Yogandree Ramsamy

EMPIRICAL ANTIMICROBIAL THERAPY FOR PROBABLE V. DIRECTED THERAPY FOR POSSIBLE VENTILATOR-ASSOCIATED PNEUMONIA IN CRITICALLY INJURED PATIENTS

Yogandree Ramsamy, David James Jackson Muckart, John Lambert Bruce, Timothy C Hardcastle, Khine Swe Swe /Han, Koleka Patience Mlisana

ARTICLE in SOUTH AFRICAN MEDICAL JOURNAL = SUID-AFRIKAANSE TYDSKRIF VIR GENEESKUNDE 106(2):196 · JANUARY 2016 with 17 READS

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ABSTRACT: Background. Ventilator-associated pneumonia (VAP) has recently been classified as possible or probable. Although direct attributable mortality has been difficult to prove, delay in instituting appropriate therapy has been reported to increase morbidity and mortality. Recent literature suggests that in possible VAP, instituting directed therapy while awaiting microbiological culture does not prejudice outcome compared with best-guess empirical therapy.

Objectives. To ascertain outcomes of directed v. empirical therapy in possible and probable VAP, respectively.

Methods. Endotracheal aspirates were obtained from patients with suspected VAP. Those considered to have possible VAP were given directed therapy following culture results, whereas patients with more convincing evidence of VAP were classed as having probable VAP and commenced on empirical antimicrobials based on microbiological surveillance.

Results. Pneumonia was suspected in 106 (36.8%) of 288 patients admitted during January - December 2014. Of these, 13 did not fulfil the criteria for VAP. Of the remaining 93 (32.2%), 31 (33.3%) were considered to have probable and 62 (66.7%) possible VAP. The former were commenced on empirical antimicrobials, with 28 (90.3%) receiving appropriate therapy. Of those with possible VAP, 34 (54.8%) were given directed therapy and in 28 (45.2%) no antimicrobials were prescribed. Of the latter, 24 recovered without antimicrobials and 4 died, 3 from severe traumatic brain injury and 1 due to overwhelming intra-abdominal sepsis. No death was directly attributable to failure to treat VAP. No significant difference in mortality was found between the 34 patients with possible VAP who were commenced on directed therapy and the 31 with probable VAP who were commenced on empirical antimicrobials (p=0.75).

Conclusions. Delaying antimicrobial therapy for VAP where clinical doubt exists does not adversely affect outcome. Furthermore, this policy limits the use of antimicrobials in patients with possible VAP following improvement in their clinical condition despite no therapy.
Colleen Aldous (co-authored)

IMPLICATIONS OF DIRECT-TO-CONSUMER WHOLE-EXOME SEQUENCING IN SOUTH AFRICA

Co-authored with 17 colleagues

ARTICLE in SOUTH AFRICAN MEDICAL JOURNAL = SUID-AFRIKAANSE TYDSKRIF VIR GENEESKUNDE 106(2):139 · JANUARY 2016 with 41 READS

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SUMMARY: Next-generation sequencing (NGS) has truly transformed human genetics and is now an integral discovery tool in the field. Whole-exome sequencing (WES) – an NGS application focused on the proteincoding regions of the human genome – has already bridged the bench-to-bedside divide internationally and is offered as a clinical test by several accredited laboratories.[1,2] Clinical WES is not currently offered in South Africa (SA) for a number of reasons, including technological constraints, insufficient storage for the resulting large datasets, ethical considerations and limitations of our understanding of the impact of human genetic variants on health and in terms of clinical utility. The historical under-representation of individuals of black African descent in genomics research further complicates the interpretation of results obtained from WES data in black Africans.[3] Concurrently, the application of WES for preventive healthcare in seemingly healthy individuals is progressing rapidly. WES offered as a direct-to-consumer (DTC) genetic test to healthy individuals in aid of wellness and future disease risk prediction raises many critical considerations, some of which were highlighted previously in the SAMJ by the Southern African Society for Human Genetics.[4] This topic is currently back in the headlines as local health insurance company Discovery Health launched their suite of personalised medicine products, which includes WES.[5-7] This offering is presented in partnership with US-based company Human Longevity, Inc. (HLI) under the leadership of J Craig Venter.

Somasundram Pillay

IMPROVEMENT NOTED AFTER A MULTIFACETED APPROACH TO DIABETES MELLITUS MANAGEMENT

Colleen Aldous, F Mahomed

ARTICLE in JOURNAL OF ENDOCRINOLOGY, METABOLISM AND DIABETES OF SOUTH AFRICA · JANUARY 2016 with 4 READS

DOI: 10.1080/16089677.2015.1129704

ABSTRACT: Background: Optimal control of diabetes mellitus remains elusive, especially in developing countries. A comprehensive and standardised approach, coupled with intensive patient and clinician education, may provide the solution. Methods: Comprehensive datasheets accompanied by patient education from a multidisciplinary team and clinician retraining on diabetes management was introduced into the Edendale Hospital diabetes clinic in 2012. This study compares diabetes control starting October 1, 2012 to September 30, 2013 (Y1) to October 1, 2013 to September 30, 2014 (Y2). Results: Significant changes (p-values < 0.005) were noted in the following parameters between Y2 and Y1 respectively:* Mean HbA1c% (10.41 ± 2.91 vs. 11.26 ± 2.99).* Mean HbA1c in males (9.46 vs. 10.57) and (10.38 vs. 11.19) for females.* Mean HbA1c for type 1 (11.80 vs. 10.77) and type 2 patients (10.91 vs. 10.10).* Percentage of patients achieving triglyceride control (64.28 vs. 52.85).* Percentage of patients making lifestyle changes and performing home glucose monitoring.* Increase in
female waist circumference (97.29 vs. 85.95 cm).* Increase in BMI in males (29.65 vs. 27.92 kg/m²).

Conclusion: This multifaceted approach to diabetes care in a resource-limited clinic significantly improved glycaemic and triglyceride control. Obesity remains a major challenge. This model could serve as a blueprint for other such resource-limited clinics.

C Manikum

A MORPHOLOGICAL STUDY OF THE SUPRASCAPULAR NOTCH IN A SAMPLE OF SCAPULAE AT THE UNIVERSITY OF KWAZULU NATAL

C Rennie, E. C. S Naidu, Onyemaechi Okpara Azu

ARTICLE in INTERNATIONAL JOURNAL OF MORPHOLOGY 33(4):1365-1370 · DECEMBER 2015 with 9 READS
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SUMMARY: The suprascapular notch (SSN) is important, as it is a risk factor in the development of suprascapular nerve entrapment syndrome. The purpose of this study is to describe the morphology of the SSN of a sample of normal scapulae in the Discipline of Clinical Anatomy, University of KwaZulu Natal. Sixty scapulae were used consisting of 37 males and 23 females (mean age 51 years). The superior transverse diameter and maximal depth of the notches were measured. Comparisons were made of the notch in relation to the maximal width and length of the scapulae, laterality and sex. The Rengachary classification method was adopted to describe the shape of the SSN. Analysis of morphological variations showed Type II - wide blunted V-shaped notch to be predominant (65%). Three scapulae had absent notches (Type I). The average notch depth and transverse diameter were 6.51±2.69 mm and 13.18±5.52 mm respectively. The right SSN were significantly deeper than the left (7.54±2.51 mm) (p<0.02). The male scapulae were distinctively larger, with females having a much shallower and wider notch. Understanding the morphological variation of the SSN is important when various radiological imaging techniques are utilized such as during arthroscopic shoulder operations and anaesthesia for landmarking of the suprascapular nerve.

