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A Histopathological Audit of Hyperparathyroidism in the South African Setting

Kuruvilla Thomas, C Mitchell, EJ Miller, M Schamm, M Hale and TE Luvhengo

Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Introduction: Indications for parathyroidectomy include primary, secondary and tertiary hyperparathyroidism. Challenges in management of primary hyperparathyroidism include inability to conclusively differentiate a single adenoma from multi-gland disease.

Objective: To determine the demographic and histological findings of parathyroid glands from patients who had parathyroidectomy at Charlotte Maxeke Johannesburg Academic Hospital.

Method: An audit based on histopathological records of parathyroid glands from patients who had parathyroidectomy between 1 January 2011 and 31 December 2015. Data collected included patients' demographics, pre-operative diagnosis if recorded, nature of surgery and histological findings. Data was entered into an excel spreadsheet for analysis. Absolute numbers and percentages were used to summarize categorical data. Mean, median, Pearson's chi-square and Student's t-test were used where it was appropriate. Significance was set at a p-value below 0.05.

Results: A total of 49 records were found, of which the female-to-male ratio was 2.5:1. The median age of patients was 62.0 years. In total, 55.1% of patients had parathyroid adenomas. Secondary hyperparathyroidism was reported in 12.2%. The majority (66.7%) of tertiary hyperparathyroidism specimens were from male patients. Of the parathyroid glands removed, 46.9% were greater than 20.1 mm in diameter and 20.4% of specimens weighed more than 3.1 g. Except for retention of peripheral rim of normal tissue and increased capillary network with p-values of 0.005 and 0.014, respectively, the differences in occurrence of other histological findings were not statistically significant.

Conclusions: Parathyroidectomies are not common procedure in our setting. Majority of histological findings in hyperparathyroidism except for retention of rim of normal tissue and rich capillary network are shared amongst adenoma and hyperplasia and are therefore not useful for distinguishing pathologies of the parathyroid. All patients presumed to be having primary hyperparathyroidism caused by single parathyroid adenoma should be followed up for life as it is not possible for pathologists to be 100% sure of the diagnosis.

The South African Breast and HIV Outcome (SABCHO) Study – Preliminary Results of a Multi-centre Prospective Trial

Boitumelo Phakathi, Herbert Cubasch, Maureen Joffe, Sarah Nietz, Ines Buccimaza, Sharon Cacala, Raquel Duarte, Oluwatosin Ayeni, Judith Jacobson, Alfred Neugut and Paul Ruff

Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Introduction: Breast cancer is the most commonly diagnosed cancer among women in South Africa, as well as globally, and is the leading cause of cancer-related deaths in women from low to middle income countries. The HIV epidemic remains a major local as well as global health challenge with the majority of new infections occurring in women. The incidence of HIV infections among breast cancer patients as well as the impact of HIV on the management and outcomes of breast cancer is currently unclear.

Method: This prospective, observational study recruited patients with newly diagnosed breast cancer at the Charlotte Maxeke Johannesburg Academic Hospital, Chris Hanl Baragwanath Academic Hospital, Inkosi Albert Luthuli Hospital, Grey's Hospital and Nqwelezana Hospital in South Africa. Demographics and clinico-pathological parameters including HIV status, CD4 count and HIV viral load were obtained. Age and stage at diagnosis, breast cancer tumour grade, hormone and HER2 receptor status were compared in HIV-positive and HIV-negative breast cancer patients.

Results: A total of 1821 women, newly diagnosed with breast cancer and with known HIV status, were enrolled in this study. The mean (±SD) age at breast cancer diagnosis was 55.8 years (±14 years) and 21.5% were HIV-positive. Notably, 74.3% of HIV-positive patients were already on antiretroviral drugs (ARVs) at presentation. HIV-positive patients were significantly younger (45.6 versus 58.6 years; p < 0.001), presented with a more advanced stage (50.6% versus 45.5%; p < 0.001) and more triple negative breast cancer (20.9% versus 14.9%, p = 0.041) than HIV-negative patients.

Conclusion: This prospective, multi-centre study is one of the first to analyse the association of HIV and breast cancer in a setting where most HIV-positive patients are on ARVs at breast cancer diagnosis. HIV-positive breast cancer patients appear to be diagnosed at an earlier age and at a later stage compared with HIV-negative patients.

