

Findings: Analysis of the data from the training on diabetes revealed that at almost every visit: 96% worked with a person with diabetes, 92% counseled a patient on diabetes, 94% talked with a diabetic patient about taking their medications, 63% inspected a patient's feet, 83% made a referral to a hospital/clinic, and 96% used the diabetes action plan. The knowledge retention and application scores were high for the hypertension content as well. On almost every visit, 100% worked with someone who had hypertension, 96% counseled a person on improving their diet, 96% talked with patients about refilling medications or taking BP meds, 75% referred a patient to hospital or clinic, and 96% used the hypertension action plan. However, only 30.4% measured BP on almost every visit.

Interpretation: One year after completion of a training program the CHWS retained knowledge and applied it in the care of their patients with hypertension and diabetes. The 100% retention rate after 12 months affirms the commitment of the participants and increases the likelihood of project sustainability. Challenges: Lack of equipment to take blood pressures did not give the CHWS the chance to practice or gather important data for the medical team. Going Forward: Future research studies will be expanded to include home visits to observe the CHWS interacting with their clients as they apply knowledge from the training, funding for BP monitors, and the collection of patient level data to directly link education and training to outcomes for individuals and communities.

Funding: No funding listed.

Abstract #: 02NCD022

Prevalence of and risk factors for peripheral neuropathy in Rakai, Uganda

D. Saylor¹, G. Nakigozi², N. Nakasujja³, X. Kong⁴, K. Robertson⁵, R.H. Gray⁴, M.J. Wawer⁴, N. Sacktor¹, ¹Johns Hopkins University School of Medicine, Baltimore, MD/US, ²Rakai Health Sciences Program, Rakai, UG, ³Makerere University, Kampala, UG, ⁴Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD/US, ⁵University of North Carolina - Chapel Hill, Chapel Hill, NC/US

Background: Peripheral neuropathy (PN) is a common and potentially debilitating neurologic complication of HIV infection. Systematic studies of PN in sub-Saharan Africa are lacking. This study aimed to identify the prevalence of and risk factors for PN in rural Uganda.

Methods: A sample of participants in the Rakai Community Cohort Study were selected for this study. Eligible participants were >18 years old, HIV-positive (HIV+), antiretroviral (ARV) naïve, and had CD4 counts either between 351 and 500 cells/mm³ or 3. Age- and gender-matched HIV-negative (HIV-) participants were also selected. Written informed consent was obtained from all participants who then underwent a detailed neurological evaluation including assessment of demographic characteristics, subjective PN symptoms, and a neurological examination by a trained medical officer. PN was defined as > 1 sign on examination (e.g. decreased pinprick or vibration in the fingers or toes, distal weakness, or reduced/ absent ankle reflexes) and > 1 subjective symptom (e.g. paresthesias, numbness, or pain in the hands or feet). PN risk factors were determined by comparing characteristics of participants with and without neuropathy using *t*-tests for continuous variables and chi-squared tests for categorical variables. This study was approved by the Johns Hopkins University and Uganda Virus Research Institute Institutional Review Boards.

Findings: 538 participants were enrolled: 200 HIV+ participants with moderate immunosuppression (CD4 count 351-500), 107 HIV+ ARV-naïve participants with advanced immunosuppression (CD4 count < 0.001) than those with moderate immunosuppression. PN was more

prevalent among HIV+ than HIV- participants (24% vs. 8%, *p* < 0.001) and showed a trend toward statistical significance among HIV+ participants with advanced immunosuppression versus those with moderate immunosuppression (30% vs. 20%, *p*=0.05). In addition to HIV status and level of immunosuppression, older age (mean: 38 years vs. 35 years, *p*=0.03) was also a significant predictor of PN, but BMI (*p*=0.45), alcohol use (*p*=0.78), and prior isoniazid use (*p*=0.06) were not. PN severity was worse in HIV+ than HIV- participants as assessed by the Modified Total Neuropathy Scale (*p*=0.003).

Interpretation: PN is prevalent in rural Uganda and is more common in HIV+ individuals, with a trend toward increased prevalence in those with advanced disease. PN prevalence also increases with age. This highlights the need for early diagnosis and treatment of HIV to prevent this potentially debilitating complication and the necessity of close monitoring for PN as the HIV+ population ages.