Sundika Ishwarkumar

AN OSTEOMETRIC EVALUATION OF THE JUGULAR FORAMEN

Nerissa Naidoo, Lelika Lazarus, Kapil Sewsaran Satyapal

ARTICLE in INTERNATIONAL JOURNAL OF MORPHOLOGY 33(1):251-254 · JANUARY 2015
Impact Factor: 0.32 ·

SUMMARY: The jugular foramina (JF) are bilateral openings situated between the lateral part of the occipital bone and the petrous part of the temporal bones in the human skull. It is a bony canal transmitting neurovascular structures from the posterior cranial fossa through the base of the skull to the carotid space. Since the JF depicts variations in shape, size, height and volume between different racial and gender groups, along with distinctive differences in laterality from its intracranial to extracranial openings, knowledge of the JF may be necessary to understand intracranial pathologies. Therefore, the purpose of this study was to evaluate the morphometric measurements of the jugular foramen. Various morphometric parameters of the JF and its relation to surrounding structures were measured and assessed in 73 dry skull
specimens (n=146). Each of the morphometric parameters measured were statistically analyse using SPSS to determine the existence of a possible relationship between the parameters and sex, race, age and laterality. The comparisons of sex and age with the distance between the JF and lateral pterygoid plate and distance between the JF and foramen magnum yielded statistically significant p values of 0.0049 and 0.036, respectively. The results of this study correlated with that of previous studies indicating that measurements regarding the JF are greater on the right side. The provision of morphometric data pertaining to the JF and surrounding structures may assist surgeons and clinicians during operative procedures.

Timothy Hardcastle (co-authored)

AN ANALYSIS OF PATIENTS TRANSPORTED BY A PRIVATE HELICOPTER EMERGENCY MEDICAL SERVICE IN SOUTH AFRICA

Dagmar Muhlbauer, Raveen Naidoo

ARTICLE in SOUTH AFRICAN MEDICAL JOURNAL = SUID-AFRIKAANSE TYDSKRIF VIR GENEESKUNDE 106(2):201 · JANUARY 2016
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Background. A helicopter emergency medical service (HEMS) is a specialist flying emergency service where on-board medical personnel have both the knowledge and equipment to perform complicated medical procedures. The paucity of literature describing the types of patients flown by HEMS in South Africa (SA) and their clinical outcome poses a challenge for current aeromedical services, as there is no baseline information on which to base flight criteria, staffing and policy documents. This has the potential to hamper the advancement of HEMS in SA.Objectives. To undertake a descriptive analysis of patients flown by the Netcare 911 HEMS over a 12-month period in Gauteng and KwaZulu-Natal (KZN) provinces, SA, and to assess patient outcomes. The clinical demographics of patients transported by the HEMS were analysed, time frames from dispatch of the helicopter to delivery of the patient to the receiving hospital determined, and patient outcomes at 24 hours and 72 hours analysed.Methods. The study utilised a retrospective quantitative, descriptive design to analyse patients transported by a private HEMS in SA. All complete records of patients transported by the Netcare 911 HEMS between 1 January and 31 December 2011 were included.Results. The final study population comprised 537 cases, as 10 cases had to be excluded owing to incomplete documentation. Of the 537 cases, 82 (15.3%) were managed by the KZN HEMS and 455 (84.7%) by the Gauteng HEMS. Adult males were the patients most commonly flown in both Gauteng and KZN (350/455 patients (76.9%) in Gauteng and 48/82 (58.5%) in KZN were males, and 364/455 patients (80.0%) in Gauteng and 73/82 (89.0%) in KZN were adults). Motor vehicle collisions were the most common incidents necessitating transport by HEMS in both operations (n=193, 35.9%). At the 24-hour follow-up, 339 patients (63.1%) were alive and stable, and at the 72-hour follow-up, 404 (75.3%) were alive and stable.Conclusions. The study findings provided valuable information that may have an impact on the current staffing and authorisation criteria of SA HEMS operations.
ABSTRACT: The purpose of this study is to provide a comprehensive overview of the incidence, spectrum and outcomes of traumatic bladder injury in Pietermaritzburg, South Africa, and to identify the current optimal investigation and management of patients with traumatic bladder injuries.

ABSTRACT: Background. The high burden of burn injuries in South Africa (SA) requires surgeons skilled in burn care. However, there are few dedicated burn surgeons and properly equipped units or centres.

Objectives. To quantify the involvement of surgeons in burn care in SA hospitals, identify factors that attract surgeons to pursue burn care as a career and deter them from doing so, and understand the challenges of hospitals treating burn patients around the country.

Methods. This was a prospective, qualitative study. Questionnaires were handed out at the South African Burn Society Congress in September 2013 and a trade symposium in March 2014. Results. One hundred questionnaires were handed out, and there was a 70% response rate. Twenty-six (39%) of the respondents had a specialist surgical qualification. Only half the units had registrars (48%) and interns (51%) on their staff. Only 30% of the respondents were dedicated to burn care alone, the majority being involved on a part-time basis. The most common factor respondents suggested was needed to recruit future burn care providers, cited by 76%, was better facilities and resources. Other factors included training and skills development (59%), subspecialist training (55%), development of a diploma in burn care (52%), development of research (52%) and healthcare worker psychological support (45%).

Conclusion. We have demonstrated that current workforce resources for burn care are inadequate, the major deficit being lack of training and the resource-restricted environment. This survey provides basic information towards workforce planning, which can be used to inform the necessary strategic decisions.
**Derseree Archary**

**DISTINCT GENITAL TRACT HIV-SPECIFIC ANTIBODY PROFILES ASSOCIATED WITH TENOFOVIR GEL**

**ARTICLE** in **MUCOSAL IMMUNOLOGY** · **JANUARY 2016** with **13 READS**

**Impact Factor**: 7.37 · DOI: 10.1038/mi.2015.145

**ABSTRACT:** The impact of topical antiretrovirals for pre-exposure prophylaxis on humoral responses following HIV infection is unknown. Using a binding antibody multiplex assay, we investigated HIV-specific IgG and IgA responses to envelope glycoproteins, p24 Gag and p66, in the genital tract (GT) and plasma following HIV acquisition in women assigned to tenofovir gel (n=24) and placebo gel (n=24) in the CAPRISA 004 microbicide trial to assess if this topical antiretroviral had an impact on mucosal and systemic antibody responses. Linear mixed effect modeling and partial least squares discriminant analysis was used to identify multivariate antibody signatures associated with tenofovir use. There were significantly higher response rates to gp120 Env (P=0.03), p24 (P=0.002), and p66 (P=0.009) in plasma and GT in women assigned to tenofovir than placebo gel at multiple time points post infection. Notably, p66 IgA titers in the GT and plasma were significantly higher in the tenofovir compared with the placebo arm (P<0.05). Plasma titers for 9 of the 10 HIV-IgG specificities predicted GT levels. Taken together, these data suggest that humoral immune responses are increased in blood and GT of individuals who acquire HIV infection in the presence of tenofovir gel. Mucosal Immunology advance online publication, 27 January 2016; doi:10.1038/mi.2015.145.