Acknowledgement: This study was funded by an NIH grant R01-CA192627. (PIs: J Jacobson, M Joffe, A Neugut and P Ruff), as well as South African MRC Common Epithelial Cancer Research Centre Grant (PI: P Ruff).
The Rates and Risk Factors for Local Recurrence of Phyllodes Tumours in a South African Population

Janice Spinks, Sarah Rayne and Kirstin Fearnhead

Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Introduction: Phyllodes tumours are rare fibroepithelial neoplasms of the breast. The dilemma with phyllodes tumours is their tendency to local recurrence.

Objectives: The aim of this retrospective review of phyllodes tumours in a South African population was to describe the histological and clinical features most prevalent, to determine the rate of local recurrence and to describe the clinical and histological risk factors for local recurrence.

Methods: We retrospectively assessed all histological reports of patients diagnosed with a phyllodes tumour after surgery at the University of the Witwatersrand NHLS (National Health Laboratory Service) Anatomical Pathology Laboratories, Johannesburg, South Africa from 1 January 2005 to 30 June 2016. Clinical and histological parameters were analysed.

Results: In total, 185 patients were identified. The median age of the patients was 42 years. There were 89 (48.1%) patients with a benign tumour, 34 (18.4%) with a borderline tumour and 62 (33.5%) with a malignant tumour. The size of the tumours ranged from 11 to 460 mm, with a mean of 106.1 mm ± 79.6 SD. Breast-conserving surgery was performed on 64.3% of patients, and 35.7% of patients had a mastectomy. There was an overall local recurrence rate of 3.78% (2.2% for the benign tumours and 8.1% for the malignant tumours). No clinical or histological factors were found to significantly predict local recurrence.

Conclusions: Since our study did not find any predictors of local recurrence, we suggest that a wide local excision with 1 cm margins might be unnecessary, and perhaps a negative margin combined with a close follow-up for 2 years after excision is necessary.

Reliability and Versatility of the Wise Pattern, Medial Pedicle for Breast Reduction in South Africa

Brian Monaisa, Marietha Nel and Elias Ndobe

Department of Surgery, Division of Plastic & Reconstructive Surgery, University of the Witwatersrand, South Africa

Introduction: Mammary hyperplasia is a common condition, which may be successfully treated with reduction mammoplasty. There is a lack of consensus amongst plastic surgeons as to the best technique for reduction mammoplasty, and the techniques are continually evolving. The goal of this study was to develop a technique that is versatile and reliable across a wide range of breast sizes, with few complications and with long-lasting results. We believe that the Wise pattern, minimally undermined, medial pedicle technique meets these criteria.

Objectives: To develop a minimally undermined, Wise pattern, medial pedicle breast reduction technique, and to demonstrate its reliability and versatility in breast reduction in the South African population.

Methods: We conducted a retrospective record review of the reduction mammoplasties conducted by Prof Elias Ndobe and myself over a period of 1 year from March 2013 to February 2014. We assessed the patients for early complications related to vascular reliability. We took pre-, intra- and post-operative photographs to demonstrate the technique as being presented in this research report.

Results: There were 57 patients operated on in the study year, totalling 114 breasts. The patients’ sternal notch to nipple distances ranged from 28 to 52 cm. The volume of breast reduction ranged from 345 to 3300 g per breast. We had an overall complication rate of 9.7%. This percentage consisted of fat necrosis in 3.5%, infection in 1.7%, dehiscence in 3.5% and nipple epidermolysis in 0.9% of the patients with complications.

Conclusions: The minimally undermined Wise pattern medial pedicle breast reduction technique proved to be a reliable technique for breast reduction in the South African population. We demonstrated safety in pedicated breast reduction with sternal notch to nipple distances of up to 50 cm, as well as reliability and versatility in a wide range of breast sizes.
THINK: From MMED to Clinical Trial, a Promising Pilot

Vered Lack, Jerome Loveland and Enid Schutte
Department of Surgery, Division of Paediatric Surgery, University of the Witwatersrand, South Africa

Introduction: Chris Hani Baragwanath Academic Hospital (CHBAH) admitted and managed 3358 paediatric trauma cases between 2013 and 2016. Following burns, most admissions involved traumatic brain injury. Mildly head-injured children are managed expectantly and are not followed up after discharge, in line with international practices. In Southern Africa poverty, malnutrition and the effects of HIV on the family unit may play a role in children’s recovery to full premorbid functioning. To assess this, the THINK (Traumatic Head Injury: Neurocognitive and Behavioural Assessment and Management in Kids) study was conceptualised. This paper describes the feasibility component of the study.

