the international community to provide what is needed, when it is needed, rather than everything at once.

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SEROPREVALENCE OF IMMUNOGLOBULIN G AND OF IMMUNOGLOBULIN M ANTI-TOXOPLASMA GONDII ANTIBODIES IN HUMAN IMMUNODEFICIENCY VIRUS INFECTION/ACQUIRED IMMUNODEFICIENCY SYNDROME PATIENTS AT TIKUR ANBESSA SPECIALIZED HOSPITAL, ADDIS ABABA, ETHIOPIA

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Background & Objective: In Ethiopia only a few studies on the seroprevalence of toxoplasmosis have been carried out among HIV/AIDS patients. The objective of this study was to determine the seroprevalence of toxoplasmosis among HIV/AIDS patients at Tikur Anbessa Specialized Hospital, Ethiopia and to determine risk factors associated with seroprevalence.

Materials & Methods: Blood samples were collected from randomly selected 150 HIV-positive patients and IgM and IgG anti-toxoplasma antibodies were quantified by using Enzyme immunoassay technique (HUMAN-ELISA, Germany). Ethical approval for the study was obtained from the Institutional Review Board of the Faculty of Medicine, Addis Ababa University. Questionnaire was administered to assess the risk factors associated with the prevalence of toxoplasmosis in HIV patients.

Results: Of the one hundred fifty patients 108 (72%) were females and 42 (28%) were males. The mean (sd) age was 38.4 (9.5). Based on IgG anti-Toxoplasma antibodies status the seroprevalence of toxoplasmosis in HIV-positive patients was 94%. No IgM antibody was detected. Consumption of raw vegetables and not having primary information about toxoplasmosis were significant association with the presence of anti- Toxoplasma antibody ($p < 0.05$). Inexact logistic regression analysis consumption of raw vegetable (adjusted OR= 7.49, 95% CI 1.29- 58.93) was significant risk factor for toxoplasmosis and having information about toxoplasmosis (adjusted OR =.083, 95% CI .011-.499) had significant protective effect. The mean (sd) CD4 count was 341.1(173.6) cells/μL. The association between the presence of anti- toxoplasma antibody and CD4+ T lymphocyte cells count was not statistically significant.

Conclusions & Recommendations: The findings showed that there is a high prevalence of chronic toxoplasmosis in HIV/AIDS patients and the risk factors were consumption of raw vegetable and lack of information about toxoplasmosis. Therefore, routine screening for Toxoplasma should be undertaken for all HIV-infected patients. Moreover, creating awareness about toxoplasmosis and its risk factors should be prioritized.

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