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**Rowena Naidoo**

**COACHES’ PERSPECTIVES ON YOUTH FOOTBALL DEVELOPMENT PROGRAMMES IN THE ETHEKWINI REGION, KWAZULU-NATAL, SOUTH AFRICA**

**J Davids, Rowena Naidoo, Yoga Coopo**

**ARTICLE** · **DECEMBER 2015** with **4 READS**

**Abstract:** In football, the role of development is crucial as it identifies talent and monitors the progression of youth players to mature players. Development seeks to eventually have these players being capable of competing on an international stage such as at the Football World Cup or the Olympic Games. The purpose of this study was to explore the perspectives of coaches on the youth football development programmes in the eThekwini region, KwaZulu-Natal. This study was an exploratory design. Coaches (n=13) from five youth development football clubs were interviewed. The analysis of interviews was carried out methodically by the clustering of themes. Majority of coaches were between the ages of 42-52 years with a mean age of 43.3 years. Overall, coaches expressed dissatisfaction towards the quality of the youth football development programmes, specifically, leadership, facilities and their use, financial support, age-cheating, the selection process of players and the football qualification/s of coaches. There were varied perspectives towards the 'structured' youth football development programmes among coaches. Coaches believed that international development programmes were well-managed, employed highly qualified coaches and that children began playing football at a much younger age than children in KwaZulu-Natal.
ABSTRACT: Introduction Studies indicate substandard diagnostic care, delayed and missed diagnosis as some of the contributing factors to maternal mortality. The clinical impact of point-of-care (POC) diagnostics has been shown in the monitoring and treatment of a variety of infectious diseases, including HIV/AIDS and tuberculosis. The objective of this systematic review is to investigate the impact of POC diagnostics on maternal outcomes for HIV-infected women.

Methods We will conduct a systematic review to evaluate the impact of POC diagnostics for improving desired healthcare outcomes for HIV-infected women. The search strategy will involve electronic databases including: Cochrane Infectious Disease Group Specialised Register; Cochrane Central Register of Control Trials, published in The Cochrane Library; PubMed; EBSCOhost and LILACS. The studies will be mapped in 2 stages: stage 1 will map studies descriptively by focus and method; stage 2 will involve additional inclusion criteria, quality assessment and data extraction undertaken by 2 reviewers in parallel. Evidence will be synthesised using relevant systematic research tools: meta-analysis and subgroup analysis will be conducted using RevMan and Stata 13 will be used for meta-regressions. We will follow recommendations described in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and the Cochrane Handbook for Intervention Reviews. Ethics and dissemination We anticipate finding a large number of studies on POC diagnostic interventions on maternal outcomes in HIV-infected women, which, once summarised, will be useful to guide future diagnostic interventions. The protocol for the systematic review has been registered in PROSPERO. The study will be disseminated electronically and in print. It will also be presented to conferences related to HIV/AIDS, POC diagnostics and maternal health.

Trial registration number PROSPERO CRD42014015439.
screening of Asinex and Zinc database for finding the potential compounds. ZINC00987406 and ASN04459656 which poses high glide score i.e >7 Kcal/mol and H-bond and hydrophobic interactions in the S1’loop residues of ADAMTS4 were subjected to MD studies. Molecular dynamic simulations results indicate that the RMSD and RMSF of backbone atoms for the above complexes were remained within the limit of 2.0 Å. These compounds can be potential candidates for osteoarthritis by inhibiting ADAMTS4.

Alexis Harerimana

HISTORICAL OVERVIEW OF NURSING AND MIDWIFERY EDUCATION AND NURSING WORKFORCE IN RWANDA

Ntombifikile Gloria Fikile Mtshali, Donatilla Mukamana, John Mugarura, Camille N. Kayihura, John Mugarura

ARTICLE · DECEMBER 2015 with 1 READ

ABSTRACT: Nursing education in Rwanda is undergoing rapid transformation. The literature reveals that the training of nurses and midwives in Rwanda started during the colonial era. Many of the nursing schools were opened by religious institutions such as Catholics, Protestants and Adventists, some being public and private. During 1980s there was a great transformation in nursing education in Rwanda, mainly by phasing out medical assistants, and education was restructured and the secondary program was fixed to 6 years; the nursing program was integrated in secondary education. In 1994, the Genocide against the Tutsi has seriously affected all sectors of life especially nursing. After the 1994 Genocide against the Tutsi, the Government of Rwandan invested in training nurses at various levels, and many public and private nursing and midwifery schools were opened. In 2007, a competency based approach was introduced in nursing education, and Public nursing schools were permitted to train nurses and midwives with advanced diploma (A1). Today, with the support from the Government of Rwanda, Nursing and Midwifery profession is becoming a pillar and cornerstone of Rwandan Health system.

Henry Sunpath and Michelle Gordon (co-authored)

TREATMENT OPTIONS AFTER VIROLOGICAL FAILURE OF FIRST-LINE TENOFOVIR-BASED REGIMENS IN SOUTH AFRICA: AN ANALYSIS BY DEEP SEQUENCING

Maria Casadellà, Marc Noguera-Julian, Henry Sunpath, Michelle Gordon, Cristina Rodriguez, Mariona Parera, Daniel R Kuritzkes, Vincent C Marconi, Roger Paredes

ARTICLE in AIDS (LONDON, ENGLAND) · JANUARY 2016 with 7 READS

Impact Factor: 5.55 · DOI: 10.1097/QAD.0000000000001033

ABSTRACT: In a South African cohort of participants living with HIV developing virological failure on first-line TDF-based regimens, at least 70% of participants demonstrated TDF resistance according to combined Sanger and MiSeq genotyping. Sanger sequencing missed the K65R mutation in 30% of samples. Unless HIV genotyping is available to closely monitor epidemiological HIV resistance to TDF, its efficacy as second line therapy will be greatly compromised.
ABSTRACT: Background Killer-cell Immunoglobulin-like Receptors(KIR) interact with Human Leukocyte Antigen(HLA) to modify natural killer- and T-cell function. KIR are implicated in HIV acquisition by small studies that have not been widely replicated. A role for KIR in HIV disease progression is more widely replicated and supported by functional studies. Methods To assess the role of KIR and KIR ligands in HIV acquisition and disease course, we studied at-risk women in South Africa between 2004–2010. Logistic regression was used for nested case–control analysis of 154 women who acquired vs. 155 who did not acquire HIV, despite high exposure. Linear mixed-effects models were used for cohort analysis of 139 women followed prospectively for a median of 54 months (IQR 31–69) until 2014. Results Neither KIR repertoire nor HLA alleles were associated with HIV acquisition. However, KIR haplotype BB was associated with lower viral loads (−0.44log10 copies/ml;SE = 0.18;p = 0.03) and higher CD4+ T-cell counts(+80 cells/μl;SE = 42;p = 0.04). This was largely explained by the protective effect of KIR2DL2/KIR2DS2 on the B haplotype and reciprocal detrimental effect of KIR2DL3 on the A haplotype. Conclusions: Although neither KIR nor HLA appear to have a role in HIV acquisition, our data are consistent with involvement of KIR2DL2 in HIV control. Additional studies to replicate these findings are indicated.

ABSTRACT: Introduction: Less than ten percent of patients who sustain blunt abdominal trauma will suffer a significant intra-abdominal injury. Identifying these patients is difficult and this study reviews the results of routine serum amylase levels in a series of patients with blunt abdominal trauma. Methods: All patients admitted, by the primary author from November 2010 to November 2012, with a diagnosis of blunt abdominal trauma were included. All these patients had a serum amylase level measurement performed on admission. Results: One hundred and three patients were selected, with an age range from 3 to 68 years. There were 33 females and 70 males. Imaging was obtained in 47 patients (38 CT scans and 9 ultrasounds). Nine (19%) of the patients who were imaged required a laparotomy due to the radiological findings, and 38 (81%) of this sub group underwent successful conservative management. Eighteen patients had a laparotomy on clinical grounds. Intra-abdominal injuries were identified in 38 patients on imaging and/or at laparotomy. In five patients laparotomy did not reveal any injuries. The remaining 38 patients were admitted for serial abdominal observation. They were all discharged home and their symptoms resolved. The serum amylase level ranged from 34 U/L to 3 156 U/L, with a mean of 227 U/L (standard deviation 456 U/L). The levels were raised in 60 patients (58%) of whom 19 (32%) had a significant intra-abdominal injury. The serum amylase level was normal in 43 patients (42%), of whom 19 (44%) had a significant intra-abdominal injury. There were eight pancreatic injuries in the group (pancreatitis (1), pancreatic contusion (3), laceration (1), and transection (3). The serum amylase level was normal in two and mildly elevated in one of the patients with contusions (91, 92 and 129 U/L respectively), mildly elevated in the patient with pancreatitis (121 U/L), and significantly raised
in the others (340 U/L with the pancreatic laceration; 3 156, 472, and 1 497 U/L in those with a transected pancreas). Four patients had a serum amylase level of greater than 1 000 U/L. Two of these had pancreatic injuries (3 156 and 1 497 U/L) and had hospital stays of six and sixteen days respectively. In the other two (3 042 and 1 454 U/L) no intra-abdominal injury was found. Conclusion: The routine use of serum amylase level in the investigation of patients with blunt abdominal trauma cannot be supported as a mildly raised serum amylase level is common following blunt abdominal trauma, is of uncertain clinical significance, and does not have any predictive value. A markedly raised serum amylase level is associated with major pancreatic injury but is in itself a non-specific finding.

