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Nutritional status, knowledge, practices and lifestyle characteristics among Turks and Caicos Islands elementary school children

S Malcolm, S Handfield, M Williams, TE Maitland
 National Epidemiology and Research Unit, Ministry of Health and Education, Turks and Caicos Islands
 E-mail: temaitland@gmail.com

Objectives: To assess nutritional status, knowledge, practices and lifestyle characteristic of Turks and Caicos Islands (TCI) primary school children.

Design and Methods: A pre-coded, semi-structured, interviewer-assisted questionnaire and anthropometrics were collected from 5th – 6th grade participants in the Student Physical Activity, Nutrition and Knowledge about Seafood Illnesses (SPANKS) Survey.

Results: Assent and informed consent were obtained for the 297, predominately female (162, 54.5%) students (mean age = 10.91 ± 1.01 years, 105 [35.3%] overweight/obese). Multinomial regression examined factors (age, gender, breakfast, snacks, meals, mother's nationality and fruit and vegetables consumption) among normal, overweight and obese categories. Children of Haitian mothers were less likely (OR = 0.26, $p = 0.004$) to be overweight compared to others; breakfast eaters were less likely (OR = 0.43, $p = 0.016$) to be obese than non-breakfast eaters. Most (> 90%) knew the food groups and the relationship between diet, obesity and chronic non-communicable diseases (> 73%). Fewer (44%) felt climate change impacted health or the environment and identified Ciguatera as fish poisoning (< 10%). A dietary pattern/consumption of breakfast (75.8%), vitamin/mineral supplements (34%), ≥ 2 meals/day (81.2%), ≥ 1 snack/day (65%), rice/pasta (72.7%), meat (54.2%) and milk (50.8%) ≥ 1/day, vegetables (14.5%) and fruits (27.3%) ≥ 2/day was found. More boys reported strenuous ($p = 0.05$) and more girls reported moderate activity ($p = 0.004$). Reported computer/video/TV game-use was 3.81 ± 1.97 and 3.27 ± 2.24 hours/day, respectively.

Conclusion: Targeted intervention, focussed on nutrition education, emphasizing lifestyle modification, is imperative to positively impact nutritional status and lifestyle indicators.

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Is the standard of acute stroke care in Barbados in keeping with evidence-based recommendations? An investigation of 2009 national registry data

AS Harewood-Marshall, T Blackman, DOC Corbin, T Martelly, KS George, AJM Hennis, IR Hambleton, AMC Rose
 Chronic Disease Research Centre, Tropical Medicine Research Institute, Faculty of Medical Sciences, The University of the West Indies, Cave Hill; Ministry of Health, Bridgetown, Barbados
 E-mail: angela.rose@cavehill.uwi.edu

Objective: To describe acute stroke management for Queen Elizabeth Hospital (QEH)-admitted patients registered with the national stroke registry in 2009 compared with international guidelines.

Design and Methods: We conducted a descriptive retrospective study. Acute stroke management guidelines were identified through a literature search. The consultant neurologist for the main local tertiary hospital in Barbados provided an overview of clinical practice in 2009. National stroke registry data were analysed to estimate the proportion of patients receiving diagnosis (all strokes) and medication (ischaemic stroke only) consistent with international recommendations.

Results: Stroke units are highly recommended by all guidelines, but in line with most developing countries, there was neither a stroke unit nor specialist team at the QEH. There was also no written protocol for acute stroke management. Patients were managed by Accident and Emergency physicians at presentation; if admitted, they were subsequently managed on general medical wards. There were 318 ischaemic stroke patients admitted to the QEH and registered with the stroke registry in 2009. The majority (98%) had done a computed tomography (CT) scan and an electrocardiogram (ECG) (93%). No patients were thrombolysed, and few (70; 23%) received aspirin within 24 hours of admission. Fewer than 10% were prescribed aspirin on discharge. Three-quarters of ischaemic stroke patients (237/318) were alive at discharge.