Objectives: To assess neurocognitive and behavioural functioning of previously mildly head-injured children as compared to age-matched controls from similar environments in order to identify residual neuro-disability.

Methods: In this cohort, patients identified in a retrospective cross-sectional study were contacted telephonically. Using internationally recognised tools, normed to the South African population, children performed the assessment of antisocial behaviour (ASB), non-verbal components of NEPSY-II and WISC-IV components. Caregivers filled out a demographic questionnaire and the Vanderbilt Assessment scale. Children with known epilepsy, febrile seizures or diagnosis of non-accidental injury were excluded.

Results: Over a 2-month period, 20 test sessions were conducted. A total of 168 suitable patients were identified, of which 86 (51%) were not contactable. From the 82 (49%) contactable patients, 6 (7%) patients relocated, and 5 (6%) declined testing, thus 71 (87%) patients were booked for testing. In total, 24 walk-in controls and 34 (41%) previously head-injured children were tested. Two (8%) control participants did not complete the full panel, and 4 (11%) head-injured children were excluded post testing.

Conclusions: The initial component of the study was deemed a success with respect to logistics and number of patients successfully tested using the panel of tests selected. With minor adjustments, the authors believe this to be a feasible study that will yield invaluable results.

Gastrointestinal Cancer Patients Who Received Neoadjuvant and Adjuvant Therapy at Charlotte Maxeke Johannesburg Academic Hospital

Riemann Biowe, Michael Klipin, Paul Ruff and Vinay Sharma
Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Introduction: Studies have shown that a large proportion of cancer patients do not receive adjuvant treatment or experience delays in treatment. At Chris Hani Baragwanath Academic Hospital (CHBAH), the number of gastrointestinal (GIT) malignancy patients referred for neoadjuvant and adjuvant therapy to Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and who subsequently arrive for receive and complete treatment is unknown.

Objectives:

Primary objectives:

To determine the number of patients referred from CHBAH to CMJAH for oncology treatment, who (1) were seen at the oncology clinic at CMJAH; (2) received the first dose of therapy; and (3) completed therapy.

Secondary objective:

To review factors associated with poor compliance and/or non-receipt of treatment.

Methods: Between January 2013 and December 2013, patients above 18 years of age with diagnosed GIT malignancies who were referred for treatment at CMJAH were identified. The database and files at both hospitals were reviewed. The numbers who received the first dose and subsequently completed treatment were calculated and proportioned against the total number of referred patients. Statistical data analysis was performed with STATISTICA. Chi-square test was used to determine any associations between compliance factors.

Results: A total of 84 adult patients with GIT cancers were referred. Forty-six patients were seen at the CMJAH oncology clinics. Thirty-eight patients were not seen at CMJAH. Thirty-two (38%) patients received their first dose of therapy, and 23 (27%) completed the prescribed treatment. The mean (±SD) age was 53.8 (±13.3) years. The M:F ratio was 45:39. There was no significant difference in age and gender in these cancers (p = 0.410). Between younger (<60 years) and older (≥60 years) age groups, treatment completion and non-receipt rates were higher in the former.

Conclusions: Only 23 patients (27%) referred to CMJAH for oncology treatment from CHBAH completed treatment. About half of the patients did not arrive for consultation. Improved data banking and follow-up could alter these numbers.
The Profile of Colorectal Cancer Patients at CMJAH, Department of Surgery (April 2015 to March 2017)

GEMP GROUP 1B (Menachem Hockman and Marco Caldeira), Allan Rosen, Avika Kalideen, Bridgette Obonyo, Caitlin Williams, Kelly Williams, Mazvita Moyo, Ntshako Ribisi, Robert Wiggill, Rumbidzayi Ramhewa, Ryan Carter, Steffani Ovadia, Thembokuhle Masondo, Tokologo Mphela and Zann Splinter

Department of Surgery, University of the Witwatersrand, South Africa

Introduction: It is reported that colorectal carcinoma (CRC) is the third most common cancer worldwide and the third most common cause of cancer-related deaths. There is currently a paucity of data surrounding CRC in South Africa. Furthermore, there is no audit data available relating to the demographic profile of CRC patients at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH).