Alexander Pym, Thuli Mthiyane, Douglas Wilson (co-authored)

ASSESSING THE UTILITY OF XPERT® MTB/RIF AS A SCREENING TOOL FOR PATIENTS ADMITTED TO MEDICAL WARDS IN SOUTH AFRICA

ARTICLE in SCIENTIFIC REPORTS 6:19391 · JANUARY 2016 with 17 READS
Impact Factor: 5.58 · DOI: 10.1038/srep19391

Christine L. Heidebrecht, Laura J. Podewils, Ted Cohen

ABSTRACT: Many hospital inpatients in South Africa have undiagnosed active and drug-resistant tuberculosis (TB). Early detection of TB is essential to inform immediate infection control actions to minimize transmission risk. We assessed the utility of Xpert® MTB/RIF (GeneXpert) as a screening tool for medical admissions at a large public hospital in South Africa. Consecutive adult patients admitted to medical wards between March-June 2013 were enrolled; sputum specimens were collected and tested by GeneXpert, smear microscopy, and culture. Chest X-rays (CXRs) were conducted as standard care for all patients admitted. We evaluated the proportion of patients identified with TB disease through each diagnostic method. Among enrolled patients whose medical charts were available for review post-discharge, 61 (27%) were diagnosed with TB; 34 (56% of diagnosed TB cases) were GeneXpert positive. When patients in whom TB was identified by other means were excluded, GeneXpert yielded only four additional TB cases. However, GeneXpert identified rifampicin-resistant TB in one patient, who was initially diagnosed based on CXR. The utility of GeneXpert for TB screening was limited in an institution where CXR is conducted routinely and which serves a population in which TB and TB/HIV co-infection are highly prevalent, but it allowed for rapid detection of rifampicin resistance.

Darryl Wood

SNAKEBITE IN NORTH-EASTERN SOUTH AFRICA: CLINICAL CHARACTERISTICS AND RISKS FOR SEVERITY

Benn Sartorius, Richard Hift

ARTICLE in SOUTH AFRICAN FAMILY PRACTICE · JANUARY 2016 with 13 READS
DOI: 10.1080/20786190.2015.1120934

ABSTRACT: Objectives: To identify the toxicity profile of snakebites and to assess clinical severity. Methods: An analysis of all patients admitted to Ngwelezane Hospital’s Emergency Department with a diagnosis of snakebite over five years was done. All patients were admitted, assessed and standard haematological and biochemical tests were done. Patients were observed for a minimum of 12 hours’ observation. Results: In total, 879 cases were analysed. Envenomation was identified in over two-thirds of admissions. Cytotoxic snakebites
accounted for 98% of envenomations. Only four cases of haemotoxic bleeding and five cases of neurotoxicity were admitted. Abnormal laboratory indices correlated with severity: INR > 1.5 (odds ratio 2.25, CI 1.12–4.53; p = 0.023), platelets < 100x10⁹/L (OR 2.35, CI 1.01–5.49; p = 0.048), haemoglobin concentration < 8.0 g/dL (OR 5.68, CI 2.15–15.00; p < 0.001) and leucocyte count > 10x10⁹ (OR 3.15, CI 1.89–5.26, p < 0.001). Children and delays to admission correlated to and were predictors of severity. Conclusion: Two-thirds of patients who present to hospital with snakebite will have symptoms of envenomation, with the overwhelming majority having been bitten by cytotoxic species. Some factors correlate to severity and may be useful for anticipating the patient’s clinical course.

Dhayendre Moodley (co-authored)

LEGAL KNOWLEDGE, NEEDS, AND ASSISTANCE SEEKING AMONG HIV POSITIVE AND NEGATIVE WOMEN IN UMLAZI, SOUTH AFRICA

Lauren Hill, Suzanne Maman, David Holness,

ARTICLE in BMC INTERNATIONAL HEALTH AND HUMAN RIGHTS 16(1) · DECEMBER 2016 with 1 READ
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ABSTRACT: The rights of women and people living with HIV (PLHIV) are protected under South African law, yet there is a gap in the application of these laws. While there are numerous systemic and social barriers to women’s and PLHIV’s exercise of their legal rights and rights to access social services, there has been little effort to document these barriers as well as legal needs and knowledge in this context. 1480 HIV-positive and HIV-negative women recruited from an antenatal clinic in Umlazi Township completed a questionnaire on legal knowledge, experience of legal issues, assistance seeking for legal issues, and barriers to seeking assistance. We compared the legal knowledge and experience of legal issues of HIV-positive and HIV-negative women, and described assistance seeking and barriers to assistance seeking among all women.

Both HIV-positive and HIV-negative women had high levels of knowledge of their legal rights. There were few important differences in legal knowledge and experience of legal issues by HIV status. The most common legal issues women experienced were difficulty obtaining employment (11 %) and identification documents (7 %). A minority of women who had ever experienced a legal issue had sought assistance for this issue (38 %), and half (50 %) of assistance sought was from informal sources such as family and friends. Women cited lack of time and government bureaucracy as the major barriers to seeking assistance. These results indicate few differences in legal knowledge and needs between HIV-positive and HIV-negative women in this context, but rather legal needs common among women of reproductive age. Legal knowledge may be a less important barrier to seeking assistance for legal issues than time, convenience, and cost. Expanding the power of customary courts to address routine legal issues, encouragement of pro bono legal assistance, and introduction of legal navigators could help to address these barriers.
ABSTRACT: Objectives: HPV infection causes cervical cancer, yet information on prevalence and risk factors for HPV in Africa remain sparse. This study describes the prevalence of HPV genotypes and risk factors associated with HPV among young women ≤ 30 years of age in KwaZulu-Natal (KZN), South Africa.

Methods: Cervicovaginal lavage samples were tested for HPV genotypes in 224 women enrolled in a prospective cohort study. Clinical, behavioural and demographic data were collected. We measured prevalence of HPV genotypes and using logistic regression, examined for factors associated with HPV.

Results: Median age of participants was 21 years [interquartile range (IQR):18-23]. The overall prevalence of HPV was 76.3% (171/224) with multiple and single genotypes prevalent in 56.3% and 20.1% of women respectively. Proportion of women with high-risk genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56 and 58) was 54.5%. Women not living with their partner [adjusted odds ratio (aOR)] = 3.42 95% CI1.22-9.60; p = 0.019), was significantly associated with HPV infection and high-risk HPV genotype infection.

Conclusion: The high burden of HPV and associated risk behaviours highlight the need to intensify behavioural interventions to prevent HPV acquisition in young women. The large scale delivery of HPV vaccine should be prioritised to prevent HPV acquisition and reduce HPV-related morbidity.