Conclusions: Diagnosis of acute stroke was consistent with recommendations. Otherwise, there was little adherence to available clinical guidelines, indicating scope for improvement in acute stroke management in Barbados.

There are currently plans for a stroke unit and written clinical protocols.

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Factors affecting survival of women diagnosed with breast cancer: A 10-year multivariate study in Trinidad and Tobago

A Butan, V Tripathi, R Antoine

Department of Mathematics and Statistics, Faculty of Science and Technology, The University of the West Indies, St Augustine, Trinidad and Tobago

E-mail: anna-stacia-butan@hotmail.com

Objective: To determine the factors that influence survival after breast cancer diagnosis among women in Trinidad and Tobago which has one of the highest incidence rates of breast cancer in the world.

Design and Methods: Breast cancer data was obtained from the Dr Elizabeth Quamina Cancer Registry for the period January 1997 to December 2006. Using all female patients, we had 2206 patients in the dataset. Kaplan Meier survival analyses, univariate and multivariate Cox regression analyses were done.

Results: Most women who had breast cancer were of African ethnicity (49.45%), in the 40–49-year age group (28.01%) and were married (45.56%). Most were detected at clinical presentation (65.81%), in the localized stage (47.91%) and had ductal carcinoma (57.57%). Most had surgery (86.04%), radiotherapy (50.45%), chemotherapy (51.04%) and hormonal therapy (45.10%). In the univariate Cox Proportional Hazard (PH) model, ethnicity, age group, age at incidence, stage, surgery, and hormonal therapy were significant prognostic factors while marital status, morphology, method of detection, radiotherapy and chemotherapy were non-significant factors. Multivariate Cox PH model revealed age at incidence, stage and surgery as significant factors.

Conclusion: The data showed that most cases were diagnosed during clinical presentation as opposed to screening tests. The need for publicizing and increasing public spending on screening programmes is emphasized for early detection and increasing survival among women with breast cancer.

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Testosterone deficiency is a possible risk factor for priapism associated with sickle cell disease

B Morrison, M Reid, W Madden, Z Feng, A Burnett

Section of Surgery and Sickle Cell Unit, The University of the West Indies, Kingston, Jamaica; James Buchanan Brady Urological Institute, Johns Hopkins Medical Institutions, Baltimore, USA

E-mail: bfmorrison11@hotmail.com

Objective: Priapism has a high incidence in sickle cell disease (SCD). Testosterone deficiency is common in males with SCD. Our aim was to determine the association of testosterone deficiency and priapism in adult men with SCD.

Design and Methods: A cross-sectional study of 50 adult men with homozygous SCD was conducted. All patients had early morning blood taken for total and free testosterone, follicle stimulating hormone (FSH), luteinizing hormone (LH), prolactin, lipid levels, lactate dehydrogenase (LDH) and haematological indices. Patients completed an interviewer administered priapism questionnaire. Testosterone deficiency was defined as serum total testosterone < 12 nmol/L (346 ng/dL). Outcome measures include frequency of priapism and the association of testosterone deficiency and priapism.

Results: Priapism was noted in 24 (48%) patients and was most frequently seen in men between ages 18 and 25 years. Mean age of the sample was 34.2 ± 8.9 years, and there was no difference in age based on history of priapism ($p = 0.21$). Testosterone deficiency was assessed in six of 24 (25%) patients with priapism. There was no difference in mean total testosterone levels in patients with and without a history of priapism [16.7 ± 4.9 nmol/L and 15.4 ± 5.9 nmol/L, respectively] ($p = 0.43$). Similarly, there was no difference in serum LH and FSH levels based on history of priapism. Free testosterone level was lower in patients with priapism episodes > 30 minutes after awakening from sleep ($p = 0.09$).

Conclusion: Testosterone deficiency is prevalent in patients with SCD. Prospectively gathered data are needed to define the priapism profile of SCD patients with testosterone deficiency.