Objectives: The primary objective of this research was to determine the age, sex and race of patients discharged from CMJAH, Department of Surgery with a diagnosis of CRC between 1 April 2015 and 31 March 2017. The secondary objective was to correlate this with the carcinoembryonic antigen (CEA) and biopsy findings.

Methods: We conducted a retrospective record review of discharge summaries and NHLS records of patients discharged from the CMJAH, Department of Surgery with a diagnosis of CRC, from the period 01 April 2015 to 31 March 2017. A structured query language query with a wide range of search terms was used to identify all possible cases relating to our study population. Each record was then individually reviewed. A total of 82 patients were included in the study. The results were compiled in an excel spreadsheet for analysis.

Results: In this study, 20% of patients with CRC in CMJAH were under the age of 40 years. Black patients presented younger than White patients with a median age of 49 and 69 years, respectively. CEA was only found to be elevated in 45% of CRC patients; however, a significant correlation was found between CEA levels and the presence of metastasis with 82% of patients with metastasis having elevated CEA levels.

Conclusion: The prevalence of CRC in young patients, the earlier presentation in the Black population warrants further investigation. The value of CEA in determining the presence or absence of metastasis in this population is limited.

An Audit of Colonoscopies Performed at Wits Donald Gordon Medical Centre and Helen Joseph Hospital

Amisha Maraj, BD Bebington and GJ Oettle

Department of Surgery, Division of Colorectal Surgery, University of the Witwatersrand, South Africa

Introduction: Colorectal cancer (CRC) is the third most common newly diagnosed malignancy in the United States. The American College of Gastroenterology CRC Screening Guidelines recommended colonoscopy as the test of choice. Universally, colonoscopy is the most frequently performed screening tool and the effectiveness thereof is determined by the identification and successful removal of premalignant lesions and adenomas. Adenoma detection rate is a primary quality indicator, and a benchmark of 25% had been recommended by the American College of Gastroenterology and the American Society of Gastrointestinal Endoscopy. Segal et al. in 1981 demonstrated that CRC is rare in South African Blacks. Currently, there is no database on CRC in the South African population.

Objectives:
1. To study the demographic of patients undergoing colonoscopies at Wits Donald Gordon Medical Centre (WDGMC) and Helen Joseph Hospital (HJH).
2. To determine the histological profile of colorectal cancer.
3. To determine if any differences exist between racial groups and colorectal cancer pathology.

Methods: Data was obtained from a retrospective record review of colonoscopies performed from 16 January 2014 to 22 May 2016 at WDGMC and HJH.

Results: Of the total of 1296 colonoscopy reports, 703 were performed at WDGMC and 593 were at HJH. The mean age was 56.5 years and 43.5% were males and 55.9% were females. The study population demonstrated the following racial breakdown: Asian (18, 1.4%), Black (269, 20.8%), Indian (127, 9.8%), Mixed race (122, 9.4%), White (663, 51.2%), Unknown (97, 7.5%). The indication for colonoscopy was screening (11.2%); symptomatic (83.9%) or unknown (4.9%). The most common finding was polyps (366, 28.4%) of which tubular adenoma (117, 42.5%) was the most common histological subtype. Thirty patients had invasive adenocarcinoma.

Conclusion: The most common type of polyp was tubular adenoma (42.5%) and 30 patients had invasive carcinoma.
What Determines Outcome: Data Derived from a Prospective Cohort Study of Colorectal Cancer Patients Presenting to Four Witwatersrand University Hospitals

Brendan Bebington, Leanne Prodehl, Christine Jan Kruger, Alvira Singh, June Fabian, Clement Penny and Paul Ruff

Department of Surgery, Division of Colorectal Surgery in GIT, University of the Witwatersrand South Africa

Introduction: Colorectal cancer is the third most common cancer in both genders but there is very little South African data related to this disease, particularly in a clinical setting. It is for this reason that, through an MRC grant, a prospective cohort study is being carried out at the University of the Witwatersrand (Wits) and has included CNAJH, Chris Hani Baragwanath Academic Hospital, Wits Donald Gordon Medical Centre and Edenvale Hospital.