ROLE OF HLA ADAPTATION IN HIV EVOLUTION

ABSTRACT: Killing of HIV-infected cells by CD8+ T-cells imposes strong selection pressure on the virus towards escape. The HLA class I molecules that are successful in mediating some degree of control over the virus are those that tend to present epitopes in conserved regions of the proteome, such as in p24 Gag, in which escape also comes at a significant cost to viral replicative capacity. In some instances, compensatory mutations can fully correct for the fitness cost of such an escape variant; in others, correction is only partial. The consequences of these events within the HIV-infected host, and at the population level following transmission of escape variants, are discussed. The accumulation of escape mutants in populations over the course of the epidemic already shows instances of protective HLA molecules losing their impact, and in certain cases a modest decline in HIV virulence in association with population-level increase in mutants that reduce viral replicative capacity.
Yesholata Mahabeer

FIRST OUTBREAK OF VANCOMYCIN-RESISTANT ENTEROCOCCUS IN A HAEMATOLOGY UNIT IN DURBAN, SOUTH AFRICA

Warren Lowman, Chetna N Govind, Khine Swe Swe /Han, Koleka P Mlisana

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ABSTRACT: Vancomycin resistant enterococci (VRE) are increasingly important causes of morbidity and mortality in developed countries. Although VRE is a significant cause of nosocomial sepsis in these countries, limited data is available on the role that this pathogen plays in South Africa. We describe the demographic, clinical and genotypic data of seven patients involved in the first outbreak of VRE in a haematology unit at a tertiary hospital in Durban and also report the isolation of VRE from six patients from other wards in this hospital and from hospitals outside Durban. The outbreak occurred from 19 April 2011 to 9 November 2011. Pulse Field Gel Electrophoresis (PFGE) was conducted on 15 clinical and environmental samples. Two closely-related clusters and a unique strain were identified from both clinical and environmental samples. Furthermore, the predominant cluster was found in other hospitals in KwaZulu-Natal. After infection control practices were reinforced, the outbreak terminated. Our study highlights that VRE is an emerging pathogen in KZN, especially in high risk units. The environment serves as a significant reservoir of VRE and infection control strategies should be directed to reduce the transmission of VRE from environmental sources.

Shaimaa Ahmed

IN SILICO CHARACTERIZATION OF THE BINDING AFFINITY OF DENDRIMERS TO PENICILLIN-BINDING PROTEINS (PBPS): CAN PBPS BE POTENTIAL TARGETS FOR ANTIBACTERIAL DENDRIMERS?

Suresh B. Vepuri, Muthusamy Ramesh, Rahul Kalhapure, Nadia Suleman, Thirumala Govender

ARTICLE in APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY · JANUARY 2016 with 14 READS
Impact Factor: 1.74 · DOI: 10.1007/s12010-015-1967-6

ABSTRACT: We have shown that novel silver salts of poly (propyl ether) imine (PETIM) dendron and dendrimers developed in our group exhibit preferential antibacterial activity against methicillin-resistant Staphylococcus aureus (MRSA) and Staphylococcus aureus. This led us to examine whether molecular modeling methods could be used to identify the key structural design principles for a bioactive lead molecule, explore the mechanism of binding with biological targets, and explain their preferential antibacterial activity. The current article reports the conformational landscape as well as mechanism of binding of generation 1 PETIM dendron and dendrimers to penicillin-binding proteins (PBPs) in order to understand the antibacterial activity profiles of their silver salts. Molecular dynamics at different simulation protocols and conformational analysis were performed to elaborate on the conformational features of the studied dendrimers, as well as to create the initial structure for further binding studies. The results showed that for all compounds, there were no significant conformational changes due to variation in simulation conditions. Molecular docking calculations were performed to investigate the binding theme between the studied dendrimers and PBPs. Interestingly, in significant accordance with the experimental data, dendron and dendrimer with aliphatic cores were found to show higher activity against S. aureus than the dendrimer with an aromatic core. The latter showed higher activity against MRSA. The findings from this
computational and molecular modeling report together with the experimental results serve as a road map toward designing more potent antibacterial dendrimers against resistant bacterial strains.

**John Osei Sekyere (co-authored)**

PREVALENCE AND RISK FACTORS OF PARASITIC PROTOZOAL INFECTIONS IN SCHOOL CHILDREN IN THE KWABRE EAST DISTRICT OF ASHANTI REGION, GHANA

COSMOS ADJEI BIMPONG

**ABSTRACT**: The study aimed to describe the prevalence and distribution of protozoal infections and their predisposing risk factors among pupils in the Kwabre East District, Ghana. Intestinal protozoal infections are a common occurrence among school children, especially in tropical climates and underdeveloped societies owing to poor hygiene and sanitation, overpopulation, illiteracy and low living standards. Fresh stool samples from 884 pupils—one sample per person—representing 48 schools were screened for intestinal protozoa using iodine and saline mounts and the formol-ether concentration technique after questionnaire administration. An isolation rate of 55.7% (492/884) of which 59.6%, 24.8% and 15.7% were Giardia lamblia, Entamoeba coli and Entamoeba hystolytica/dispar respectively, was obtained. G. lamblia infection intensity was highest throughout all the circuits within the district. Parents with low education, buying food from vendors, age, poor hand washing practices after visiting the lavatory, drinking borehole/well water, using pit latrines and not taking anti-protozoal medications were factors that predisposed pupils to intestinal protozoal infections. There was a substantial prevalence of G. lamblia, E coli and E. hystolytica infections among the Kwabre East District pupils owing to their ages, toilets used, hand washing practices, feeding practices, parents’ educational status and sources of drinking water.

**John Osei Sekyere**

CURRENT STATE OF PIG FARMS AND FACTORS INFLUENCING THEIR COMMERCIALISATION IN GHANA: A CASE STUDY OF THE ASHANTI REGION

ADU FRANCIS

**ABSTRACT**: The move towards intensive commercial pig production in Ghana is increasing at an unprecedented pace albeit financial, feeding and swine flu challenges. Coupled with religious, traditional and social marginalization, the industry has suffered from poor growth for many years. In order to describe the current state and challenges facing the pig industry and the major factors influencing its commercialization in Ghana, 110 pig farms within five Districts in the Ashanti region were studied. Increasing pressure on land (77.27%), poor markets (87.27%) and disease threats (91.82%) were the major factors influencing the adoption of intensive pig farming which increased farmers' financial responsibilities. Major problems faced by intensive farmers included scarcity and high cost of feed and frequent disease outbreaks which destroyed their markets that forced many farms to close down annually. The size of the farms, number of staff, source of water, location of the farm, feeding, infrastructure, farm hygiene, marketing and security were all influenced by the financial capital of the farmers. Poor waste management practices and farm locations were potential hazards to public health. The farms were hardly threatened by thieves or wild animals. There is much promise in the pig industry currently. Provision of feed subsidies and credit to farms and stabilizing market prices are
interventions government can adopt to woo local and foreign investors, grow the industry, and reduce unemployment and meat import. Improved hygiene and better waste management on farms could reduce disease outbreaks and zoonoses transmission.

