

Sata Conference Group

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Book of Abstracts

November 27-29, 2017, Cape Town Lodge Hotel, Cape Town-South Africa

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This book is produced by the local organizing committee of this conference and first published in South Africa.

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Welcome Message from the Conference Organizing Committee



Professor K. Mossanda
Conference Chair



Professor A. Sammon
Conference Co-Chair

Dear Friends and Colleagues,

It is a great pleasure and an honor to extend to you a warm welcome to the 2017 International Conference on Clinical and Basic Sciences Research, to be held from 27 to 29 November 2017 at the Cape Town Lodge Hotel in the mother city of Cape Town, South Africa.

This international event is organized by the Southern African Training Academy (SATA). The conference will bring together leaders from Academia and Industry and will provide a unique setting for collaboration, knowledge exchange and networking at a global level. The SATA 2017 Conference will provide a wonderful forum for you to refresh your knowledge base and explore the innovations in areas of clinical and basic sciences research. The Conference will strive to offer plenty of networking opportunities, providing you with the opportunity to meet and interact with the leading scientists and researchers, friends and colleagues as well as sponsors and exhibitors.

Cape Town is an exceptional location for the Congress. It is renowned as one of the world's most outstanding cities in the world, with the sparkling Ocean and towering Coast Mountains providing a unique and spectacular setting. The SATA 2017 Conference is held in the Cape Town Lodge Hotel right in the city center full of a welcoming atmosphere with wonderful space for both scientific presentations and commercial exhibition.

The social program will highlight our special African cuisine, unique culture and arts, combined with the breath-taking natural beauty and pre- and post-congress workshops and tours will underscore the role of Cape Town as one of the world's most popular tourist destinations.

We hope you will join us for a symphony of outstanding science, and take a little extra time to enjoy the spectacular and unique beauty of this African region.

With best wishes,
Kensese and Alastair

CONFERENCE PROGRAM

Day 1: 27 November 2017

Time	Event
8:00-9:00	Registration
9:00-9:10	Opening Address: Moderator: Dr. Eugene J. Ndebia Welcome speech by the Chair: Prof. Alastair Sammon Presentation of Keynote and Plenary Speakers; Overview of the program
9:10-10:00	Keynote talk 1: Prof. Alastair Sammon, Adjunct Professor, United Kingdom Topic: Identifying causes of squamous cancer of the esophagus in Africa
10:00-10:50	Keynote talk 2: Dr. Kadhaya David Muballe, Neurosurgeon, South Africa Topic: Predictors of recovery in moderate to severe traumatic brain injury
10:50-11:00	Group photos
11:00-11:15	Networking session/tea break/poster session
	Morning Session Moderator: Prof. Benjamin Longo-Mbenza
11:15-11:40	Bezile M. Langa, Walter Sisulu University – South Africa Clinical presentation and consequences of illegal abortions: A retrospective review of Patients Presenting at Dora Nginza Hospital 2013-2016
11:40-12:05	Salem Shalaweh, University of Western Cape – South Africa The relationship between quality of life, psychological distress and coping strategies of persons living with HIV/AIDS in Cairo, Egypt
12:05-12:30	Kenechukwu Obikeze, University of Western Cape – South Africa Cardiovascular effects of the organic extracts of <i>C. macowanii</i>
12:30-12:55	Angela T. Harrison, MINTEK – South Africa Comparison of HIV-1 IN-LEDGF/p75 inhibitors through hydrogen amide exchange.
12:55-13:20	Charles B. Businge, Walter Sisulu University – South Africa Increased risk and severity of pre-eclampsia among peri-urban women in Kinshasa Province, Democratic Republic of Congo: The role of Nutritional Transition, Obesity and Dyslipidemia
13:20-14:00	Lunch
	Afternoon Session Moderator: Prof. Longo Mbenza
14:00-14:25	Khantsi M, North-West University – South Africa The interactive functionalities of bacteria that occur in the rhizosphere between the Cowpea (<i>Vigna Unguiculata</i> L. Walp) and its environment
14:25-14:50	Mantombi Maseme, Biobank, NHLS – South Africa Key Ethical and Governance Considerations for Emerging Biobanks: A South African Perspective
14:50-15:15	Alastair Sammon, Adjunct Professor 24 hour esophageal pH studies in the Eastern Cape
15:15-15:50	Charles B. Businge, Walter Sisulu University – South Africa Is iodine deficiency in pregnancy associated with increased risks and severity of subclinical hypothyroidism, pre-eclampsia and future cardiovascular diseases?
15:15-16:15	Networking session/Tea break/Poster session End Day 1

CONFERENCE PROGRAM

Day 2: 28 November 2017

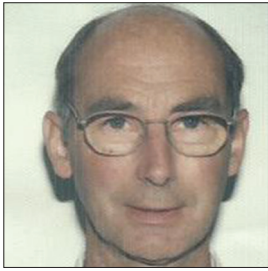
Time	Event
8:30-9:30	Moderator: Dr. Eugene J. Ndebia Keynote talk 3 Professor Shinga Feresu, South Africa Topic: Has Obesity become the problem of Southern Africa?
9:30-10:30	Keynote talk 4 Prof. B. Longo-Mbenza, Research Professor Title: Pollution, poverty, violence, climate change, and endemic infections explain mechanism and epidemic of non-communicable diseases in sub-Saharan Africa
10:30-10:50	Networking session/Tea break/Poster session Morning Session Moderator: Prof. Shinga Feresu
10:50-11:15	Lethubhle B. Dube, Rhodes University – South Africa Perceptions of the Humanities students on the South African labor market
11:15-11:40	Jabulani Chitanga - Cornerstone Institute - South Africa Effective school-based psychological interventions on violence
11:40-12:05	Helen Bunt, Fort Hare University – South Africa Supporting palliative care of HIV positive pregnant mothers using Smartphone Applications
12:05-12:30	Salem Shalaweh, University of Western Cape – South Africa Use the Nanoparticles to improve the quality of Human semen for capacitation and Acrosome reaction
12:30-12:55	Mlandu Chenai, WITS University – South Africa Factors associated with consistent condom use among women in Botswana
12:55-13:20	Otukpa Oloche Emmanuel - WITS - South Africa The effectiveness of intermittent preventive therapy with sulfadoxine and pyrimethamine on the risk of low birth weight in West Africa: A systematic review and meta-analysis
13:20-14:00	Lunch Afternoon Session Moderator: Prof. Shinga Feresu
14:00-14:25	Philanathi Mabena, WITS University – South Africa Increases in Carotid Intima-Media Thickness Are Not as Extensive in Younger as Compared to Older Individuals with Stroke in Africa
14:25-14:50	Eniola O. Sogunle, WITS - South Africa The association between mode of delivery and early adulthood overweight or obesity in an urban South African birth cohort
14:50-15:15	Glory Chidumwa, WITS University – South Africa The relationship between religious coping and depression among PLWHA: A structural equation model
15:15-15:40	Charles B Businge, Walter Sisulu University – South Africa Exploration of the underlying inflammatory and oxidative stress pathological mechanisms in Pre-eclampsia using Principal Component analysis
15:40-16:05	Numbi Evodie, Université de Lubumbashi (Lubumbashi, Republic Democratic of Congo) Phytochemical and biological screening of 36 plant species for tuberculosis use in Lubumbashi
16:05-16:30	Networking session/ Coffee break End of Day 2

CONFERENCE PROGRAM

Day 3: 26 July 2017

Time	Event
8:30-9:30	Moderator: Prof. Alastair Sammon Workshop 1: Research Funding for Emerging Researchers Facilitator: Prof. Shinga Feresu, Professor Tchokonte-Nana
9:30-9:55	Charles B. Businge, Walter Sisulu University – South Africa Serum potassium/magnesium ratio, urinary iodine concentration, thyroid-stimulating hormone, fasting plasma glucose, and the oxidized LDL/albumin ratio: Potential biomarkers for prediction of pre-eclampsia
9:55-10:20	Anele Mbassa, Walter Sisulu University – South Africa Modification of Nugent’s method for diagnosis of bacterial vaginosis, Considering the cutoff point
10:20-10:45	Numbi Evodie – Université de Lubumbashi (Lubumbashi, Republic Democratic of Congo) Ethnobotanical survey of some plant species used against the tuberculosis in Lubumbashi and its surroundings
10:45-11:10	C. Bokop Fotso, Walter Sisulu University – South Africa Outcomes and risk factors of drug-resistant tuberculosis in two Eastern cape sub-districts (Mthatha)
11:10-11:30	Elizabeth Kachingwe, WITS University – South Africa The pattern of transaminase abnormality among HIV and HBV Coinfected women on ART in Lilongwe, Malawi
11:30-11:45	Networking session/Tea break/Poster session
11:45-12:30	Closing Ceremony Award Ceremony Vote of thank Conference Feedback Introduction of SATA’s next conferences: 1/2 nd International Conference on Clinical Trials and Innovative Therapeutics, July 23-25, 2018, Durban, South Africa 2/2 nd International Conference on Clinical and Basic Sciences Research, November 26-28, 2018, Cape Town, South Africa
12:30-14:00	Lunch
14:00	Tour: Visit Cape Town More information on this will be announced on site End of Day 3

KEYNOTE SPEAKERS



Identifying Causes of Squamous Cancer of the esophagus in Africa

Professor Alastair M. Sammon

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Three facts should be addressed: The rapid rise of the disease in East and Southern Africa in the first half of past century, the constant association of squamous cancer of the esophagus with tobacco, and the constant association with maize. The early decades of past century saw a change in the type of maize grown in Africa, the amount consumed, and the way it was processed. These changes were followed by what has been called an epidemic of esophageal cancer in Southern and Eastern Africa. There has been a constant and strong association of SCCO with tobacco, however, a substantial minority of those in Africa who suffer SCCO do not smoke. Human papillomavirus, *Helicobacter pylori*, nitrosamines, fumonisins, and alcoholic drinks have been individually proposed as the cause of this “epidemic,” but the evidence does not support any of these as the principal cause. The history of the disease forces us to look for a factor that is in some way connected to maize, and which predisposes to carcinogenesis by tobacco and other active agents. Continuing research into the effects of degenerating maize meal and the effect of diet on gastroesophageal reflux may yield worthwhile results. Japanese studies have shown a strong association between non-acid gastroesophageal reflux, gastric hypochlorhydria and SCCO. This mechanism may be involved in predisposition to esophageal carcinogenesis and merits further investigation. Studies in South Africa have shown increased non-acid reflux in a high-risk community for SCCO. There is scope for collaboration in future research.