Objectives: This study is a report on the variables defining the outcome in a sample of patients presenting with colorectal cancer.

Methods: This is an ongoing ethically approved prospective cohort study. A research nurse evaluates clinical parameters by interrogating notes, discussing treatment with clinicians and communicating directly with patients by questionnaire. In this study, a subgroup analysis of multiple variables was compared by means of a Cox proportional hazards model. Those variables with a $P$ value less than 0.05 are reported here.

Results: In total 329 patients were assessed. Importantly, this group is of mixed ethnicity and socio-economically diversity, coming from both public and private sectors. There are only 12 patients lost to follow up, constituting 3.9% of all cases seen. Outcomes are defined by overall survival. In all variables assessed, the only differences in outcome are seen in comparison of subgroups of socio-economic status in which the poor and disadvantaged fared badly.

Conclusions: These findings are consistent with international figures as defined by the 5-year relative survivals seen in the 2008 GLOBOCAM report, where positive correlation with GDP was demonstrated. The complexities of barriers to care defining outcome are not readily evaluated in our study but are considered easy to pursue in the future. This research is considered to be a rallying point for further efforts.

Monocyte Human Leucocyte Antigen Expression and CD4+/CD8+ ratio in the Second Hit of Acute Pancreatitis: Role in Disease Progression

Pascaline Fru-Fonteh¹, John-Edwin Thomson¹ and Martin Brand²,³

¹Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa
²School of Physiology, University of the Witwatersrand, South Africa
³Department of Surgery, University of Pretoria, South Africa

Introduction: Acute pancreatitis (AP) is an inflammatory condition of the pancreas that initiates a systemic inflammatory response characterised by complex immune events involving immune cells and inflammatory molecules. The relative abundance of these cells and inflammatory molecules resulting from the immune imbalance drives disease progression.

Objectives: To determine the frequency of lymphocytes and the human leucocyte antigen (HLA-DR) expression on monocytes (CD14+) during the second hit of AP and to correlate these to disease progression in severe AP (SAP) compared to mild/moderate AP (MAP).

Methods: A multicolour immunophenotyping assay was performed on 11 patients with mild/moderate ($n = 8$), severe ($n = 3$) and healthy control patients ($n = 6$) by flow cytometry on days (D) 7, 9, 11 and 13 of illness. Necrotic complications were clinically determined. A $p$ value of $<0.05$ was considered significant.

Results: The mean CD4+/CD8+ ratio was significantly higher on D9 than on D11 for the SAP group and a trend of SAP > MAP > control was observed between groups. CD14+HLA-DR+ expression was significantly higher on D7 and D9 than on D11 for the MAP group. A twofold decrease in CD4+HLA-DR+ expression in the SAP group was observed on day 7 and steadily increased through days 11 and 13. CD14+HLA-DR+ expression was lower in the order control > MAP > SAP. A twofold decrease in CD4+/CD8+ was observed in patients with necrosis compared to those without.

Conclusions: An unexpected reversed CD4+/CD8+ ratio: SAP > MAP > healthy controls was observed in the second hit of SAP (D7 and D9) in these preliminary studies. A time-dependent increase in CD14+HLA-DR+ expression suggests recovery for SAP, while in the MAP group, an initial decrease was observed on D9 and D11 before a noticeable increase on D13. These varying immune responses suggest that polychromatic immunophenotyping of both the adaptive and innate immune system through the first and second hit will provide useful insights.
Comparison of the Risk Factors and Initial Presenting Symptoms to the Stage of Disease in Pancreatic Ductal Adenocarcinoma at Chris Hani Baragwanath Academic Hospital

Nicola Lahoud, John Devar and Deirdré Kruger
Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Background: Pancreatic adenocarcinoma (PDAC) is the fourth leading cause of death in the United States amongst both sexes and patients present late with the disease. Where many studies have described the risk factors, symptoms, biochemistry and staging of the disease, none have assessed the risk factor profile and presenting symptoms according to the stage of the cancer in a South African population.

Objectives: To assess the initial risk factor profile, presenting symptoms and biochemistry according to stage in Black South African patients with diagnosed PDAC at Chris Hani Baragwanath Academic Hospital (CHBAH).