Sooraj Baijnath

SMALL MOLECULE DISTRIBUTION IN RAT LUNG: A COMPARISON OF VARIOUS CRYOPROTECTANTS AS INFLATION MEDIA AND THEIR APPLICABILITY TO MSI

Adeola Shobo, Linda A Bester, Sanil Singh, Gert Kruger, Tricia Naicker, Thavendran Govender

ARTICLE in JOURNAL OF MOLECULAR HISTOLOGY · JANUARY 2016 with 19 READS
Impact Factor: 1.82 · DOI: 10.1007/s10735-016-9658-3

ABSTRACT: Given the recent explosion of mass spectrometric imaging (MSI), it has become easier to assess drug tissue localisation without the use of radiolabeling and other more complex methods (such as PET and MRI). For MSI tissue preparation is of utmost importance, however, the lung in particular does pose some difficulties with imaging since it is made up of a number of air-filled alveoli. These organs are known to collapse when the thoracic cavity is pierced, losing its structural integrity and giving poor histological representation for drug distribution analysis. The use of cryoprotectants as a tissue inflation media will aid in the preservation of the lung's structural integrity during MSI experiments involving small molecule distribution. Various established cryoprotectants (DMSO, PvP, ethylene glycol, sucrose, DMEM, control serum, OCT) were selected as lung inflation media for MSI analysis of gatifloxacin (GAT). Female Sprague-Dawley rats were treated with GAT (10 mg/kg b.w) via i.p. injection. After 15 min the animals were terminated by halothane overdose, and each set of tissue inflated with a specific agent. Cryosections were made and MSI conducted to determine drug tissue distribution. During the early stages of the experimental procedure some cryopreservatives were eliminated due to difficulties with sample preparation. While others displayed excellent preservation of the tissue structure and integrity. Following MSI analysis, some agents showed homogenous drug distribution while some displayed heterogeneous distribution favoring the basal periphery. Taking into account the physiology of the lung and previous MRI investigations of its perfusion, it is expected that a systemically administered drug would localize in the basal areas. DMSO and DMEM proved to display this distribution pattern while keeping structural integrity intact. However, the later was ruled out since it showed complete suppression of GAT in solution. From the cryoprotectants selected for this study, DMSO is the most promising lung inflation media focusing on small molecule distribution via MSI.

Damian L Clarke (co-authored)

CURRENT TRAUMA PATTERNS IN PIETERMARITZBURG

N.B. Moodley

ARTICLE · DECEMBER 2015 with 6 READS

36.47 · Standing by the window where the light is strong

ABSTRACT: Background: The aim of this observational study was to audit the burden of trauma with which patients present at the three hospitals that comprise the Pietermaritzburg Metropolitan Complex, as well as their intensive care units (ICUs) and the government medico-
legal mortuary. Method: A retrospective audit was conducted by assessing emergency department, critical care unit admission record books and medico-legal mortuary report files over a period of two years as well as reviewing patient demographics and the mechanism of trauma in patients. Data were manually entered into a data spreadsheet for the period 1 January 2010 to 31 December 2011. Recorded data included basic demographic information, mechanism of injury and the facility. Details of the injury precipitating the ICU admission and the length of stay were included in the ICU data. Results: During the period 10 644 patients presented to the Pietermaritzburg Metropolitan Trauma Service as a result of trauma-related injuries. Of the 10 644 trauma patients seen, there were 3 688 assault-related injuries (35%), 3 715 motor vehicle accident (MVA)-related injuries (35%), 516 gunshot wound (GSW)-related injuries (5%) and 2 725 stabings (26%). The trauma burden consisted predominantly of blunt trauma (70%), followed by penetrating trauma (30%). The majority of trauma patients were male (77%). Of the 10 644 trauma patients seen, 510 (5%) needed admission to an ICU. The composition of the group requiring ICU was assault (8%), MVAs (48%), GSWs (14%) and stabings (30%). A total of 1 105 (10%) trauma victims died, 471 of whom survived long enough to be admitted to a medical facility. The mortuary group consisted of 56% incidents of blunt trauma and 44% of penetrating trauma. There were 153 (14%) assault-related deaths, 462 (42%) MVA-related deaths, 181 (17%) GSW-related deaths and 309 (28%) stabbing-related deaths. Conclusion: Although the rate of penetrating trauma remains high, it is being overtaken by blunt trauma. Almost half of this blunt trauma load is nonintentional. MVAs are expensive to treat, consume ICU resources and are associated with significant mortality. Injury-prevention strategies are a priority, and should address the high rate of MVAs and the high rate of interpersonal violence. The decline in GSW-related trauma is cause for cautious optimism.

Rajshekar Karpoormath and Mahamadhanif S. Shaikh (co-authored)

AN APPRAISAL ON RECENT MEDICINAL PERSPECTIVE OF CURCUMIN DEGRADANT: DEHYDROZINGERONE (DZG)

Girish A. Hampannava, Mahesh Palkar

ARTICLE in BIOORGANIC & MEDICINAL CHEMISTRY · JANUARY 2016 with 5 READS
Impact Factor: 2.79 · DOI: 10.1016/j.bmc.2015.12.049

ABSTRACT: Natural products serve as a key source for the design, discovery and development of potentially novel drug like candidates for life threatening diseases. Curcumin is one such medicinally important molecule reported for an array of biological activities. However, it has major drawbacks of very poor bioavailability and solubility. Alternatively, structural analogs and degradants of curcumin have been investigated, which have emerged as promising scaffolds with diverse biological activities. Dehydrozingerone (DZG) also known as feruloylmethane, is one such recognized degradant which is a half structural analog of curcumin. It exists as a natural phenolic compound obtained from rhizomes of Zingiber officinale, which has attracted much attention of medicinal chemists. DZG is known to have a broad range of biological activities like antioxidant, anticancer, anti-inflammatory, anti-depressant, anti-malarial, antifungal, anti-platelet and many others. DZG has also been studied in resolving issues pertaining to curcumin since it shares many structural similarities with curcumin. Considering this, in the present review we have put forward an effort to revise and systematically discuss the research involving DZG with its biological diversity. From literature, it is quite clear that DZG and its structural analogs have exhibited significant potential in facilitating design and development of novel medicinally active lead compounds with improved metabolic and pharmacokinetic profiles.
A CASE OF SELECTIVE NON-OPERATIVE MANAGEMENT OF PENETRATING GUNSHOT WOUND INJURY OF THE LIVER AND KIDNEY IN A PREGNANT PATIENT

John Lambert Bruce, G.L. Laing, George Oosthuizen, Damian L Clarke

ARTICLE · DECEMBER 2015 with 7 READS

ABSTRACT: This case report focuses on the application of selective non operative management (SNOM) of penetrating abdominal trauma in a complex patient who was also pregnant at the time of injury. It goes on to contextualize SNOM in terms of its historical evolution as a strategy in South Africa and its appropriate safe application in the pregnant patient.

LAPAROSCOPY FOR OCCULT LEFT-SIDED DIAPHRAGM INJURY FOLLOWING PENETRATING THORACOABDOMINAL TRAUMA IS BOTH DIAGNOSTIC AND THERAPEUTIC.

Grant Llewellyn Laing, John Lambert Bruce, Damian L Clarke

ARTICLE in SURGICAL LAPAROSCOPY, ENDOSCOPY & PERCUTANEOUS TECHNIQUES · JANUARY 2016 with 5 READS

Impact Factor: 1.14 ·

ABSTRACT: Introduction: The diagnosis of occult traumatic diaphragm injury (TDI) has posed a dilemma to trauma surgeons. No imaging modality can accurately and conclusively identify small defects in the integrity of the diaphragm following penetrating trauma. Diagnostic laparoscopy (DL) offers a minimally invasive method of evaluating the integrity of the diaphragm. 

Methods: An Electronic Surgical Registry (ESR) and a Hybrid Electronic Medical Record (HEMR) system have been maintained within the Pietermaritzburg Metropolitan Trauma Service since January 1, 2012. The study was conducted between 2 hospitals located in Pietermaritzburg, KwaZulu Natal, South Africa, namely, Greys (tertiary) and Edendale (regional). Patient data were entered into the registries at the end of patient care (discharge, interhospital transfer, or death). The registries were interrogated to retrieve all cases of DL performed for left-sided penetrating thoracoabdominal trauma.