Biography

Alastair Sammon is currently an Adjunct professor, Walter Sisulu University – South Africa. MB ChB 1971, and trained as a surgeon in Glasgow, Scotland. Medical Officer Sulenkama; Medical Superintendent, Tugela Ferry Hospital, South Africa. Consultant Surgeon, Umtata General Hospital, and Senior Lecturer in Surgery, University of Transkei 1981-88. Medical Officer in Charge, Chogoria Hospital, Kenya 1988-95. Locum Senior Lecturer University of Bristol 1995-99. Consultant General Surgeon, Gloucester, England 2000-2012. Volunteer Surgeon, Tanzania 2012-2014. Partnership since 1995 with Department of Physiology/Human Biology, Walter Sisulu University on upper GI physiology and the etiology of cancer of the esophagus. Honorary Professor, Department of Human Biology, Walter Sisulu University, South Africa 2016

KEYNOTE SPEAKERS



Predictors of Recovery in Moderate to Severe Traumatic Brain Injury

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Introduction: Traumatic brain injury is a significant cause of morbidity and mortality worldwide. Clinical outcomes in traumatic brain injury are determined by the severity of injury which is dependent on the primary and secondary brain injury processes. While primary brain injury lesions are related to the site of impact, secondary brain injury results from physiological changes influenced by oxidative stress and inflammatory responses that occur after the primary insult. The aims of this study were (a) to identify biomarker profiles that were predictive of recovery after moderate to severe traumatic brain injury. (b) To describes the trends in monitoring parameters, the oxidative stress and inflammatory biomarkers during management of these patients. **Methods:** This was a prospective study of patients with moderate to severe traumatic brain injury managed at the Nelson Mandela Academic Hospital during the period March 2014–March 2016. Following admission and management, the patient demographics (sex, age) and admission Glasgow coma score (GOS) were recorded. Oxidative stress and inflammatory biomarkers in blood and cerebrospinal fluid where sampled on day 1 to 7. On day 14 only blood was sampled for the same biomarkers. The primary outcome was the GOS assessed on day 90. Due to difficulty in regular follow-up due to the vastness of our region, difficult terrain and long travel distances a 3-month follow-up period were used to avoid default. **Results:** Sixty-four patients with $GOS \leq 12$ were seen and managed. Among the 56 patients who survived, 42 showed significant recovery ($GOS \geq 4$) at 3 months. While the interleukin- 1β profile showed a positive linear relationship with intracranial pressure (ICP) and a negative linear relationship with the brain tissue oxygen tension, the trends in the antioxidant levels had a negative relationship with the intracranial pressure. Important predictors of recovery were age and the antioxidant activity in the cerebrospinal fluid (superoxide dismutase and total antioxidant capacity). Patients in the age group 20–40 years were more likely to recover compared to those <20 years or >40 years. **Conclusions:** Intracranial cranial pressure was directly related to malondialdehyde, interleukin 10 levels and brain tissue temperature and inversely related to superoxide dismutase, total antioxidant capacity levels. The recovery after traumatic brain injury depended on the age groups of the patients and the resolution of oxidative stress imbalance.

Key words: Traumatic Brain Injury, Oxidative Stress, Inflammatory Changes, Recovery

Biography

Kadhaya David Muballe was born in November 1969, he graduated with MBChB in 1994, and MMED Surgery in 2001 from the University of Nairobi, Kenya. He did postgraduate neurosurgical training at the University of Washington Seattle, USA (2004-2006) and the Albert Luthuli Central Hospital (University of KwaZulu-Natal) (2007-2012) where he attained the qualification of Fellow of the Colleges of Neurosurgeons of South Africa and MMED Neurosurgery, he completed a PhD in Neurosurgery/Neurosciences at the Walter Sisulu University in 2017. Dr Muballe worked as a specialist Neurosurgeon at the Nelson Mandela Academic Hospital and Senior lecturer WSU (2013-2017) where he helped set up the first fully accredited Neurosurgical training in the Eastern Cape Province of South Africa before moving to head of neurosurgery at Livingstone Hospital in Port Elizabeth. His main area of interest is in biochemical markers of disease in neurosurgical patients.

KEYNOTE SPEAKERS

Has Obesity become the problem of Southern Africa?



Professor Shinga Feresu

University of Pretoria, Adjunct Professor University of Fort Hare, Contributing Faculty for Walden University, Online Instruction Consultant University of Johannesburg

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In this presentation, the effects of obesity in Southern Africa will be explored, and comparisons with the USA made. The presentation seeks to examine how obesity has promoted the rise in NCDs in Africa, and how it has begun to rise in children and the adolescence and using Prof Feresu's studies from the USA, how obesity affects pregnant women and birth outcomes. The role of epidemiology and public health will be explored. Several publications will be reviewed.

Biography

Prof Shinga Feresu is Professor of Epidemiology and Biostatistics, completed her PhD in Epidemiology from The University of Michigan in 2001, USA, and Masters of Public health (MPH) in Epidemiology and Biostatistics from Boston University, USA in 1995. She has taught at The University of Michigan, The University of Nebraska Medical Center, and Indiana University, before migrating to South Africa November 2014. At present, she is an Associate Professor of Epidemiology and Biostatistics at the University of Pretoria, Adjunct Professor at the University of Fort Hare, Online instruction at the University of Johannesburg, and Contributing Faculty at Walden University, USA. Prof Feresu has published more than 25 papers in reputed journals and has been a peer reviewer from more than 25 journals. Prof Feresu has supervised more than 50 students in her career.

Pollution, Poverty, Violence, Climate Change, and Endemic Infections Explain Mechanism and Epidemic of Non-communicable Diseases in Sub-Saharan Africa



Professor Benjamin Longo-Mbenza

Walter Sisulu University, Research Champion Professor, Faculty of Health Sciences, MTHATHA, South Africa And University of President KASA-VUBU, Faculty of Medicine, Boma, Democratic Republic of Congo

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Background: Burden of disease depends on time, population, genetics, environment, and economic development. Non-communication diseases (NCDs = cardiovascular diseases, diabetes mellitus, and cancers) are now increasing toward epidemics with similar magnitude of endemic infections (malaria, tuberculosis, and *Helicobacter pylori*), pandemic infections (HIV/AIDS, EBOLA-FLU-ZIKA-hepatitis-viruses), and burden of malnutrition (coexistence of abdominal obesity and hypovitaminosis or protein-denaturation with inflammation) in poor and tropical Sub-Saharan Africa (SSA). However, NCDs are decreasing in rich continents with Good Clinical Governance and personalized medicine (management = early etiology, diagnosis, treatment, and prevention on biomarkers). **Aim:** This was a lecture based a holistic, phenomenology, innovative, technological, multidisciplinary, interdisciplinary, translational, integrative, and collaborative approaches to characterize the epidemiology, the pathophysiology, the diagnosis, the treatment, the prevention, the prognosis,

KEYNOTE SPEAKERS

and the clustering of risk factors, and complications of NCDs in sub-Saharan of Africa. New paradigm shifts and strategies the theoretical framework included conceptual models and hypotheses to be tested according to following new paradigm shifts: Health (epidemiologic, demographic, and nutrition) transition, socio-political transitions (ethnic conflicts, wars, and forced migration), aging, infectious diseases, environmental factors (poor and inadequate health systems, pollution toxicity, climate change, climate variability-El NINO-LA NINO, floods, and drought), chaotic urbanization/westernization (lifestyle changes and quality of life), and exposome (inflammation-endothelial dysfunction-pro-oxidant/antioxidant-vitamins imbalances for words atherogenesis, oncogenesis, and complications) within sustainable peristalsis-non modifiable factors. **Results:** The magnitude of the burden of diseases in terms of ratio prevalence, incidence, and complications of NCDs were rare, emerging, and epidemic by pre-, intra-, and post-phases of health transitions, respectively. General population, work place, and hospital-based magnitudes were 28%, 67%, and 80%, respectively. Forced migration, food insecurity, dry season, low education, poverty, advanced phases of post-health transition/urbanization-westernization, managers, anxiety, depression, endothelial dysfunction, oxidative stress double burden of malnutrition, El Nino years, chaotic inflammation, infections (HIV, hepatitis C, *H. pylori*, sexually transmitted infections, cytomegalovirus, *Chlamydia pneumoniae*, and papillomavirus), renal failure discrimination, vision impairment amputation, hearing loss, aging, and mortality were most explanatory causes of the burden of NCDs. **Conclusion:** NCDs are current reality in SSA as a Mass problem of One Global Health. Personalized medicine and mathematical models had demonstrated the impact of aging, oxidative stress, health transition, chaotic urbanization, exposure to pollution, climate change, dry season, poverty, genetics, infections, malnutrition, and multimorbidity are clustering toward chronic NCDs thread in SSA.

Key words: Non-Communicable Diseases, Epidemiology, Biomarkers, Climate Change, Poverty, Sub-Saharan Africa

Biography

He holds a PhD degree in Physiology and Pathophysiology, DSc in Cardiology and MSc in Cardiology from Free University of Brussels, Belgium; and MMed in Internal Medicine, Diploma in Molecular Genetics, Certificate of Cardiovascular Epidemiology. Author of more than 300 scientific publications and 5 books. Expert of the WHO and Expert of United Nations in Climate Change and Environment. Former Visiting Professor at Baylor College of Medicine, Houston, Texas, USA. He was Former Dean of Faculty of Medicine at University of Kinshasa, DRC. Former Vice-Chancellor of University of Kinshasa, DRC. He has supervised 10 PhD students and 100 MSc students. He was Former Professor at University of Limpopo, Medunsa, Pretoria. Member of the New York Academy of Sciences, Fellow of American Heart Association, Fellow of American College of Cardiology, and Member of European Society of Cardiology. He was a Member of American Diabetes Association, Member of French Society of Cardiology, Member of Belgian Society of Cardiology, and Member of PAN African Society of Cardiology. Fields of Research: Epidemiology of Chronic Diseases including cardiovascular diseases, diabetes, and HIV/AIDS, impact of climate on Health, Tobacco Control, and Biostatistics and Modeling. Reviewer of 30 Journals. He was Former Member of Parliament, DRC. Ambassador for Peace.

Clinical Presentation and Consequences of Illegal Abortions: A Retrospective Review of Patients Presenting at Dora Nginza Hospital 2013-2016

Bezile Mawande Langa

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Background: Despite the achievements made by choice of Termination of Pregnancy Act 92 of 1996 to improve public access to abortion services in South Africa. It was noticed that there was a number of patients admitted to our gynecology wards after abortions done outside the hospital without following the procedure as provided by the act. A little is known about the profile, clinical presentation and outcome of such patients, which is what this study seeks to reveal. **Methods:** A retrospective, quantitative, and descriptive study of all 33 patients who met the inclusion criteria in patients admitted with induced abortions in Dora Nginza Hospital gynecological ward between January 1, 2013, and December 31, 2016, was done. **Results:** History: A typical woman who gets admitted at Dora Nginza hospital gynecological ward after an illegal termination of pregnancy is likely to be unmarried (85%), with a mean age = 23.6 years ($P < 0.05$), staying within 5 km from hospital (55%) mean = 7.19 km ($P < 0.05$) presenting at a mean gestational age = 19 weeks ($P < 0.05$) about 2.6 days ($P < 0.01$) after performing the termination her own home (67%), using misoprostol pills (94%) she received from a lay abortionist (58%). Examination findings: Generalized sepsis (18%), foul-smelling products (15%), and gangrenous cervix (6%). Outcomes: Uterus evacuation in theater (45%), hysterectomy (6%), ICU admission (3%), high care admission (21%), and blood transfusion (39%). **Conclusion:** Illegal abortions are a burden to our community and result in undesirable clinical outcomes. Measures to increase awareness, restrict misoprostol accessibility and increase law enforcement need to be applied.

Biography

Dr. Bezile Mawande Langa is a medical registrar at the Department of Obstetrics and Gynecology at Dora Nginza Hospital in Port Elizabeth since 2013. He holds an MBChB degree attained in 2007 from the University of Limpopo (Medunsa) and a postgraduate diploma in Obstetrics from the Colleges of Medicine of South Africa attained in 2011. He did his medical internship from 2008 to 2009 at the Port Elizabeth Hospital complex and in 2010 did community service at Frontier Hospital in Queenstown, South Africa. He is currently in the final year of study pursuing both Master of Obstetrics and Gynecology at Walter Sisulu University and the Fellowship in Obstetrics and Gynecology at the colleges of medicine of South Africa.