Methods: A retrospective study including 71 patients with diagnosed PDAC from the Hepatobiliary unit database at CHBAH. We determined the TNM staging of each tumour from CT scans and correlated it to the demographic, biochemistry, risk factor and symptom data recorded in the patients file.

Results: The study population had a mean (±SD) age at presentation of 59.9 (±10.8) years with a male predominance of 56.3% males. The majority of patients had stage 2 disease (35.2%). Body mass index (BMI) and current smoking status differed significantly across the stages. The most common symptoms were abdominal pain (67.7%), jaundice (65.6%) and weight loss (50.8%), none of which were associated with PDAC stage. Lower platelet count, high GGT and elevated CA19-9 levels were significantly associated with advanced PDAC. Platelet count is protective and showed statistical significant in each T, N and M stage, respectively. Univariate logistic regression demonstrated that platelet count, CRP and CA19-9 values are significantly associated with metastasis. In a multivariate logistic regression model, lower platelet count and increased CA 19-9 are independent predictors of metastatic disease in PDAC patients with 97% specificity and 83% PPV.

Conclusion: Our data demonstrates that most risk factors or presenting symptoms show no association with PDAC stage, whereas platelet count and CA19-9 are independent predictors of metastases in PDAC.
A Prospective, Within-patient Controlled Study to Compare the Ability of the Non-adherent Drawtex® Hydroconductive Dressing to an Opsite® Dressing (Standard of Care) on the Healing of Split-thickness Skin Graft Donor Sites

Barend H van den Bergh1, Deirdre Kruger2, Jonathan Kourie2, Steve Moeng2 and Martin Robson3

1Department of Surgery, Division of Plastic & Reconstructive Surgery, University of the Witwatersrand, South Africa
2Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa
3Department of Surgery, University of South Florida, Tampa, FL, USA

Introduction: Dressing of donor sites in split-thickness skin grafts can be traumatic for the patient. The associated pain and discomfort has impelled a myriad of publications in the quest for the Holy Grail. The most advanced and expensive dressings have been studied and compared to the most basic of dressings, with little or no consensus and an unpersuasive level of evidence.

Objectives: We aimed to determine the efficacy of the locally manufactured non-adherent, hydroconductive Drawtex® dressing and compare it to the standard-of-care dressing in our setting, Opsite®, in the healing of split-thickness donor sites.

Methods: In this prospective, within-patient controlled and multi-centre study, we included 27 adult participants, each with two split-thickness skin graft donor sites: one donor site wound was dressed with Drawtex® and the other one with Opsite®. The 54 donor site wounds were compared with regard to time to re-epithelialisation, perceived pain of the patient and quality of the healed wound.

Results: Comparing Drawtex® and Opsite® dressings in the healing (defined as >90% of epithelialised surface) of donor site wounds, 22.2% of Drawtex® and 3.7% of Opsite® wounds were healed by day 5 (p = 0.00002). On day 10 and 15, 88.9% versus 85.2% and 100% versus 96.2% of donor site wounds were healed for Drawtex® and Opsite®, respectively. The hydroconductive dressing treated donor site wounds were significantly less painful than the Opsite®-treated donor site wounds at 24-h, 48-h and 7-days post-operatively. Overall, there were fewer complications in the hydroconductive dressing group and the wound healing quality was superior to that of the Opsite®-treated group.

Conclusions: Drawtex® is a relatively cheap and readily available dressing made locally in South Africa. In this study, we have demonstrated Drawtex® to be at least as safe, and potentially superior in wound healing, when compared to our current standard-of-care dressing, Opsite®.
Factors Leading to Delayed Presentation of Patients with Diabetic Foot Sepsis at Regional Hospitals in the Ekurhuleni Metropolitan Municipality of Gauteng Province

Ilunga Mukendi 1, S Mundawarara1, N Nkosi2 and TE Luvhengo3
1Thelle Mogoerane Hospital, South Africa
2Far East Rand Hospital, South Africa
3Charlotte Maxeke Johannesburg Academic Hospital, University of the Witwatersrand, South Africa

Background: Nearly 50% of all diabetic-related admissions are due to diabetic foot problems, and diabetes mellitus is the commonest cause for non-traumatic amputation of the lower limb.