Results: A total of 96 patients underwent semi-elective DL following penetrating left-sided thoracoabdominal trauma. This included 94 stab wounds and 2 gunshot wounds. The mean patient age was 29 years (range, 15 to 68 y, SD=8.8). The majority (59/96) of patients were male. Twenty-two (23% incidence) cases of TDI were identified at DL. Eighteen (82%) were repaired laparoscopically, and the remaining 4 required conversion to laparotomy and open repair.

Conclusions: TDI presents in a spectrum from the obvious to the occult. Our results validate the utilization of DL as a minimally invasive intervention for both the diagnosis and repair of TDI in selected patients presenting with penetrating left-sided thoracoabdominal trauma.
Alexander Pym, Thuli Mthiyane, Douglas Wilson

ASSESSING THE UTILITY OF XPERT® MTB/RIF AS A SCREENING TOOL FOR PATIENTS ADMITTED TO MEDICAL WARDS IN SOUTH AFRICA

Christine L. Heidebrecht, Laura J. Podewils, Ted Cohen

ARTICLE in SCIENTIFIC REPORTS 6:19391 · JANUARY 2016 with 19 READS
Impact Factor: 5.58 · DOI: 10.1038/srep19391

ABSTRACT: Many hospital inpatients in South Africa have undiagnosed active and drug-resistant tuberculosis (TB). Early detection of TB is essential to inform immediate infection control actions to minimize transmission risk. We assessed the utility of Xpert® MTB/RIF (GeneXpert) as a screening tool for medical admissions at a large public hospital in South Africa. Consecutive adult patients admitted to medical wards between March-June 2013 were enrolled; sputum specimens were collected and tested by GeneXpert, smear microscopy, and culture. Chest X-rays (CXRs) were conducted as standard care for all patients admitted. We evaluated the proportion of patients identified with TB disease through each diagnostic method. Among enrolled patients whose medical charts were available for review post-discharge, 61 (27%) were diagnosed with TB; 34 (56% of diagnosed TB cases) were GeneXpert positive. When patients in whom TB was identified by other means were excluded, GeneXpert yielded only four additional TB cases. However, GeneXpert identified rifampicin-resistant TB in one patient, who was initially diagnosed based on CXR. The utility of GeneXpert for TB screening was limited in an institution where CXR is conducted routinely and which serves a population in which TB and TB/HIV co-infection are highly prevalent, but it allowed for rapid detection of rifampicin resistance.

Victor Kong

SURGICAL RESIDENT WORKING HOURS IN SOUTH AFRICA

J.J. Odendaal, Damian L Clarke

ARTICLE · DECEMBER 2015 with 17 READS

ABSTRACT: Background: Surgical training has undergone major changes worldwide, especially with regard to work hour regulations. Very little is known regarding the situation in South Africa, and how it compares with other countries. Method: We conducted a retrospective review of the hours worked by surgical residents in a major university hospital in South Africa. Results: The attendance records of 12 surgical residents were reviewed during the three-month study period from January 2013 to March 2013. Ten were males. The mean age of the residents was 33 years. The mean total hours worked by each resident each month was 277 hours in January, 261 hours in February and 268 hours in March. The mean monthly total over the study period was 267 hours. This equates to approximately 70 hours per week. Conclusion: The average surgical resident worked 70 hours per week in our unit. This was shorter than that in USA, but higher than that in Europe. There is likely to be a degree of heterogeneity between different training units, which needs to be explored further if a more accurate overall picture is to be provided.
**Yesholata Mahabeer and Prathna Bhola (co-authored)**

**PREVALENCE AND TRENDS OF STAPHYLOCOCCUS AUREUS BACTERAEMIA IN HOSPITALIZED PATIENTS IN SOUTH AFRICA, 2010 TO 2012: LABORATORY-BASED SURVEILLANCE MAPPING OF ANTIMICROBIAL RESISTANCE AND MOLECULAR EPIDEMIOLOGY**


**ABSTRACT:**

Introduction: We aimed to obtain an in-depth understanding on recent antimicrobial resistance trends and molecular epidemiology trends of S. aureus bacteraemia (SAB).

Methods: Thirteen academic centres in South Africa were included from June 2010 until July 2012. S. aureus susceptibility testing was performed on the MicroScan Walkaway. Real-time PCR using the LightCycler 480 II was done for mecA and nuc. SCCmec and spa-typing were finalized with conventional PCR. We selected one isolate per common spa type per province for multilocus sequence typing (MLST).

Results: S. aureus from 2709 patients were included, and 1231 (46%) were resistant to methicillin, with a significant decline over the three-year period (p-value = 0.003). Geographical distribution of MRSA was significantly higher in Gauteng compared to the other provinces (P<0.001). Children <5 years were significantly associated with MRSA with higher rates compared to all other age groups (P = 0.01). The most prevalent SCCmec type was SCCmec type III (531 [41%]) followed by type IV (402 [31%]). Spa-typing discovered 47 different spa-types. The five (87%) most common spa-types were 1037, 11257, 1045, 1064 and 1012. Based on MLST, the commonest was ST612 clonal complex (CC8) (n = 7) followed by ST5 (CC5) (n = 4), ST36 (CC30) (n = 4) and ST239 (CC8) (n = 3).

Conclusions: MRSA rate is high in South Africa. Majority of the isolates were classified as SCCmec type III (41%) and type IV (31%), which are typically associated with hospital and community- acquired infections, respectively. Overall, this study reveals the presence of a variety of hospital-acquired MRSA clones in South Africa dominance of few clones, spa 037 and 1257. Monitoring trends in resistance and molecular typing is recommended to detect changing epidemiological trends in AMR patterns of SAB.

**Bereket Yakob**

**PERCEIVED QUALITY OF HIV TREATMENT AND CARE SERVICES IN WOLAITA ZONE OF SOUTHERN ETHIOPIA: A CROSS-SECTIONAL STUDY**

Busisiwe P Ncama

**ABSTRACT:**

Objective: To investigate the levels and factors affecting the perceived quality of HIV/AIDS treatment and care services. Design A cross-sectional study. Setting: The study was conducted in Wolaita Zone of southern Ethiopia in one hospital and five health centres.
providing antiretroviral therapy (ART) and pre-ART. Participants 481 persons infected with HIV on outpatient care, 408 (83.8%) on ART and 73 (16.2%) on pre-ART care. Results 324 (71.4%) of the participants perceived the quality of HIV care as 'good', while 130 (28.6%) stated that it was 'not good'; 219 (46.2%) and 255 (53.8%) were satisfied and not satisfied with the services, respectively. In the multivariate analysis, a unit increase in the doctors subscale of multidimensional health locus of control-form c score resulted in a 1.27 (1.04 to 1.55) increase in the odds of perceived good quality of care (p<0.05). Similarly, a unit increase in the responsiveness, perceived financial fairness, and perceived transportation convenience scores was associated with a 1.03 (1.01 to 1.05) (p<0.05), 1.08 (1.05 to 1.15) (p<0.01), and 1.07 (1.05 to 1.18) (p<0.05) increase in the odds of perceived good quality of HIV care, respectively. In terms of client satisfaction with services, a 1 km increase in the distance from health facilities, and unemployment were associated with a 4.64 (2.61 to 8.25) (p<0.001), 1.02 (1.01 to 1.04) (p<0.05) and 2.23 (1.30 to 4.54) (p<0.01) times, respectively, increase in the perceived quality of HIV treatment and care services. Conclusions The majority of the participants reported perceptions of good quality HIV care and satisfaction with the services. Satisfaction with services; responsiveness; health locus of control; perceived financial fairness; perceived transportation convenience; employment status; and distance from the health facility were predictors of the perceived quality of HIV care. Thus, improving quality of HIV treatment services may require addressing the above factors.