The Relationship between Quality of Life, Psychological Distress and Coping Strategies of Persons Living with HIV/AIDS in Cairo, Egypt

Salem Shalaweh^{1,2}, Walid Kamal³, Sumaia Jawad⁴, Nicolette Roman⁴

¹Department of Medical Biosciences, University of the Western Cape, Bellville, South Africa, ²Department of Laboratory Technology, Faculty of Medical Technology, Elmergib University, Libya, ³Director of National AIDS Program, Cairo, Egypt, ⁴Department of Social Work, University of the Western Cape, Child and Family Studies, Bellville, South Africa

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Background: HIV patients have many social problems like depression, which adversely affects their quality of life. HIV infection is linked to psychological distress such as anxiety. In terms of coping styles, avoidant emotion-focused strategies such as fatalism, wishful thinking, and self-blame are associated with higher levels of psychological distress in persons with HIV. In Cairo, Egypt, current services are not adapted to provide advice and psychological support to people living with HIV to help them develop problem-solving skills to cope with the stress of living with HIV. Yet, no studies have examined the relationship between quality of life, psychological distress and coping strategies of persons living with HIV/AIDS in Egypt. Therefore, the purpose of this study was to examine the relationship between quality of life, psychological distress and coping strategies of persons living with HIV/AIDS in Cairo, Egypt. **Methods:** This study used a quantitative methodology with a cross-sectional correlational design. The data were collected using quality of life enjoyment and satisfaction questionnaire, depression, anxiety and stress scale, and Cope Inventory. The sample consisted of 202 participants who accessed the National AIDS Program (NAP). The data were analyzed using the

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Statistical Package for the Social Sciences V23 (SPSS). **Results:** The results show that psychological distress and certain coping styles such as substance abuse and behavioral disengagement negatively predict the quality of life of patients with HIV/AIDS. Positive predictors included coping styles such as active coping, self-distraction, venting, positive reframing, humor, acceptance, and religion. **Conclusions:** It would probably be best to reduce psychological distress and increase coping styles to improve the quality of life of patients with HIV/AIDS.

Key words: HIV/AIDS, Psychological Distress, Coping Strategies, Social Problems

Biography

Salem Shalaweh has completed his PhD at the age of 32 years from University of the Western Cape and still busy with his postdoctoral studies. His MSc thesis was evaluated by renowned international examiners. He obtained his MSc degree with 82% (Cum Laude). Due to his high-quality MSc thesis, he was awarded another scholarship by his government to continue with PhD studies, allowing him to obtain PhD at a relatively young age. Furthermore, parts of his results have been published and awarded prizes already, as further exposure to highly ranked international conferences as well as new publications will significantly boost his scientific career.

Day 1: 27 November 2017

Morning Session

Time: 12:05-12:30

Cardiovascular Effects of the Organic Extracts of *Crinum macowanii*

Kenechukwu Obikeze

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Crinum macowanii has been used widely in traditional medicines for the treatment of various ailments including cardiovascular diseases. Previous studies have evaluated the effects of *C. macowanii* on the cardiovascular system, with increases in heart rate and decreases in systolic and diastolic pressures reported with the crude aqueous extracts in anesthetized normotensive rats. Hippadine, an alkaloid isolated from the plant has also been reported to produce a negative chronotropic and inotropic effect *in vitro* and to decrease blood pressure and heart rate *in vivo* in spontaneously hypertensive rats. No studies have, however, characterized the effects of the organic extracts of the plant on the cardiovascular even though alcohol is commonly used in preparations of the plant in traditional medicine. This presentation reports on the investigation of the *in vivo* cardiovascular effects of the organic extracts of *C. macowanii* in spontaneously hypertensive male Wistar rats. Fresh methanol bulb extract (50-300 mg/kg) was administered to spontaneously hypertensive male Wistar rats both alone and in the presence of phenylephrine (10-100 µg/kg), Angiotensin I (10-100 µg/kg), and Angiotensin II (10-50 µg/kg). *C. macowanii* produced dose-dependent decreases in systolic, diastolic and mean arterial pressure with all doses, without any significant effects on heart rate. The extract did not significantly attenuate the increase in blood pressure produced by phenylephrine and Angiotensin II, whereas increases induced with Angiotensin I were significantly reduced, suggesting the inhibition of angiotensin converting enzyme as the mechanism for the effect of the plant extracts.

Key words: *Crinum Macowanii*, Cardiovascular Diseases, Organic Extract, Angiotensin-Converting Enzyme I, Hypertension

Biography

Doctor Kenechukwu Obikeze holds a doctoral degree in Pharmacy from the University of the Western Cape. He has since 2009 lectured in pharmacology at the school of pharmacy, University of the Western Cape, where he is currently a senior lecturer. Dr. Obikeze's research focuses on the pharmacological; evaluation of traditional medicinal plants for cardiovascular activity using *in vivo* and *in vitro* techniques. He is also involved in the isolation and characterization of cardioactive compounds from traditional medicinal plants with the view to the discovery of novel compounds for application in the treatment of cardiovascular diseases. He has published in several reputable journals and acts a reviewer for three of these.

Comparison of Human Immunodeficiency Virus Type 1 Integrase-LEDGF/p75 Inhibitors through Hydrogen Amide Exchange

Angela T. Harrison^{1,2}, Salerwe Mosebi¹, Raymond Hewer³, Maria A. Papathanasopoulos²

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Human immunodeficiency virus type 1 (HIV-1) integrase (IN) facilitates the irreversible integration of the viral chromosome into host DNA. HIV-1 (IN) transport and DNA binding are aided by the host protein LEDGF/p75. Allosteric integrase inhibitors were found to inhibit LEDGF/p75-IN function by aberrant multimerization of IN. This study aimed to characterize three inhibitors of the LEDGF/p75-IN interaction and discern the mode of action of each. CX05168, a known ALINNI, was studied with two previously identified compounds; lovastatin and cefdinir. Inhibition of the LEDGF/p75-HIV-1IN interaction showed IC₅₀ values of 1.34 μM, 1.92 μM and 4 μM for CX05168, lovastatin and cefdinir, respectively. Amide hydrogen-deuterium exchange mass spectrometry was used to study the structural dynamics of IN in complex with each compound. CX05168 showed a significant reduction in hydrogen exchange at several amino acids correlating with X-ray crystallographic data. These amino acids do not form a part of the active site and therefore indicated allosteric inhibition. Lovastatin displayed reduced exchange at only two correlating amino acids whereas cefdinir showed no similarities in binding, suggestive of different modes of action. Further studies supported by dynamic light scattering experiments indicated a distinct mode of action where CX05168 showed multimerization of IN while both lovastatin and cefdinir lacked this ability. Furthermore, a melt curve analysis showed that CX05168 increased the stability of the IN while no increase in stability is observed with either lovastatin or cefdinir. Based on the above findings, we hypothesize that compounds disrupting the interaction between LEDGF/p75 and IN have different modes in eliciting their inhibitory effect.

Key words: LEDGF/p75, Human Immunodeficiency Virus Type 1 Integrase, CX05168, Lovastatin, Cefdinir, Hydrogen Amide Exchange, Allosteric Integrase Inhibitors

Biography

Angela Harrison is at the final stage of completing her PhD in Medical Biochemistry at the University of Witwatersrand medical School. From her honors in Biochemistry up to date, she has worked at Mintek Center for Metal-based Drug Discovery completing many projects in addition to her honors, masters and finally her PhD under the supervisor of Dr. Salerwe Mosebi, Dr. Raymond Hewer and Prof Maria Papathanasopoulos. She has been the prestigious winner of the AfricaBio schools competition 2 years in a row, received academic bursaries and scholarships during her studies as well as being a PDP candidate for the NRF. During her NRF internship Angela won second prize for the oral competitions where only 6 people were chosen to present from across the country. Her master's work was published and has 2 journals in progress for her PhD work. Angela has a passion for HIV research and plans to research botanicals for use in disease.

Increased Risk and Severity of Pre-eclampsia among Peri-urban Women in Kinshasa Province, Democratic Republic of Congo: The Role of Nutritional Transition, Obesity, and Dyslipidemia

Charles Bitamazire Businge¹, Benjamin Longo-Mbenza¹, Oladele Vincent Adeniyi², Victor Nzuzi Babeki³, Achille Kitambala Kaboka⁴, Moise Mvitu Muaka⁵, Mireille Solange Nganga Nkanga⁵, Christophe Masiala Tsoho⁶, Roland Vangu⁷, Emmanuel Mabiala Diambu⁵, Daniel Ter Goon⁸

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Background: The global obesity epidemic is on the increase, especially in developing countries with rapid nutritional transition and urbanization. Obesity is a modifiable determinant of pre-eclampsia. Pre-eclampsia is an independent risk factor for early cardiovascular disease in the mother and of metabolic syndrome in her progeny. **Methods:** This was a case-control study conducted in 2008 at LOMO Medical Centre, Kinshasa Province, Democratic Republic of Congo. The cases were 200 participants with pre-eclampsia and the controls 150 age-matched pregnant women without pre-eclampsia. Waist circumference, systolic and diastolic blood pressure, carotid intima-media thickness, serum lipids, C-peptide, and homeostasis-insulin resistance index (HOMA-IR) were measured. The mean values were compared across controls, mild pre-eclampsia, and severe pre-eclampsia using one-way analysis of variance. **Results:** There was a significant positive correlation between pre-eclampsia severity and most markers of metabolic syndrome with biologic gradient. The means \pm standard deviation (SD) for controls, participants with mild and severe pre-eclampsia, respectively, were body mass index (BMI) (Kg/m^2) 22.2 ± 5.5 , 24.1 ± 5.7 , and 25.6 ± 6.0 , $P < 0.0001$; total cholesterol (mg/dL) 105.0 ± 56.8 , 153.6 ± 63.1 , and 173.3 ± 60.1 , $P < 0.0001$; lactic dehydrogenase (mg/dL) 107.3 ± 3.4 , 112.2 ± 4.7 , and 122.6 ± 3.5 , $P = 0.006$; tumor necrosis factor- α (ng/L) 101.8 ± 4.8 , 103.1 ± 6.6 , and 137.7 ± 5.2 $P < 0.0001$; and HOMA-IR (mg/dl) 7.3 ± 0.9 , 8.3 ± 1.1 , and 11.3 ± 0.7 , $P < 0.0001$. There was a negative correlation between pre-eclampsia severity and high-density lipoprotein (mean \pm SD mg/dL) controls: 41.5 ± 3.2 , mild pre-eclampsia: 42.4 ± 4.7 , and severe pre-eclampsia: 29.4 ± 2.4 , $P = 0.003$. **Conclusion:** High BMI from the upper limit of normal increases the risk and severity of pre-eclampsia, which may increase the risk of subsequent chronic cardiometabolic diseases in the mothers and their progeny. Contrary to other studies, low-density lipoprotein was elevated among pre-eclampsia women in the study population.