Funding: NIMH RO1 MH099733 (Sacktor, Wawer) and NINDS R25 NS065729-05S2 (Saylor)

Abstract #: 02NCD023

Effect of parity on the epidemiologic profile of Malawian women presenting for obstetric fistula repair: A cross sectional study

A.M. Sih¹, D.M. Kopp², J.H. Tang², N.E. Rosenberg³, E. Chipungu⁴, J.P. Wilkinson³; ¹SUNY Downstate Medical Center, Brooklyn, NY/US, ²UNC Department of OBGYN, Lilongwe, MW, ³UNC Project-Malawi, Lilongwe, MW, ⁴Fistula Care Centre, Bwaila Maternity Hospital, Lilongwe, MW

Background: Obstetric fistula remains a debilitating condition in low-income countries. Previous descriptive studies of fistula patients report a majority as being young and primiparous at the time of fistula formation. The population of women who are multiparous at the time of fistula formation has rarely been described. Our objective is to describe the patient population presenting for obstetric fistula repair at the Fistula Care Centre at Bwaila Maternity Hospital in Lilongwe, Malawi and to identify potential risk factors that may contribute to fistula formation, particularly among multiparous women.

Methods: We completed a cross-sectional analysis of baseline data from women who presented for obstetric fistula repair between September 2011 and September 2014. After providing informed consent, these women completed an admission form that included questions about their demographics, obstetric history, and physical exam findings. Women with non-obstetric fistula and those who did not know their number of deliveries were excluded from the analysis. The primary outcome of the study was to compare the demographic characteristics of women who had obstetric fistula form during their first pregnancy versus during a subsequent pregnancy. Chi-square, Fischer exact, and Mann-Whitney tests were used. IRB approval was obtained from the Malawi National Health Sciences Research Committee and the University of North Carolina IRB.

Findings: During the study period, 513 women presented to the Fistula Care Centre, of which 459 (89.5%) had obstetric fistula and were included in the analysis. Of these, 195 patients (42.5%) were primiparous and 258 (56.2%) were multiparous at the time of fistula formation. The median parity for multiparous patients at the time of fistula formation was 3 (IQR 24). Multiparous patients were more likely to be currently married (68.9% vs 53.4%, *p*=0.001), to have a liveborn infant at that delivery (29.7% vs 15.9%, *p*=0.001), to labor less than 24 hours (55.8% vs 40.0%, *p*=0.001), and to have a Caesarean

delivery rather than a vaginal or instrumented delivery (58.7% vs 49.0%, $p=0.041$). They were less likely to be underweight (7.2% vs 14.5%, $p=0.019$) compared to primiparous patients. There were no significant differences in occupation, education level, or age at first marriage.

Interpretation: Unlike previous studies, the majority of patients presenting for repair at Bwaila Maternity Hospital were multiparous at the time of their fistula formation. This study highlights that the population of women with obstetric fistula is diverse and that even older and multiparous women are at-risk for developing fistula in settings where comprehensive emergency obstetric care is not available. Further understanding the factors that lead to obstetric fistula formation in multiparous patients is key to eliminating this condition in low-income countries.

Funding: Freedom from Fistula Foundation, University of North Carolina Department of OB-GYN, Doris Duke Charitable Foundation.

Abstract #: 02NCD024

Reducing disparities in hypertension control: A community-based hypertension control project for population in Rural Thailand

N. Singha-Dong¹, M. Pardee², A. Bigelow²; ¹Institute of Nursing, Suranaree University of Technology, Nakhon Ratchasima, CH, ²University of Michigan School of Nursing, Ann Arbor, MI/US

Background: Hypertension is the most prevalent non-communicable disease causing significant morbidity/mortality through cardiovascular, cerebrovascular, and renal complications. Therefore, Community Hypertension Intervention Project (CHIP) was initiated to prevent Hypertension and improve patient outcomes in a high-risk, underserved population in rural community of Nakhon Ratchasima, Thailand. This aim to test the efficacy of multiple interventions in preventing/controlling hypertension.