Objective: To determine factors which contribute to delayed presentation in patients presenting with diabetic foot sepsis.

Methods: A prospective longitudinal observational study of all patients 18 years and older was conducted. Data collected included demographics, diabetic history and treatment type, co-morbidities, prior treatment, clinical findings, treatment method and overall outcome. Data were entered into an excel spreadsheet for analysis and categorical data were expressed in percentages whereas continuous data, in mean and 95% confidence interval. Incident risk ratio was calculated. Chi-square and Student’s t-test were used when appropriate.

Permission to conduct the study was received from the University of the Witwatersrand HREC (M160759).

Results: A total of 101 patients have been studied, of which 63.4% (64/101) were males. The average age for males and females was 58.9 and 61.8 years, respectively. Overall, 92.2% of males and 97.3% of females were known diabetics and 52.4% were on oral hypoglycaemic therapy. Moreover, 51.5% had prior diabetic education, 35.6% had home haemoglycotest and compliance was good in 38.6%. In addition, 73.4% of males and 78.4% of females presented more than 2 weeks after the onset of foot sepsis. Prior use of herbal medication was reported by 17.2% of males compared to 24.3% in females. Specifically, 71.3% were seen at a clinic and 52.4% were treated with antibiotics before referral. Amputations were done in 61.0% of males and 59.5% of females, and mortality was 12.5% and 5.4% in males and females, respectively.

Conclusions: The majority of patients presenting with diabetic foot sepsis are known to have diabetes and are on oral hypoglycaemic therapy. The majority of patients receive either antibiotic and/or herbal therapy before they are referred. More than 60% of cases in our study ended with amputation and mortality was two times higher in males.

Differences in Microbiome in Rat Models of Cardiovascular Disease

Anza Thiba, Umar Cajee, Siyanda Myende, Ekene Nweke, Karl Rumbold and Geoffrey Candy
Department of Surgery – Research, University of the Witwatersrand, South Africa

Introduction: Approximately 25% of the world’s adult population has hypertension. It is a major risk factor for cardiovascular disease, stroke, and heart and kidney failure; however, its cause remains unknown. Gut microbiota has been shown to have a causal role in the development of hypertension. In animal studies, it has been shown that eradication of certain gut microbes leads to decreased blood pressure and that gut dysbiosis may cause an increase in blood pressure. Furthermore, there is a difference in microbial flora composition in hypertensive and normotensive rats. The aim of this study was to compare the gut composition of hypertensive and normotensive animal models.

Objectives: To collect, culture and identify gut bacteria from hypertensive and normotensive rat models.

Methods: Stomach, intestinal and faecal samples were collected from spontaneously hypertensive rats, Dahl salt sensitive rats and normotensive Dahl rats. The samples were cultured in microaerophilic conditions (5% O2–10% CO2–85% N2) and identified by matrix-assisted laser desorption ionization–time-of-flight mass spectrometry (MALDI-TOF).

Results: Normotensive rats presented with species diversity, richness and a balanced gut microbiota. There was a decrease in microbial species diversity, richness and abundance in the hypertensive rat models. In addition, there was an increase in Firmicutes and Bacteriodetes ratio in the hypertensive rat models.

Conclusions: The observed results demonstrate that a dysbiotic gut microbiota is associated with hypertension. Previous studies have shown that bacteria from Bacteriodetes and Firmicutes phyla play a crucial role in development of hypertension and are needed for the maintenance of physiological homeostasis. How there dysbiosis comes about is not fully understood.
Registrar Perceptions on General Surgical Training in South Africa: A Report by the South African Society of Surgeons in Training (SASSiT)

Nirav Patel¹, Astrid Leusink², Natasha Singh³, Zach Koto³ and Thifhelimbilu Luvhengo⁴

¹Department of Surgery, Division of Paediatric Surgery, University of the Witwatersrand, South Africa
²Department of Surgery, Chris Hani Baragwanath Academic Hospital, South Africa
³Department of Surgery, Sefako Magkatho University, South Africa
⁴Department of Surgery, University of the Witwatersrand, South Africa

Background: Surgical training varies significantly amongst universities within the same country. This trend is reflected in South Africa and provides an opportunity for innovation to improve the quality of training.