Key words: Cardiovascular Diseases, Democratic Republic Of Congo, Dyslipidemia, Obesity, Pre-Eclampsia

Day 1: 27 November 2017

Afternoon Session

Time: 14:00-14:25

The Interactive Functionalities of Bacteria that Occur in the Rhizosphere between the Cowpea (*Vigna unguiculata* L. Walp) and Its Environment

M. Khantsi, O. O. Babalola

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Food security is not just about the availability of food but the consistent access to safe, healthy, and nutritious food. Cowpea (*Vigna unguiculata* [L.] Walp) is an important annual leguminous crop in semi-arid and tropics. It is an important source of protein, and therefore beneficial to cultivate as a nutritious food which contributes positively toward food security to many rural communities. The crop is mainly grown for human consumption and fodder for livestock feeding. The crop has good morphological and biochemical qualities which make it well adapted to the semi-arid and tropics. It shows a preference for sandy soils, which tends to be less restrictive on root growth, however, it has proved to be more tolerant to infertile and acid soils than many other crops. The interaction between the root exudates and the soil microorganisms also help in its adaptation to deal with biotic and abiotic stresses. Despite the fact that cowpea shows a preference for sandy soils, which tends to be less restrictive on root growth. It has proved to be more tolerant to infertile, dry and acid soils than many other leguminous crops and therefore known as one of the most drought-resistant food legumes. This study and presentation suggest that bacteria found in rhizosphere of the cowpea, in agriculture might prove beneficial toward crop production and conservation. Moreover, the isolates are likely to be potential candidates for biofertilizers, biocontrol, and biotechnological application of commercial value. This, along with other innovations could prove to be an environmentally friendly strategy to ensure sustainable agriculture.

Key words: Food Security and Safety, Cowpea, Bacteria, Sustainable Agriculture, Biotechnology

Biography

Motlagomang Khantsi has completed her degree of Master of Science in Biology (Cum laude) and is currently a PhD candidate in Biology under Natural and Agricultural Sciences specializing in Microbial biotechnology. She has published an article relating to her work and is in collaboration with the University of Alexandru Ioan Cuza in Iasi, Romania. She is a member of the Society of Microbiology and also a writing consultant at the University. Motlagomang is involved in the community engagement program assisting disadvantaged schools to improve their academic writing.

Key Ethical and Governance Considerations for Emerging Biobanks: A South African Perspective

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The South African National Biobank of the National Health Laboratory Service (NHLS Human Biobank) is a human biobank with a large scale storage capacity for human specimens ranging from biological fluids, tissues, and nucleic acids. This abstract aims to describe a number of ethical issues and limitations to consider where human research and biobanking are concerned. These include pre-collection, collection, pre-storage, storage, sharing, and post sharing aspects. An established basic guidance criterion for sampling, processing, and storage of biological materials ensuring that a targeted research population and the resultant data collection is achieved will also be described. All these elements lead to the biobanking matrix, which requires a full-scale consideration of these aspects to optimize the utilization of the stored material. Careful consideration by human research ethics committees is crucial particularly with clear consideration of pre- and post-research deliberations. Crucial aspects including relevance of informed consent, data confidentiality and donor protection, specimen ownership, donor discrimination, post-research and futuristic utilization, and material transfer benefit sharing as well as results communication should be well described and declared. The NHLS biobank applies a sample coding system that promotes participant confidentiality and information protection procedures. Data and sample protection is further enhanced through the use of an electronic access control system. Regulatory compliance in the National Biobank is maintained through compliance with the relevant national and international laws and continued collaborations with various stakeholders, which involves information sharing.

Biography

Mantombi Maseme is a medical scientist by profession and holds two B. Med. Sc. Honours degrees from the University of the Free State. Her career started at the National Health Laboratory Service (NHLS) Universitas Academic Hospital in Bloemfontein where she later completed her medical science internship in microbiology. Mantombi has been working in various positions as a medical scientist, with experience in routine laboratory diagnostics in line with Quality Management Systems (QMS) of medical laboratories as well as research positions. These include positions at the NHLS mycobacteriology referral laboratory in Braamfontein and a position at the National Institute for Communicable Diseases' (NICD) Special Bacterial Pathogens Reference Laboratory (SBPRL). Mantombi also spent 3 years in laboratory technical support and medical sales where she worked at Hain Lifescience South Africa and Aberrant Medical supplies, respectively. She is currently a medical scientist at the National Institute for Occupational Health's (NIOH) Biobank department and also a member of the NHLS National Steering Committee on Biobanking (NSCOB), NIOH research committee as well as the NIOH Gender at work committee. Her career interests are infectious disease and drug research as well as bioethics and health systems regulations.

24 Hour esophageal pH Studies in the Eastern Cape

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Background: Recent studies in rural Eastern Cape Province, South Africa, have shown an increased number of non-acid gastroesophageal reflux events and an increase in baseline gastric pH compared with other published series, and also evidence suggestive of duodenogastric reflux. This study examines esophageal pH in the same subjects. **Methods:** We carried out 24-h esophageal pH/impedance studies on 75 rural volunteers from Canzibe in the Eastern Cape of South Africa. Analysis was performed using computer software to determine percentage times of esophageal pH above 6, above 7, and above 8. **Results:** Percentage time with esophageal pH above 6 was 69.3/35.12/51.16 (upright/supine/total). Above pH7 percentage, time was 12.66/3.44/8.86. Above pH8 percentage, time was 0.48/0.21/0.37. These results are within the range of other published series. **Conclusions:** Baseline

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esophageal pH is not significantly affected by the increased numbers of non-acid gastroesophageal reflux events reported in this community. If there is a pathogenic effect of non-acid reflux in the Eastern Cape, it does not appear to be mediated through raised baseline esophageal pH.

Biography

Alastair Sammon is currently an Adjunct professor, Walter Sisulu University – South Africa. MB ChB 1971, and trained as a surgeon in Glasgow, Scotland. Medical Officer Sulenkama; Medical Superintendent, Tugela Ferry Hospital, South Africa. Consultant Surgeon, Umtata General Hospital, and Senior Lecturer in Surgery, University of Transkei 1981-88. Medical Officer in Charge, Chogoria Hospital, Kenya 1988-95. Locum Senior Lecturer University of Bristol 1995-99. Consultant General Surgeon, Gloucester, England 2000-2012. Volunteer Surgeon, Tanzania 2012-2014. Partnership since 1995 with Department of Physiology/Human Biology, Walter Sisulu University, on upper GI physiology and the etiology of cancer of the esophagus. Honorary Professor, Department of Human Biology, Walter Sisulu University, South Africa 2016-.

Day 1: 27 November 2017

Afternoon Session

Time: 15:15-15:50

Is Iodine Deficiency in Pregnancy Associated with Increased Risks and Severity of Subclinical Hypothyroidism, Pre-eclampsia and Future Cardiovascular Diseases?

Charles Bitamazire Businge¹, Benjamin Longo-Mbenza², Oladele Vincent Adeniyi³, Victor Nzuzi Babeki⁴, Achille Kitambala Kaboka⁵, Moise Mvitu Muaka⁶, Mireille Solange Nganga Nkanga⁷, Christophe Masiala Tsobo⁸, Roland Vangu⁹, Emmanuel Mabiala Diambu¹⁰

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Background: Iodine deficiency is one of the leading causes of hypothyroidism and affects about 2 billion people globally. Pregnancy exacerbates the degree of iodine deficiency and therefore increases the risk of subclinical hypothyroidism (SCH). Elevated thyroid-stimulating hormone (TSH) associated with SCH is a risk factor for oxidative stress, endothelial dysfunction and increased carotid intima-media thickness (cIMT). SCH is a known risk factor for pre-eclampsia. This study was conducted to ascertain the increased risks and severity of pre-eclampsia, sub-clinical hypothyroidism, and cIMT associated with iodine deficiency in pregnancy. **Methods:** This was a case-control study conducted in 2008 and managed at the Maternity Unit of LOMO Medical Centre, Kinshasa Province, DRC. The cases were 200 participants with pre-eclampsia. The controls were 177 age-matched pregnant women without pre-eclampsia who had complete data. cIMT, nitric oxide (NO), urinary iodine concentration (UIC), serum TSH, thyroxine (T4), and triiodothyronine (T3) were measured and compared across controls, mild pre-eclampsia cases, and severe pre-eclampsia cases using ANOVA. **Results:** There was a significant and negative correlation with the biologic gradient of mean UIC and NO; controls (mean \pm standard deviation [SD]) (UIC = 423.9 ± 13 μ g/L and NO 23 ± 1.5 g/L), mild pre-eclampsia (UIC = 309 ± 16 μ g/L, NO = 8.7 ± 1.3 μ g/L), and severe pre-eclampsia (UIC = 89 ± 2.4 μ g/L, NO = 3.2 ± 0.3 μ g/L) (ANOVA; $P < 0.0001$). However, there was a significant and positive correlation with the biologic gradient of mean TSH, T3, T4, and cIMT: controls (mean \pm SD) (TSH mIU/l = 2.7 ± 0.2 , T3 ng/L = 1.2 ± 0.02 , 1.5 ± 0.03 , T4 μ g/L = 9.9 ± 2.4 , and cIMT mm = 0.5 ± 0.03), mild pre-eclampsia (TSH mIU/l = 4.1 ± 0.3 , T3 ng/L = 1.3 ± 0.04 , T4 μ g/L = 10.7 ± 2.5 , and cIMT mm = 0.7 ± 0.05), and severe pre-eclampsia (TSH mIU/l = 6.6 ± 0.2 , T3 ng/L = 1.50 ± 0.03 , T4 μ g/L = 11.4 ± 2.7 , and cIMT mm = 0.7 ± 0.03) (ANOVA; $P < 0.0001$). **Conclusion:** Iodine deficiency, and its associated pro-oxidant subclinical dysthyroidism, is not only a risk factor for pre-eclampsia severity with cIMT vascular stiffness and oxidative imbalance-related to TSH and NO but also for future cardiovascular diseases among women of reproductive age.

Key words: Iodine, Thyroid-Stimulating Hormone, Subclinical Hypothyroidism, Carotid Intima-Media Thickness, Endothelial Dysfunction, Pre-Eclampsia

End of Day 1

Perceptions of the Humanities Students on the South African Labor Market

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This study aimed at finding the Rhodes University Humanities third-year students' perceptions on the South African labor market. Specifically, the study highlights the students' pessimistic and optimistic views about employment issues. This is an attempt to exteriorize internal conversations regarding their post-degree life, particularly looking at the value being placed on the humanities degree by the economy and government. The study was conducted through the use of the Marxist thought of alienation, where the chances of Humanities graduates being absorbed into the labor market are limited because the labor market is largely invested in STEM graduates. 3rd-year humanities students were used as participants to collect data. The study showed that the students needed more information to know about the South African labor market, to a larger extent.

Key words: Humanities, Labor Market, Student, Rhodes University

Biography

Lethubhle has completed her Honours Degree at the age of 24 years from Rhodes University. She is in the process of finishing her Master's degree at Rhodes University in Industrial and Economic Sociology.

Effective School-based Psychological Interventions on Violence

Jabulani Chitanga

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Violence in adolescent learners is a global concern and is evident in high schools (secondary schools) across the world. One of the current issues alerting both the media and parents on a global scale is the violent behavior among high school learners. It is against this background that a detailed analysis of the effectiveness of school-based psychological interventions on violence was conducted. The aim of this systematic review was to identify different types of effective psychological interventions on violence among high school learners. Reviewing was framed to address kinds and components of successful and effective interventions that are used in schools. Seven articles were included in the final analysis. A meta-synthesis review method was used, which narratively summarizes the overall findings of the studies. Findings showed that psychoeducation workshops, group counseling, and experiential exercises are used in violence prevention programs in high schools. All interventions studied in this report were successful in lowering violence. The report also highlights the importance of the intervention integrating with the semester framework of the school as well as teacher and principal cooperation and commitment. Cultural sensitivity and developmentally appropriate interventions were also highlighted as necessary for school-based violence prevention programs. All interventions discussed in the articles are applicable to the South African context. However, due to the fact that all interventions were conducted in developed countries, it would be ill-conceived to assume they could be implemented in South Africa. After this systematic review, it is, therefore, recommended that interventions in high school cannot be too rigid and should keep the participants in their natural environment so to best understand them. In addition, parent involvement in interventions might be even more challenging than developed countries, and literacy levels need to be kept in consideration when it comes to interventions involving reading and writing.