Onyemaechi Okpara Azu

HEPATIC HISTOMORPHOLOGICAL AND BIOCHEMICAL CHANGES FOLLOWING HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN AN EXPERIMENTAL ANIMAL MODEL: DOES HYPOXIS HEMEROCALLIDEA EXACERBATE HEPATIC INJURY?

ARTICLE in TOXICOLOGY REPORTS 3 · JANUARY 2016 with 27 READS
DOI: 10.1016/j.toxrep.2015.12.013

Ayoola ISAAC Jegede, Ugochukwu Offor, Edwin Naidu, Kharwa Salem

ABSTRACT: As the roll-out of antiretroviral therapy continues to drive downwards morbidity and mortality in people living with HIV/AIDS (PLWHAs), organ toxicities (especially the liver) are frequently becoming a major concern for researchers, scientists and healthcare planners. This study was conducted to investigate the possible protective effect of Hypoxis hemerocallidea (AP) against highly active antiretroviral therapy (HAART)-induced hepatotoxicity. A total of 63 pathogen-free adult male Sprague-Dawley rats were divided into 9 groups and treated according to protocols. While no mortality was reported, animals treated with adjuvant HAART and AP recorded least% body weight gain. Significant derangements in serum lipid profiles were exacerbated by treatment of with AP as LDL (increased p<0.03), triglycerides (increased p<0.03) with no change in total cholesterol levels. Adjuvant AP with HAART caused reduction in LDL (p<0.05 and 0.03), increased HDL (p<0.05) and TG (p<0.05 and 0.001 for AP100 and AP200 doses respectively). Markers of liver injury assayed showed significant increase (p<0.003, 0.001) in AST in AP alone as well as HAART+ vitamins C and E groups respectively. Adjuvant HAART and AP and vitamins C and E also caused significant declines in ALT and ALP levels. Serum GGT was not markedly altered. Disturbances in histopathology ranged from severe hepatocellular distortions, necrosis and massive fibrosis following co-treatment of HAART with vitamins C and E as well as HAART alone. These results warrant caution on the adjuvant use of AP with HAART by PLWHAs as implications for hepatocellular injuries are suspect with untoward cardiometabolic changes.
Ayesha BM Kharsany

STRENGTHENING HIV SURVEILLANCE IN THE ANTIRETROVIRAL THERAPY ERA: RATIONALE AND DESIGN OF A LONGITUDINAL STUDY TO MONITOR HIV PREVALENCE AND INCIDENCE IN THE UMGUNGUNDLOVU DISTRICT, KWAZULU-NATAL, SOUTH AFRICA

ARTICLE in BMC PUBLIC HEALTH 15(1) · DECEMBER 2015 with 53 READS
Impact Factor: 2.26 · DOI: 10.1186/s12889-015-2179-2

ABSTRACT: Background: South Africa has over 6,000,000 HIV infected individuals and the province of KwaZulu-Natal (KZN) is the most severely affected. As public health initiatives to better control the HIV epidemic are implemented, timely, detailed and robust surveillance data are needed to monitor, evaluate and inform the programmatic interventions and policies over time. We describe the rationale and design of the HIV Incidence Provincial Surveillance System (HIPSS) to monitor HIV prevalence and incidence.

Methods/design: The household-based survey will include a sample of men and women from two sub-districts of the uMgungundlovu municipality (Vulindlela and the Greater Edendale) of KZN, South Africa. The study is designed as two sequential cross-sectional surveys of 10,000 randomly selected individuals aged 15-49 years to be conducted one year apart. From the cross-sectional surveys, two sequential cohorts of HIV negative individuals aged 15-35 years will be followed-up one year later to measure the primary outcome of HIV incidence. Secondary outcomes include the laboratory measurements for pulmonary tuberculosis, sexually transmitted infections and evaluating tests for estimating population-level HIV incidence. Antiretroviral therapy (ART) access, HIV-1 RNA viral load, and CD4 cell counts in HIV positive individuals will assess the effectiveness of the HIV treatment cascade. Household and individual-level socio-demographic characteristics, exposure to HIV programmatic interventions and risk behaviours will be assessed as predictors of HIV incidence. The incidence rate ratio of the two cohorts will be calculated to quantify the change in HIV incidence between consecutive samples. In anticipation of better availability of population-level HIV prevention and treatment programmes leading to decreases in HIV incidence, the sample size provides 84% power to detect a reduction of 30% in the HIV incidence rate between surveys.

Discussion: The results from HIPSS will provide critical data regarding HIV prevalence and incidence in this community and will establish whether HIV prevention and treatment efforts in a “real world”, non-trial setting have an impact on HIV incidence at a population level. Importantly, the study design and methods will inform future methods for HIV surveillance.

Sharana Mahomed

THE SUCCESSFUL USE OF AMPHOTERICIN B FOLLOWED BY ORAL POSACONAZOLE IN A RARE CASE OF INVASIVE FUNGAL SINUSITIS CAUSED BY CO-INFECTION WITH MUCORMYCOSIS AND ASPERGILLUS

ARTICLE in IDCASES 2(4):116-117 · DECEMBER 2015 with 11 READS
DOI: 10.1016/j.idcr.2015.10.001

Sujith Basanth, Koleka Misana

ABSTRACT: We report on an unusual case of oro-rhinocerebral disease caused by mucormycosis and aspergillus co-infection in a 54-year-old insulin dependent diabetic patient. Although she was successfully treated with parenteral amphotericin B followed by oral posaconazole, she was left with irreversible blindness of the right eye and multiple cranial nerve palsies.
γ-Cyclodextrin capped silver nanoparticles for molecular recognition and enhancement of antibacterial activity of chloramphenicol

Ramesh Gannimani, Muthusamy Ramesh, Sphamandla Mtambo, Karen Pillay, Patrick Govender

ABSTRACT: Computational studies were conducted to identify the favourable formation of the inclusion complex of chloramphenicol with cyclodextrins. The results of molecular docking and molecular dynamics predicted the strongest interaction of chloramphenicol with γ-cyclodextrin. Further, the inclusion complex of chloramphenicol with γ-cyclodextrin was experimentally prepared and a phenomenon of inclusion was verified by using different characterization techniques such as thermogravimetric analysis, differential scanning calorimetry, 1H nuclear magnetic resonance (NMR) and two dimensional nuclear overhauser effect spectroscopy (NOESY) experiments. From these results it was concluded that γ-cyclodextrins could be an appropriate cyclodextrin polymer which can be used to functionalize chloramphenicol on the surface of silver nanoparticles. In addition, γ-cyclodextrin capped silver nanoparticles were synthesized and characterized using UV–visible spectroscopy, scanning electron microscopy (SEM), transmission electron microscopy (TEM), energy dispersive X-ray analysis (EDX), Fourier transform infrared spectroscopy (FTIR) and zeta potential analysis. Molecular recognition of chloramphenicol by these cyclodextrin capped silver nanoparticles was confirmed by surface enhanced raman spectroscopy (SERS) experiments. Synergistic antibacterial effect of chloramphenicol with γ-cyclodextrin capped silver nanoparticles was evaluated against Pseudomonas aeruginosa (ATCC 27853), Enterococcus faecalis (ATCC 5129), Klebsiella pneumoniae (ATCC 700603) and Staphylococcus aureus (ATCC 43300). The results from the antibacterial experiment were favourable thus allowing us to conclude that the approach of modifying organic drug molecules with cyclodextrin capped inorganic silver nanoparticles could help to enhance the antibacterial activity of them.