Objective: To assess perceptions of registrars regarding surgical training.

Method: A prospective descriptive study was performed by means of a confidential questionnaire distributed to general surgical registrars at all eight training centres in South Africa. Participants were asked to comment on adequacy of formal academic teaching, level of supervision during surgical procedures, exposure to and training in minimally invasive surgery (MIS) and preparation for examinations. Descriptive statistics were generated with Microsoft Excel. Ethics clearance was obtained.

Results: Of 200 questionnaires distributed, 105 (52.5%) were returned. Forty-four per cent (105/241) of all registrars from six training institutions participated. About 89.5% (94/105) of respondents reported that they attended less than 6 h of formal academic teaching per week and 71.4% (75/105) indicated that their institution offered less than 6 h of formal academic teaching per week. About 76.2% (80/105) of respondents regarded lack of protected academic time as the greatest obstacle to their surgical training and 95.2% (99/105) reported that clinical responsibilities prevented them from attending formal academic teaching regularly. Overall, only 31.4% (33/105), 41.9% (44/105) and 37.1% (39/105) were satisfied with the amount of formal academic teaching, level of supervision during theatre procedures and exposure to minimally invasive surgery, respectively. Lack of resources and lack of appropriate skills were identified as a hindrance to MIS training by 47.6% (50/105) and 28.6% (30/105) of respondents.

Conclusion: Surgical registrars are dissatisfied with the amount of formal academic teaching, protected academic time, level of supervision in theatre and their exposure to MIS. These challenges compromise trainees’ ability to practice independently after qualification. Numerous interventions are necessary to address these challenges.
A Preliminary Report for the Prospective Observational Study of the Applicability of the Clavien–Dindo Classification of Post-operative Complications in a South African Tertiary Academic Hospital

Anna Sparaco, V Naaidoo, Talib Abdool-Carim, Damon Bizos, Boitumelo Phakathi, Mbavhalelo C Livhebe, Irma Mare, Thomas Marumo, Steve Moeng, T Monareng, S Ngobese, Claire Mitchell, E Muller, M Nhlapo, Sarah Nietz, Leanne Prodehl, Marcus Schamm and Thifhelimbilu E Luvhengo

Department of Surgery, Division of General Surgery, University of the Witwatersrand, South Africa

Introduction: The rate of post-operative complications in a health-care facility is a marker of quality of health care. Post-operative complications are under-reported and not standardized. The Clavien–Dindo Classification has been proven to be reliable to standardize reporting of complications in middle and high income countries but not in low income or African setting.

Hypothesis: The hypothesis is that the Clavien–Dindo Class IV and V post-operative complications are more prevalent in low-income countries.

Material and methods: Patients 18 years or older undergoing a surgical procedure in the General Surgery Department at the Charlotte Maxeke Johannesburg Academic Hospital, between 1 March 2017 and 1 November 2017, were consented for this longitudinal study.

Results: Two hundred and fifty procedures took place between 1 March and 1 November 2017. Trauma contributed 0.4%, breast and endocrine 10.8%, transplant 11.6%, vascular 15.3% and gastrointestinal surgery (61.8%). Gender was almost equally distributed (males 52.5% versus females 47.5%). The patients were predominantly Black (65.4%) followed by Whites (15.8%) and then coloureds (9.8%). Hypertension and diabetes made up the majority of comorbidities. Coronary artery disease accounted for only 0.7% and chronic obstructive pulmonary disease (COPD) 6.8% with 14% smokers. Moreover, 12.6% were reported as HIV positive although 47.8% were not specified; 15.3% were on anti-retrovirals. The majority of cases were ASA II or III. Intra-operative adverse events occurred in 8.2% with Satava grades of I (53.3%) and II (46.7%). According to the Clavien–Dindo Classification: Grade I – 36.6%, II – 25%, IIIa – 13.5%, IIIb –13.5%, IVa – 3.8% and IVb –1.9%. Overall, 10.2% of the patients required ICU admissions, 2.1% of the patients died and 94.9% recovered fully.

Conclusion: This study suggests that although the patients have significant co-morbidities, with few patients classified as ASA I, the complications that occur are predominantly resolved without major intervention. Finally, the hypothesis is thus far negated as the predominant Clavien–Dindo classification in this study is in fact Grade I or II.