Biography

Jabulani Chitanga is a full-time Lecturer and Research Supervisor at Cornerstone Institute. He is also a part-time Lecturer at the University of the Western Cape where he is involved in facilitating Advanced Quantitative Techniques at Master's Degree level. He received his Bachelor of Science Honours in Psychology (University of Zimbabwe), BA Honours in Psychology (Cornerstone Institute), and Master of Arts in Research Psychology (University of the Western Cape). Mr. Chitanga's research interest for the

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past 3 years ranges from substance use among pregnant women, Academic Identity formation, Research Identity formation and Research Supervision. Mr. Chitanga is expecting to publish various research studies in peer-reviewed journals. He recently applied for PhD. Studies of which he is to start early 2018.

Day 2: 28 November 2017

Morning Session

Time: 11:40-12:05

Supporting Palliative Care of HIV Positive Pregnant Mothers using Smartphone Applications

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The increasing mobile phone penetration presents many opportunities for life-saving innovations and may present a unique support system opportunity for palliative care designed to support HIV positive pregnant women. Internationally, maternal health is a major concern, and it is also currently a priority in South Africa (Burton, 2013:520). There is a great need for palliative care for women who face a life-threatening illness such as HIV/AIDS during pregnancy (Simms *et al.*, 2011:749). The problems of facing a life-threatening illness are complex and varied, but for the pregnant mother who celebrates the giving of life at the same time, it is multifarious (Harding *et al.*, 2012). Being diagnosed with HIV or AIDS during pregnancy may cause great suffering (Stinson and Myer, 2012. p. 69). To the knowledge of the author, there is no palliative care app designed to support HIV positive pregnant women. The paper will present a complex literature review, which has been conducted in the areas of palliative care, mHealth, HIV, and maternal health to develop the user requirements for the development of this smartphone application. After analysis, themes of qualities and content emerged. Sub-themes of qualities include protects privacy, simple and easy to use, audiovisual, personalized, and promotes communication. Sub-themes of content encompass: Health information, coping strategies, dealing with issues created by HIV, effects of HIV on relationships, ventilating feelings and making sense of reality of diagnosis.

Key words: mHealth, Palliative Care, Human Immunodeficiency Virus, Maternal Health

Biography

After several years of clinical experience in palliative care nursing Helen Bunt completed her MCur degree at the University of Fort Hare. She initiated and managed an HIV care center for 4 years before joining the academic staff at Fort Hare. She has lectured there since 2013 and presently facilitates the postgraduate diploma in clinical management of HIV and AIDS. Helen has published one paper and is currently busy with her PhD.

Day 2: 28 November 2017

Morning Session

Time: 12:05-12:30

Use the Nanoparticles to Improve the Quality of Human Semen for Capacitation and Acrosome Reaction

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Reproductive problems such as poor quality or quantity of sperm, sexual dysfunction, hormone disorders are of great concern and cause considerable distress, anxiety and a decrease in sexual confidence, especially in males. Studies have shown that the malefactor contributes approximately 30–50% to fertility-related cases and that almost 50% of male infertility cases are classified as idiopathic. Human spermatozoa from a total of 25 semen samples were washed with human tubular fluid medium supplemented with bovine serum albumin and incubated for 2 h followed by incubation with different concentrations of nanoparticles and control for 1.5 h at 37°C. Samples were analyzed for calcium homeostasis, capacitation, sperm motility, reactive oxygen species modulation, and DNA-fragmentation as well as acrosome reaction. For Ca²⁺ flux studies, a high-throughput fluorescence Ca²⁺ flux assay was used. However, the technology targets 3–4 surface markers on sperm with nanomagnetic particles. These targets are apoptotic sperm, acrosome-reacted sperm, DNA fragmentation, and membrane-damaged sperm. After incubation at room temperature, the mixture

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of particles and sperm are placed against a laboratory magnet for removal of the targeted deficient sperm, the supernatant contains the viable sperm. In so doing, we enrich for viable non-DNA damaged sperm for use in *in vitro* fertilization.

Key words: DNA Fragmentation, Reactive Oxygen Species, Capacitation, Acrosome Reaction

Biography

Salem Shalaweh has completed his PhD at the age of 32 years from University of the Western Cape and still busy with his postdoctoral studies. His MSc thesis was evaluated by renowned international examiners. He obtained his MSc degree with 82% (Cum Laude). Due to his high-quality MSc thesis, he was awarded another scholarship by his government to continue with PhD studies, allowing him to obtain PhD at a relatively young age. Furthermore, parts of his results have been published and awarded prizes already, as further exposure to highly ranked international conferences as well as new publications will significantly boost his scientific career.

Day 2: 28 November 2017

Morning Session

Time: 12:30-12:55

Factors Associated with Consistent Condom Use among Women in Botswana

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Consistent condom use is effective in reducing sexual transmission of HIV. Botswana's HIV prevalence rates are high, and women are at greater risk of HIV infection. Therefore, this study aimed to assess the prevalence and associated sociodemographic and behavioral factors and gender attitudes of consistent condom use among women in Botswana. The study was a secondary data analysis using data drawn from a national cross-sectional Gender-Based Violence survey in 2011. The primary study employed multistage sampling, in which 55 primary sampling units (PSUs) and thereafter 20 households in each PSU were randomly selected. An eligible woman completed a standardized questionnaire from each selected household. Secondary data analysis was restricted to 480 sexually active women who were in a heterosexual relationship and reported condom use. Logistic regression analysis, accounting for clusters, was used to explore the association between consistent condom use and explanatory predictor variables. Approximately 43% of the women reported consistent condom use in the year before the survey. Consistent condom use was more likely if women were more educated and expressed high relationship power. However, women who were cohabiting with a partner ever physically abused by partner and had more sexual partners in the year preceding the survey. We conclude that women's risk of HIV may be heightened by gender power imbalances affecting sexual decisions.

Key words: Consistent Condom Use, Gender-Based Violence, Primary Sampling Unit

Biography

Chenai Mlandu, aged 29 years, is completing her Master of Science in Infectious Disease Epidemiology at the University of Witwatersrand. She is an environmental health officer by profession and has worked for an environmental consultancy firm for 2 years. Under this consultancy, she has conducted environmental impact assessments for various projects in mining, industry and water and sanitation. She is also well versed in occupational health and environmental management systems.

The Effectiveness of Intermittent Preventive Therapy With Sulfadoxine and Pyrimethamine on the Risk of Low Birth Weight in West Africa: A Systematic Review and Meta-analysis

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Background: Intermittent preventive therapy with sulfadoxine-pyrimethamine (IPTP-SP) used in the prevention of malaria in pregnancy (MIP) is the standard used in over 37 countries in Sub-Saharan Africa (SSA). With an increasing burden of MIP as well as the increased potential for *Plasmodium falciparum* resistance, there may be reason to believe IPTP-SP may no longer be effective in MIP prevention especially in holoendemic regions where there are high rates of transmission. The objective was to perform a systematic review and meta-analysis of randomized trials to determine whether IPTP-SP containing 2 or more dose regimens, remains effective in the prevention of adverse birth outcomes mainly low birth weight (LBW) as well as other outcomes, namely, parasitemia and maternal anemia among others, in pregnant women residing in West Africa. **Methods:** A search on the MIP library, pub med, Cochrane central and trials registries for randomized control trials conducted within the years of 2005-2015, which compared IPTP-SP with other MIP prevention prophylactic drug interventions, in the West African sub-region was done. Eligible studies included randomized control trials and observational studies with a strong comparative advantage between interventions. **Results:** Of the 59 studies, 10 trials of 15,936 pregnancies were included. The dichotomous outcome of LBW in the IPTP-SP groups was 930 events out of a total population of 8763 (relative risk [RR] = 0.93; 95% confidence interval [CI] = 0.75–1.14, I² = 75%) showing that IPTP-SP was associated with a decreased event of LBW babies. This association was relatively consistent with the other outcomes as pregnant women in the IPTP-SP groups had fewer incidences of maternal parasitemia at term (RR = 0.64; 95% CI = 0.39–1.06). A decreasing trend in the events of outcomes of interest was noticed overall in the IPTP-SP groups. **Conclusion:** Among pregnant women in West Africa, intermittent preventive therapy with 2 or more doses of sulfadoxine and pyrimethamine was associated with lower risk of LBW than other prophylactic drug intervention.

Key words: Malaria In Pregnancy, Adverse Birth Outcomes, Intermittent Preventive Therapy With Sulfadoxine-Pyrimethamine, West Africa

Biography

Emmanuel is a trained pharmacist with experience in malaria program implementation specializing in pharmacy informatics, pharmacovigilance/drug monitoring as well as M&E. He is currently enrolled as a student of the School of Public Health at the University of the Witwatersrand Johannesburg, South Africa, where he is pursuing a master in the field of Epidemiology and Biostatistics.

Increases in Carotid Intima-media Thickness Are Not as Extensive in Younger as Compared to Older Individuals with Stroke in Africa

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Background: Ischemic stroke occurs in those 15–20 years younger in Africa than in other regions (average age = 50 as opposed to 65–70 years). Whether this reflects the impact of a more rapid development of atherosclerosis following poorly controlled risk factors or a greater chance of arterial occlusion in the presence of a lower degree of atherosclerosis, is uncertain. **Methods:** We compared the extent to which carotid intima-media thickness (IMT) (B mode ultrasound) is increased in 66 patients <50 years of age and 71 ≥ 50 years of age of African descent with ischemic stroke who were identified as being human immunodeficiency virus-negative, admitted to a neurology unit in Gauteng. Comparisons were made with 842 age, sex-, and ethnicity-matched healthy participants selected from a community study (random selection). **Results:** The average age of stroke in those <50 years of age and ≥50 years of age was 37 ± 8 and 61 ± 9 years, respectively. As compared to age-matched controls (0.585 ± 0.105 mm), patients with stroke <50 years of age had an increased IMT (0.645 ± 0.122 $P < 0.0001$). Similarly, as compared to age-matched controls (0.722 ± 0.130 mm), patients with stroke ≥50 years of age had an increased IMT (0.835 ± 0.151, $P < 0.0001$). However, IMT was markedly lower in those with stroke who were younger as compared to older than 50 years of age ($P < 0.0001$). **Conclusion:** Although an increased carotid IMT associates equally as strongly with stroke in younger as compared to older age groups in Africa, the extent of the IMT change is markedly lower in younger as compared to older stroke patients. These data suggest that either age-related increases in IMT have little pathophysiological significance in Africa, or that younger patients with stroke in Africa may have a greater chance of arterial occlusion in the presence of a lower degree of atherosclerosis.

Biography

Mr P. Mabena holds a Biomedical Sciences and BSc Honours in Physiology from Walter Sisulu University (WSU). At present, he is doing his last year (2nd year) of Masters of Science in Medicine (Physiology) at University of the Witwatersrand (Wits). The masters research is focused in trying to identify those at risk of having a stroke at a younger age by using clinical approaches and equipment. The research interests currently are in the field of the Cardiovascular Pathophysiology with more focus on investigating and understanding the underlying causes and mechanisms of stroke incidents in younger individuals of African ancestry. The work done on the honors research project has been submitted for publication in the *Andrologia Journal*, the master's research work will also be sent for publication in one of the scientifically recognized journals soon. Mr P. Mabena is a student research assistant (2 years) at the Wits University and a senior physiology tutor (3 years) at the University of Johannesburg.