Methods: Study design: A pre-posttest design study was used to test the comprehensive CHIP in Tahjalung Sub-district of Chok Chai District, Nakhon Ratchasima, Thailand. Participants: Subjects included 123 individuals at hypertensive risk, 25 pre-hypertensive person, and 45 patients who were residents of the sub-district. Interventions: Tailored interventions included Health education with hypertensive screening, changing lifestyle, Salt Intake Reduction, and physical exercise. Additionally, hypertensive patients received individualized counseling sessions with researchers, health workers, and volunteers; a comprehensive comorbidity assessment, and home visits/focus group discussions provided by nursing students, faculty, and hospital staff. Grand round was conducted to promote community participation and continuum of care. Analysis: Descriptive statistics were used to describe participants. Additionally, T-Test and ANOVA were used to test an effectiveness of the interventions.

Findings: The interventions showed significant reduction in salt intake, risk behaviors, and blood pressure. Four new cases were identified from screening. Four, three, and two patients were diagnosed with chronic kidney disease, diabetes mellitus, and cardiovascular diseases, respectively. All patients had significant improvement in compliance resulting in better outcomes. Individuals with health needs were referred for proper and continuum of care.

Interpretation: This CHIP study confirmed the biological plausibility of comprehensive community based interventions. Individualized counseling and home visits resulted in significant, sustained improvements in pharmaceutical compliance, appointment keeping and blood

pressure control status. These findings are now being integrated into the patient care delivery system of the local primary care clinics.

Funding: Suranaree University of Technology

Abstract #: 02NCD025

The operation of a sustained clinical pediatric hematology-oncology program at a public hospital in sub-saharan africa: The botswana experience 2007-present

J. Slone¹, A. Slone², P.S. Mehta³; ¹Texas Children's Cancer & Hematology Centers, Gaborone, Botswana, ²Texas Children's Cancer & Hematology Centers, Gaborone, Botswana, ³Texas Children's Hospital & Baylor College of Medicine, Houston, TX/US

Program/Project Purpose: The Botswana Pediatric Hematology-Oncology Program started in August 2007 at Princess Marina Hospital (PMH), the major referral hospital in Gaborone, Botswana. This program is the only care and treatment available in the country for children with blood disorders and cancer. This unique program aims to improve morbidity and mortality from these diseases for the children of Botswana and to develop a regional program of excellence.

Structure/Method/Design: The program goals are to improve care and treatment of pediatric blood disorders and cancer and train local healthcare professionals in the care of these patients to ensure a locally sustainable program of excellence in pediatric hematology-oncology. The principle local partners are the Ministry of Health (MOH), University of Botswana (UB), and PMH. The MOH and PMH, the major referral hospital of the country were selected as strategic partners to positively impact the national health care system of Botswana. These partners were selected because the MOH runs the national healthcare system and PMH is the major referral hospital in the national system. UB has the only medical school in the country and thus serves as the perfect stakeholder for educating and training healthcare providers. The program is integrated into the local government healthcare system to ensure long-term sustainability.

Outcomes & Evaluation: There were 22 children with cancer identified and treated at PMH prior to our program. Since the program inception over 200 children have been identified and treated and survival has increased almost 3-fold. Over 80 nurses, social workers, medical officers, dieticians, pharmacists, surgeons, medical students, and pediatric residents have received education and training in the care of these children. There are 64 active hemophilia patients. The average daily inpatient census is ~10 patients with over 40 new inpatient consults annually. There are over 300 chemotherapy encounters annually.

Going Forward: While the number of children treated has increased dramatically, there continue to be local system challenges. The rotation of trained nursing staff away from the unit where these patients are treated results in dilution of expertise which is a major challenge. Local, intermittent shortages of medications also results in delays in care and treatment. Finally, the unavailability of certain diagnostics results in portions of treatment occurring outside the country. The development of a local fellowship training program to ensure ongoing training & education of future leaders is not yet accomplished. This remains a key goal and future activities will focus on ensuring the development of this training within the context of the UB School of Medicine.

Funding: This project is funded by Texas Children's Cancer & Hematology Centers.

Abstract #: 02NCD026