The Association between Mode of Delivery and Early Adulthood Overweight or Obesity in an Urban South African Birth Cohort

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Obesity is an important public health problem, and rates have reached epidemic proportions in many countries. Cesarean section (CS) as a mode of child delivery has been reported to be associated with a low bacterial richness that predisposes infants to be overweight or obese; this early life deprivation is presumed to persist to adulthood. The aim of this study was to determine if mode of delivery is a predictor of early adulthood overweight or obesity. A retrospective analysis of data that was collected from a prospective cohort study (Birth to Twenty Plus) established in 1990 was done. A total of 890 young adults aged 21–24 years were included in the analysis. Pearson's Chi-square and Kruskal–Wallis tests were used to assess associations between covariates and body mass index categories, and prevalence of overweight or obesity among young adults, and across mode of delivery categories. Multinomial logistic regression models were fitted to examine the association between mode of delivery and early adulthood overweight or obesity. Participants delivered through normal vaginal delivery and CS were 793 (89.1%) and 73 (8.2%), respectively. Overweight and obese young adults were 175 (19.6%) and 106 (11.9%), respectively. The results obtained showed that there was a slight increase in the odds of being obese in early adulthood, after adjusting for potential confounders, in CS-delivered participants (odds ratio = 1.92, 95% confidence interval = 0.93–3.94). However, the association was not statistically significant. Further studies are required in South Africa and Africa in general, using larger sample sizes, to test the association and explore mechanisms underlying the association.

Key words: Overweight Or Obesity, Cesarean Section, Bacterial Richness, Early Life Deprivation, Retrospective Analysis

Biography

Eniola Olufunmilayo Sogunle is a 2nd year MSc Epidemiology and Biostatistics at the University of the Witwatersrand, South Africa. At 19 years of age in 2014, she graduated from Lead City University Ibadan, Nigeria, with a BSc (Hons) in Microbiology and proceeded for a 1 year national service in 2015, after which she enrolled for her masters in 2016. Eniola is a young goal driven microbiologist, epidemiologist, biostatistician, project manager, and public health personnel, with budding interest in research and Public Health.

The Relationship between Religious Coping and Depression among People Living with HIV/AIDS: A Structural Equation Model

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Background: People living with HIV/AIDS (PLWHA) are at high risk of depression. Research from high-income countries suggests that in addition to pharmacological treatments, psychosocial interventions, e.g., religious coping could provide support for PLWHA who suffer from depression. We aim to examine the relationship between religious coping and reduction in depression symptoms in a sample from Uganda using generalized structural equation modeling (GSEM), a technique that has potential to explore mediators and latent confounders as well as quantify each of the factors' contribution to the covariance structure. This study thereby contributes to the biostatistical literature and our knowledge, is a first of its kind for the African continent. **Methods:** 1100 PLWHA were recruited from two HIV clinics in Uganda and followed over 12 months. Demographic details, psychological, and clinical data were collected. Our analysis is based on secondary, cross-sectional data of this sample using GSEM. Data were managed in Stata/IC version 14.1. **Results:** Our results suggest that stigma score, childhood trauma score, study site, marital status, negative life events, social support score, and socioeconomic status were significantly associated with depression. In addition, negative religious coping was associated with depression among PLWHA (adjusted odds ratio = 1.18, 95% CI = 0.99–1.40, $P = 0.061$). **Conclusion:** Religious coping may be associated with better coping strategies for PLWHA who suffer from depression. This strategy could be further explored in large epidemiological studies. Further, we see use for the GSEM approach in illuminating these relationships and would encourage biostatisticians to develop further analyses using this technique.

Key words: Religious Coping, Depression, People Living With Hiv/Aids, Structural Equation Modeling

Biography

Glory Chidumwa has just completed his Masters in Biostatistics at the age of 25 years from Wits University School of Public Health, hoping to start his PhD in Biostatistics in January 2018. He is one of the first four students to receive funding from the Wellcome Trust under the Sub-Saharan Africa Consortium for Advanced Biostatistics training (SSACAB). His research was entitled "Religious coping mechanism in reducing depression in PLWHA: Comparison of generalized structural equation modeling and logistic regression modeling." He is currently working as a biostatistics consultant at the Wits Faculty of Health Sciences research office where he provides statistical support in medicine for both students and staff. His interest is in statistical aspects of longitudinal and cluster randomized trials as well as modeling.

Exploration of the Underlying Inflammatory and Oxidative Stress Pathological Mechanisms in Pre-eclampsia Using Principal Component Analysis

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Background: As part of normal physiological changes of pregnancy, there is evolution of a mild systemic inflammatory response. This is characterized by progressive increase in serum inflammatory cytokines, which peak in the third trimester. It has been hypothesized that oxidative stress in the placenta in a previously normal woman or this normal physiological inflammatory response in a woman with pre-existing inflammatory conditions trigger an intense systemic response that leads to endothelial activation, dysfunction, and pre-eclampsia. The aim of the study was to identify the principal oxidative and inflammatory pathways that trigger the clinical manifestation of pre-eclampsia. **Methods:** This was a case-control study carried out in 2008 and managed at the Maternity Unit of LOMO Medical Centre, Kinshasa Province, DRC. The cases were 200 participants with pre-eclampsia. The controls were 150 age-matched pregnant women without pre-eclampsia who had complete data. Serum levels of high-sensitivity C-reactive protein (hs-CRP), ferritin, gamma-glutamyl transferase (GGT), rheumatoid factor, CRP, thyroid-stimulating hormone (TSH), selenium, nitrate oxide (NO) and urinary iodine concentration were measured and compared between controls and women with pre-eclampsia using ANOVA. Then, principal component analysis was performed to delineate the patterns of association between the inflammatory and oxidative markers, which had significant association with pre-eclampsia. **Results:** The mean values of the biomarkers for cases and controls, respectively, were: hs-CRP 6.0 ± 3.1 and 4.1 ± 2.1 ; ferritin 258.8 ± 123.8 and 168.8 ± 92.8 ; GGT 91.2 ± 36.3 and 51.9 ± 43.5 ; rheumatoid factor 48.9 ± 40.3 and 24.0 ± 31.5 ; CRP mg/dL 49.3 ± 18.0 and 30.0 ± 19.1 ; TSH miU/L 6.0 ± 2.6 and 2.8 ± 2.3 ; selenium $\mu\text{g/L}$ 19.04 ± 24.8 and 62.7 ± 54.8 ; NO $\mu\text{mol/L}$ 4.7 ± 6.6 and 23.0 ± 18.9 ; urinary iodine excretion $\mu\text{g/L}$ 145.9 ± 119.1 and 423.9 ± 159.3 ; and T3/T4 ratio 0.131 ± 0.160 and 0.118 ± 0.120 ($P < 0.0001$ for all biomarkers). The main pathophysiology pathways identified were low serum selenium, low NO, low urinary iodine excretion, and elevated serum TSH (endothelial dysfunction); elevated serum ferritin, GGT, CRP, and low urinary iodine excretion (inflammatory oxidative stress); elevated serum hs-CRP and rheumatoid factor (sub-clinical inflammation and immune cell activation), and high T3/T4 ratio (acute TSH stimulation of thyroid with low thyroid iodine stores). **Conclusion:** Combined selenium and iodine deficiency resulting into elevated TSH, low NO, and preferential T3 secretion; acute inflammatory conditions associated with elevated CRP, serum ferritin and GGT, and subclinical inflammatory conditions characterized by autoimmunity are some of the major oxidant and inflammatory pathways associated with increased risk of pre-eclampsia. Nutritional and pharmacological interventions may reduce the incidence of pre-eclampsia in the study population.

Key words: Oxidative Stress, Iodine, Selenium, Ferritin, C-Reactive Protein, Pre-Eclampsia

Phytochemical and Biological Screening of 36 Plant Species used Against Tuberculosis in Lubumbashi

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Background: One of the WHO's goals for 2014–2023 is to promote safe and effective use of traditional medicine because plant species used are an important source of research for new molecules and antituberculosis drugs. The aim of the study was to evaluate the antimycobacterial activity of 36 plants used in Lubumbashi against tuberculosis and to identify some bioactive substances groups. **Methods:** The antimycobacterial activity of methanolic extracts was evaluated by the proportion method in liquid, and solid medium (Canetti *et al.*, 1963) with slight modifications and the Heifetz technique (1988) was used to dilute extract solutions. The bactericidal activity of these extracts on *Mycobacterium smegmatis* was evaluated. Conventional coloring, precipitation, and foaming methods were used for chemical screening. **Results:** A total of 688 tests of the chemical screening were carried out to seek groups of bioactive substances in plant studied. Tannins (93%) and saponins (88.4%) were the most abundant chemical substances, while quinone (20.9%) and alkaloids (17.4%) were the least represented. For the biological screening, 313 sensitivity tests were performed, 20 of which were active at 1 mg/mL; 13 active extracts at 0.1 mg/mL; 8 active extracts at 0.01 mg/mL; 2 active extracts at 0.001 mg/mL, and an active extract at 0.0001 mg/mL. *Pavetta schumanniana* leaves (0.0001 mg/mL) and *Acacia sieberiana* stem bark (0.001 mg/mL) were the most active plant studied. **Conclusion:** Plants studied were found to be active *in vitro* against *Mycobacterium smegmatis* and would be active against *Mycobacterium tuberculosis*. The groups of bioactive substances found in these plants would justify their use in traditional medicine.

Key words: Antimycobacterial, Chemical Screening, Bioactive Substances, Tuberculosis

Serum Potassium/Magnesium Ratio, Urinary Iodine Concentration, Thyroid-stimulating Hormone, Fasting Plasma Glucose, and the Oxidized low-density Lipoprotein/Albumin Ratio: Potential Biomarkers for Prediction of Pre-eclampsia

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Background: Several biomarkers have been studied in an attempt to identify women at high risk of pre-eclampsia and intervene to reduce the risk of related adverse outcomes. However, only a few have shown acceptable performance. We investigated possible biomarkers from routine clinical tests, and those specific to micronutrient and macronutrient malnutrition, in relation with risk of pre-eclampsia. **Methods:** This case–control study included participants recruited at the LOMO Medical Centre, Democratic Republic of Congo. They were 200 participants with pre-eclampsia and 150 age-matched pregnant women without pre-eclampsia. Trained nurses collected data according to standardized procedures. Blood samples were assayed immediately to measure the full blood count, urea and electrolytes, high-density cholesterol, total cholesterol, triglycerides, low-density lipoprotein (LDL), oxidized low-density lipoprotein (oxLDL), and c-peptide; urinary iodine concentration (UIC) determined. **Results:** The serum potassium/magnesium ratio (K⁺/Mg²⁺), UIC, fasting glucose, thyroid-stimulating hormone (TSH), lymphocyte white blood cell percentage (L/WBC%), and the oxidized LDL/albumin ratio (OxLDL/Alb) were identified as the independent predictors of pre-eclampsia. Their respective areas under the receiver operating curve, cutoff values, sensitivity, and specificity were K⁺/Mg²⁺: 0.973, 22, 93%, and 95%; UIC: 0.920, 239 µg/L, 98%, and 80%; fasting glucose: 0.860, 95 mg/dL, 81.2%, and 91.3%; TSH: 0.812, 3.9 mIU/L, 78%, and 73%; L/WBC%: 23.5%, 0.773, 72.7%, and 63%; and OxLDL/Alb: 0.746, 7.0, 80%, and 65%. **Conclusion:** The serum K⁺/Mg²⁺ and other analytes, some of which are easily acquired in routine practice, reflecting various biological processes, had good performance at predicting prevalent pre-eclampsia.

Key words: Pre-Eclampsia Prediction, Biomarkers, Potassium/Magnesium Ratio, Urinary Iodine Excretion, Fasting Plasma Glucose, Thyroid-Stimulating Hormone

Modification of Nugent's Method for Diagnosis of Bacterial Vaginosis Considering the Cutoff Point

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Bacterial vaginosis is a disease affecting many women all over the world, being asymptomatic or symptomatic. The aim of this study was to assess the diagnostic performance of Nugent's method to improve its accuracy in diagnosing bacterial vaginosis. For this quasi-experimental study, vaginal swab from 105 women attending Nelson Mandela Academic Hospital in 2014 was used. Specimens were processed according to the standard ethics. Agreement kappa was used to determine concordance between these two methods. A total of 33 patients were found positive, 27 intermediate, and 45 negatives for bacterial vaginosis. Receiver operating characteristic curve was used to determine the optimal cutoff point of Nugent, total score of ≥ 5 discriminated presence of bacterial vaginosis (positive + suspect of Claeys diagnosis), sensitivity was 66.7%, specificity 66.7%, positive predictive value (PPV) 72.7%, negative predictive value (NPV) 60% of the Nugent's score compared to the Claeys, respectively. Changed optimal cutoff point to ≥ 3.5 altered sensitivity to 81.7%, specificity 63.3%, PPV 65.3%, and NPV 63.3%, again new cutoff point of ≥ 3 changed sensitivity to 93.3%, specificity 37.8%, PPV 66.7%, NPV 81%, and agreement kappa 0.333. Since intermediate was difficult to interpret, intermediate patients were removed, left only with positive and negative, resulting in $P < 0.0001$, agreement Kappa 0.413, sensitivity 75.8%, specificity 66.7%, PPV 62.5%, NPV 78.9%, area under the curve 0.766%, confidence interval of 0.661–0.810, and SE of 0.053. The diagnosis of bacterial vaginosis by two methods after exclusion of intermediate patients showed good agreement, sensitivity, specificity, PPV, and negative predictive value.

Key words: Bacterial Vaginosis, Agreement Kappa, Diagnosis, Nugent's Method, Claeys' Method

Ethnobotanical Survey of Some Vegetal Species used Against the Tuberculosis in Lubumbashi and its Surroundings

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Context: The tuberculosis upsurge and the resistant strains emergence to standard treatment is more than disturbing. Therefore, finding further new compounds more effective than existing is important for achieving the WHO objectives. This ethnobotanical study allows to inventory plant used in the traditional medicine against tuberculosis by traditional healers of Lubumbashi and its surroundings. **Methodology:** An ethnobotanical survey was carried out by direct interviews with resource persons to identify the plants used against tuberculosis in Lubumbashi and its surroundings. **Results:** The survey was conducted among 47 persons, their age ranged from 33 to 63 years, with sex ratio men/women of 6.8. All consulted traditional healers speak Kiswahili (100%), 51% also speak Kiluba, and 27% speak also French. These 47 species are spread in 26 families including *Fabaceae* (17.2%), *Euphorbiaceae* (10.67%), and *Annonaceae* and *Moraceae* (8.51% each). Leaf is the most organ used (44%), while the decoction is the main mode of drug preparation (47%). The main administration route is oral (79%). Respiratory pathologies (cough [61.82%], tuberculosis [32.73%], asthma [3.64%], and bronchitis [1.82%]) are the most frequently treated by these plants with a frequency of 31% compared to other pathologies. **Conclusion:** This ethnobotanical survey showed that traditional medicine of Lubumbashi and its surroundings is treating tuberculosis and other respiratory diseases. Thus, the next step of this research could be concerned with phytochemical and biological screening of those plants surveyed to justify their use in the treatment of tuberculosis

Key words: Ethnobotanical Survey, Medicinal Plant, *Mycobacterium Tuberculosis*, Haut-Katanga

Outcomes and Risk Factors Associated with Drug-Resistant Tuberculosis in Mthatha, South Africa

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Background: Tuberculosis (TB) is the leading cause of death in South Africa. With the emergence of multidrug-resistant (MDR) and extensively drug-resistant (XDR) strains, TB has become an even greater threat. The overall aim of this study was to investigate the resistance pattern of anti-TB drugs in *Mycobacterium tuberculosis* as well as to determine the associated risk factors and outcomes for MDR/XDR-TB. **Methods:** This study was an observational descriptive study, conducted in 2 sub-districts of EC province. Samples from presumptive DR-TB patients were transported to the laboratory daily. Laboratory testing was done using genotypic (LPA) and phenotypic (MGIT 960) methods. Potential risk factors were assessed using logistic regression, and odds ratios (OR) with corresponding 95% confidence interval (CI). Continuous variables were expressed as mean \pm standard error of the mean and categorical variables were expressed as a proportion (%). The level of significance was fixed at $p < 0.05$, SPSS version 22.0 was used for all statistical analyses. **Results:** A total number of 224 patients were enrolled in the study. The mean age of participants was 38.2 (± 1.01) years. Men accounted for 55.4% and females for 44.6%. 76 (33.8) were HIV negative, and 146 (65.8) were HIV positive. Out of 224 TB isolates obtained, 110 (48.9%) were MDR-TB, and 24 (10.7) were Pre-XDR and XDR-TB. Although 51 (78.5%) of MDR-TB patients had a favorable outcome post anti-TB therapy as compared to 9 (64.3%) of XDR-TB patients (OR = 2.02; CI: 0.58–7), this difference did not achieve significant result ($P = 0.26$). While 61 (64.9%) of MDR-TB patients were newly diagnosed cases, previous exposure to anti-TB therapy was found to be a significant risk factor for developing pre-XDR and XDR-TB (OR = 2.59; CI: 1.04–6.5). HIV status, CD4 count, VL, and demographic factors were not significantly associated with the development of DR-TB. **Conclusion:** DR-TB remains a major challenge in South Africa; previous exposure to anti-TB therapy is the main risk factor for the development of XDR-TB. The management of this latter is poor.

The Pattern of Transaminase Abnormality among HIV and Hepatitis B virus Coinfected Women on Antiretroviral Treatment in Lilongwe, Malawi

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Background: Hepatitis B and antiretroviral treatment (ART) have been established to cause liver damage. We compared the changes in the levels of alanine aminotransferase (ALT) in hepatitis B virus (HBV)/HIV coinfecting and HIV infected women on ART to determine liver disease among women on ART in Lilongwe Malawi using Data from the BAN study. **Methods:** We conducted a secondary data analysis from The BAN study to investigate the changes in the levels of ALT among HIV/HBV coinfecting and HIV mono-infected women who were randomized into the maternal ART arm. In brief, The BAN study assessed the benefit of nutritional supplementation given to women during breastfeeding, the benefit and safety of antiretroviral medications given either to infants or to their mothers to prevent HIV transmission during breastfeeding and the feasibility of exclusive breastfeeding followed by early, rapid breastfeeding cessation. ALT was monitored up to 48 weeks with an average of 12 follow-ups per individual. Continuous variables, i.e., age, ALT, and CD4 count were compared between HIV/HBV coinfecting women and HIV mono-infected women using the Wilcoxon rank-sum test. Multiple regression analyses were performed using longitudinal data Generalized Linear mixed models to evaluate the relationship between ALT and HIV/HBV coinfection, among HIV-infected women, controlling for ART regimen, CD4 count and visit. All individuals were included in the analysis regardless of the different numbers of follow-up visits. **Results:** The study subjects comprised 544 women of whom 5.6% were HIV/HBV coinfecting. The age range of the study population was 16–45 years. Median age at enrolment was 26 (interquartile range: 22–29). The median ALT enzyme level of HIV/HBV coinfecting individuals was slightly higher at baseline (13 UI/L [10–16] vs. 14 UI/L [11–18, $P = 0.10$]) and at the past follow-up (17 UI/L [14–22] vs. 19 UI/L [16–26, $P = 0.04$]) compared to HIV mono-infected counterparts. HIV/HBV coinfecting women were

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3.28 times (1.43–9.03 $P = 0.01$) more likely to have abnormal ALT, compared to their mono-HIV infected counterparts. Individuals that were initiated on Nelfinavir as first-line ART were 3.22 times (1.85–5.59 $P = 0.001$) more likely to have elevated ALT compared to those that were initiated on LPV/r based regimen. Moderately immune-suppressed women (CD4 count of between 200 and 500 cells/dl) were 0.38 times less likely to have elevated ALT (0.15–1.00) while women who were severely immune suppressed had 3.51 times more likely to have abnormal ALT. Overall, there was an increase in the level of ALT per each subsequent visit.

Conclusion: Individuals coinfecting with HIV/HBV generally had higher levels of ALT compared to HIV mono-infected individuals and this increased over time. The current study suggests that monitoring of ALT in patients coinfecting with HIV/HBV on ART should be performed regularly, and the caution should be taken when prescribing first-line ART.

Correlations of Dried Blood Spots and Dried Plasma Spots as Sources of Material for Quantification of HIV-1 RNA

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Dried blood spots (DBS) have been used as sources of material for HIV quantification increasing access to HIV viral load (VL) monitoring. However, DBS have been observed to be less sensitive, provide inconsistent results and varies among VL platforms. Dried plasma spots (DPS) may be an interesting alternative to the conventional DBS for periodic VL testing. We aimed to assess the correlation of DBS and DPS as sources of material for HIV quantification using Abbott m2000rt. In this prospective study, whole blood samples were collected from a total of 150 participants on antiretroviral therapy in Northern Malawi regardless of gender and sex. These participants were either on the first line or second line therapy. For each sample, a DBS were prepared first, and then after centrifugation, a DPS pair was prepared from the plasma. The nucleic acid extraction from DBS and DPS was performed automatically using the Abbott m2000sp instrument, and the VL was measured in parallel using the Real-time HIV-1 VL assay. The overall correlation value for individual DBS/DPS sample pairs was good ($R^2 = 0.92$). The correlation increased with increasing VL for individual paired samples, and the correlation was incredible for samples with $>100,000$ copies/ml ($R^2 = 1$). The RNA pick up rate of DPS was 94.5% for samples with detectable RNA and 84% for samples with undetectable VL. Therefore, DPS may alternatively be used as sources of material for quantifying HIV VL on Abbott Real-time HIV-1 assay.

Key words: HIV, Viral load, Quantification, Dried Blood Spots, Dried Plasma Spots

Biography: Wakisa Kipandula is a PhD student at the University of Malawi, College of Medicine and a lecturer in the Department of Medical Laboratory Sciences at the College of Medicine.

Evaluation of Hepatic Function of Hepatitis C Antibodies Positive Patients in Community Area: Case of Ottou Village-Yaounde

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In Cameroon, the prevalence of hepatitis C virus (HCV) is higher than hepatitis B virus (HBV) (13% against 12.2%). In community area, if positive to HCV antibodies (immunochromatography or ELISA), it is recommended a confirmation by HCV viral Load, only done by a reference laboratory and judged most often expensive by the patients in addition of a long time waiting results. This situation increases the number of lost to follow-up, patients early diagnosed HCVAc positive who vanished without HCV RNA confirmation and come back generally later on at the last stage of the disease with severe hepatic complications. Normally, the kinetic dosage of transaminases (serum glutamic-oxaloacetic transaminase/serum glutamic pyruvic transaminase), easily accessible, is launched after HCV RNA confirmation. This cross-sectional, prospective study at Ste Monique pediatric and gynecologic Health Centre was to evaluate the liver function of patients with positives HCV at otou villages, Yaounde. Hence, HCV antibodies (immunochromatography), hepatitis B surface antigen (immunochromatography), high blood sugar (one touch glucometer), the kinetic titration of alanine aminotransferase (ALAT)/aspartate aminotransferase (ASAT) were simultaneously done to each participant. Significant threshold was 5%. From December to February 2017, 102 residents were enrolled, mean age was 38.39 ± 1.98 (min 12; max 72). The prevalence of HCV antibodies was 15.68% (16/102) with a dominance of women 17.86% (15/84). In addition, patients aged [52; 72] 38, 46% (5/13), widows, and single had the highest prevalence of HCVAc. 40.26% of the study population suffered from hepatic failure (couple ASAT+ALAT abnormal). Besides, liver failure touched 66.67% HCVAc positives subjects against 33.87% HCVAc negatives one ($P = 0.02$). Furthermore, the hepatic function was gradually destroyed with age ($P = 0.028$), and subjects aged (52–73) were the most involved. 59.80% (61/102) had a ASAT/ALAT quotient >2 (probably alcoholic liver failure) while 30.39% (31/102) was suffering from acute liver failure (ASAT/ALAT quotient <1). We conclude that the presence of HCV antibodies and the age of the participants are a significant factors of hepatic failure. Hence, it would be judicious in a community context to be more vigilant on hepatic function of HCV antibodies positives, especially aged subjects with or without HCV viral load confirmation results.

Key words: Hepatic Function C, Hepatitis C Antibodies, Community Area

Biography

Kamga Wouambo Rodrigue has completed his master degree this year at the age of 28 and expected for a PhD at Faculty of medicine and pharmaceutical sciences, University of Douala. He is a lecturer at the Estuary Academy and Strategic Institute, Institut des Sciences Appliquées à la Santé, University of Buea (IUES/INSAM/ISSAS). Junior scientist with many abstracts and oral presentations at the International conference such as AFRAVIH-Montpellier 2014, 11th African International Venue of technical biology-Yaounde 2015, Cameroon Health Research Forum CHReF-Yaounde 2016, African Society for Laboratory Medicine ASLM-Cape Town 2016, ICASA-Abidjan 2017. In addition, I am henceforth a Consultant at Saint Paul Paramedical Institute, a Lab technician training school.

Are Berries Can Prevent Cancer?

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Cancer is a disease in which there is an uncontrolled multiplication and spread within the body of abnormal forms of body's own cells. Cancer is the leading cause of death worldwide and one of the major threats to public health in the developed world and increasingly in the developing world. "Prevention is better than cure," is an old proverb and prevention of cancer is a worthy goal as it would significantly improve health worldwide and cut costs for health-care providers. Many studies have suggested that the phytochemical content and corresponding antioxidant activity of fruits and vegetables have protective effect against many chronic and degenerative diseases including cancer. The major compounds to demonstrate chemopreventive property *in vitro* are the anthocyanins, flavanols, and polyphenols. Ellagic acid (EA) is a polyphenol which inhibits neoplastic growth through independent and synergistic mechanisms. The hydrolysable ellagitannins (ET) undergo enzyme controlled condensation reactions and produce EA, one of the main anticancer moieties, particularly available as a high concentration in berries. In this study, cancer cell cultures such as colorectal (DLD-1), lung (A549), and breast (MDAMB231) were used. Standard cell culture techniques together with MTT cytotoxicity, Lowry and Trypan Blue exclusion assays were used to determine the cytotoxicity. Cell growth inhibition was considered in terms of viability, cell number, and protein content. All of the human cell lines responded to EA treatment by decreasing cell growth. It was discovered that with the type of cancer cell under investigation the efficacy of EA and berry extracts alters producing a spectrum of sensitivity A549 >MDAMB231 >DLD-1. Research to date has produced encouraging data and helped toward a better understanding of the benefits in a diet rich with berries. The ideal chemopreventive agents should have few side effects, high efficacy against multiple sites, effectiveness at achievable dose levels, activity following oral consumption, a known mechanism of action, low cost, history of use by the human population, and general human acceptance. Therefore, it is reasonable to consider the chemopreventive agents like ET rich berries. The results of the research in cell cultures with EA are promising, and further research is needed to confirm the benefits and the exact mechanism of action. Ultimately, perhaps we can change the proverb to "A few berries a day, keep cancer away."

Impact of Irregular Antibodies in Post-transfusion Reaction among Hemodialysis Patients of General Hospital of Yaounde

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Anemia due to a deficit of erythropoietin production still remains one of the main problems of kidney failure patients, leading all the time to an iterated blood transfusion. Like any transplantation, the complications of blood transfusion could be disastrous because “zero risk” does not exist. In Cameroun like in many underdeveloped countries, the phenotype of packed red blood cells and the research of post-transfusion irregular antibodies are not until now systematically done. Hence, risk of alloimmunizations reactions still exists as a potential problem. This survey conducted on September–November, 2015 at the hemodialysis health-care service of the General Hospital of Yaounde (GHY) was to find alloimmunization reaction among hemodialysis patients. Blood group/Rhesus phenotypage was done at the GHY and the research of irregular antibodies (automat FREELYS NANO®) at the blood bank of the Yaounde Gynecologic and Pediatric Hospital. $P > 0.05$, the difference was statistically significant. 110 hemodialysis subjects (63.6% of men, 36.4% women), who have already received at least one blood transfusion, was enrolled, mean age was 46.8 ± 1.5 [min: 16, max: 65]. Patients aged (51–60) were the most represented with 30% (33/110). Besides, 46.4% (51/110) got irregular antibodies with about 80.4% (41/51) with antecedent of post-transfusion reaction. AB group was presenting the most irregular antibodies 100%, followed by the group O with 42,62% (26/61). Rhesus system was more represented than the other erythrocytes blood group with 43% against 29% for Kell group. 50% (41/82) of subjects with post-transfusion reaction got at least one irregular antibodies. There was no association between post-transfusion reaction and irregular antibodies or between clinical signs of post-transfusion reaction and the presence of irregular antibodies ($P > 0.05$) in a nutshell, this high prevalence of irregular antibodies (46.36%) leads us to recommend a phenotypage of donor/receiver and an immunologic follow-up to be systematically done to avoid inefficient transfusion.

Keys words: Irregular Antibodies, Post-Transfusion Reaction, Kidney Dialysis

Biography

Kamga Wouambo Rodrigue has completed his master degree this year at the age of 28 and expected for a PhD at Faculty of medicine and pharmaceutical sciences, University of Douala. He is a lecturers at the Estuary Academy and Strategic Institute, Institut des Sciences Appliquées à la Santé, University of Buea (IUES/INSAM/ISSAS). Junior scientist with many abstracts and oral presentations at International Conference such as AFRAVIH-Montpellier 2014, 11th African International Venue of technical biology-Yaounde 2015, Cameroon Health Research Forum CaHReF-Yaounde 2016, African Society for Laboratory Medicine ASLM-Cape Town 2016, ICASA-Abidjan 2017. In addition, I am henceforth a Consultant at Saint Paul Paramedical Institute, a Lab technician training school.

Renal and Hepatic Function of Illicit Drugs Users in Yaounde-Cameroon

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The consumption rate of illicit drugs in low- and middle-income countries is permanently increasing. In Cameroon, for example, this worrying phenomenon touches more and more the young generation, with consequences such as early damages of body's function. While liver is considered as the excellent metabolic center, the kidney seems to be the perfect filter clearing away the blood from toxic waste. This cross-sectional, prospective study conducted at LAMA laboratory-Cameroon on March-June 2017 was to evaluate the impact of illicit drugs use on renal and hepatic function. Hence, the Illicit drugs detection (immunochromatography), research of hepatitis B virus surface antigen, hepatitis C virus Ac (immunochromatography), high blood sugar (one touch glucometer), the kinetic titration of alanine transaminase (ALAT)/aspartate aminotransferase (ASAT), uree/creatinine, and an estimation of glomerular filtration rate estimating glomerular filtration rate (eGFR) (modification of diet in renal disease-study-equation) were simultaneously done to each participant. Significant threshold was 5%. We enrolled 60 positives illicit drugs users, mean age: 27.47 ± 0.99 years (min: 15; max: 65). A predominance of young aged (15; 25) was observed. Men were the most represented 80% (48/60) against 20% of women. Cannabis 23.33% (14/60), Benzodiazépine, and the mixture of 2 or more than 2 illicit drugs were the most consumed. We noticed that the consumer's and drugs consumption's rate decreased with the age of participants. Furthermore, 20% of participants (couple ALAT + ASAT abnormal) were suffering from hepatic failure with majority frequently consuming illicit drugs mixtures. Hepatic failure seemed increasing with the age of participant ($P=0.66$). Moreover, 18.33% (11/60) showed kidneys failure (eGFR < 90) with 90.9% (10/11) of chronic renal impairment (60 < eGFR < 90) and 9.1% (1/11) of severe renal failure (eGFR < 15). Sex has been incriminated as a significant risk factor of renal dysfunction among illicit drugs consumers ($P=0.02$). In a nutshell, we recommend to avoid illicit drugs consumption especially drugs mixtures. Renal and hepatic function of drugs addicted patients should be frequently controlled, and people should be more sensitized to the hepatic and renal damages of illicit drugs consumption.

Key words: Consumers, Illicit Drugs, Hepatic, Renal Function

Biography

Kamga Wouambo Rodrigue has completed his master degree this year at the age of 28 and expected for a PhD at Faculty of medicine and pharmaceutical sciences, University of Douala. He is a lecturers at the Estuary Academy and Strategic Institute, Institut des Sciences Appliquées à la Santé, University of Buea (UES/INSAM/ISSAS). Junior scientist with many abstracts and oral presentations at International Conference such as AFRAVIH-Montpellier 2014, 11th African International Venue of technical biology-Yaounde 2015, Cameroon Health Research Forum CaHReF-Yaounde 2016, African Society for Laboratory Medicine ASLM-Cape Town 2016, ICASA-Abidjan 2017. In addition, I am henceforth a Consultant at Saint Paul Paramedical Institute, a Lab technician training school.

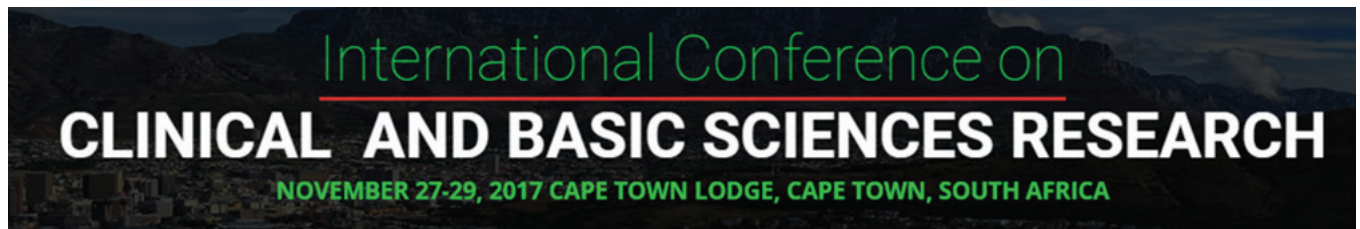
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