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Reduced haptoglobin bioavailability inhibits the expression of a cytoprotective monocyte population in sickle cell disease

KR Quimby, S Moe, I Sealy, C Nicholls, IR Hambleton, RC Landis

Chronic Disease Research Centre, Tropical Medicine Research Institute, The University of the West Indies, Barbados

E-mail: kim.quimby@cavehill.uwi.edu

Objectives: Following intravascular haemolysis, free haemoglobin A is bound to haptoglobin (Hp), internalized by monocytes bearing the haemoglobin scavenger receptor, CD163, and broken down into cytoprotective metabolites via the haem-oxygenase (HO)-1 enzyme. This triggers a positive feedback loop augmenting CD163 expression and thereby limiting the vascular insult caused by oxidative free haem. During cardiopulmonary bypass-induced haemolysis, we have demonstrated that serum haptoglobin is temporarily consumed while the surface

CD163 and HO – 1 expression is up-regulated. In sickle cell disease (HbSS), chronic haemolysis is linked with exhaustion of serum haptoglobin and suppression of CD163 compared to HbAA controls. Our objective was to determine if the extent of Hp depletion correlates with the CD163 expression.

Design and Methods: Whole blood from 29 HbSS participants was collected in EDTA and double-stained with a cocktail of CD14-FITC and CD163PE antibodies; the mean fluorescent intensity (MFI) of CD163 was determined by flow cytometry. Plasma was analysed for Hp concentration by ELISA. The association between CD163 MFI and Hp concentration was analysed using Stata v 12.

Results: There was a positive correlation between CD163 MFI and Hp concentration; 0.44 (95% CI 0.08 – 0.69). For every 1 unit increase in Hp concentration, CD163 MFI increased by 0.12 (95% CI 0.02 – 0.22).

Conclusion: Increasing Hp bioavailability augments CD163 expression. This suggests that the fault in the haemoglobin scavenging apparatus in HbSS is probably due to chronic depletion of Hp. Replacement therapy for Hp may therefore restore the positive feedback loop and confer vascular protection through this monocyte population in HbSS.

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***In vitro* activities of fluoroquinolones entrapped in non-ionic surfactant vesicles against ciprofloxacin-resistant bacteria strains**

S Jankie, L Pinto Pereira, Y Clement, P Akpaka, G Pillal, S Adebayo

Department of Paraclinical Sciences, Faculty of Medical Sciences, The University of the West Indies, St Augustine, Trinidad and Tobago; College of Pharmacy, Sullivan University, Louisville, KY, Department of Biopharmaceutical Sciences, College of Pharmacy, Roosevelt University, Chicago/Schaumburg, IL, USA

E-mail: satjankie@gmail.com

Objective: To investigate the stability of niosome encapsulated ciprofloxacin, gatifloxacin, levofloxacin and norfloxacin: their *in vitro* release properties and efficacy against ciprofloxacin resistant strains of *Pseudomonas aeruginosa*, *Escherichia coli* and *Staphylococcus aureus* by minimum inhibitory concentration (MIC) determination.

Design and Methods: Niosomes of the four fluoroquinolones were prepared using the thin film rehydration method. The stability was assessed at 4 °C, 25 °C and 37 °C by withdrawing samples at regular intervals and determining the quantity of drug that leaked out of the carrier. *In vitro* release pattern was established *via* the dialysis tube method. The efficacy of the formulation was determined by broth-microdilution method.

Results: The formulations displayed temperature-dependent stability with the highest stability occurring at 4 °C and the lowest at 37 °C, respectively. Analysis of drug liberation kinetics suggests first-order (concentration-dependent) release from the vesicles. The per cent of drug released from niosomes as opposed to the conventional drug at six hours were: ciprofloxacin (63.07 ± 2.52 vs 78.2 ± 1.88), gatifloxacin (78.4 ± 7.28 vs 97.8 ± 3.04), levofloxacin (81.79 ± 3.1 vs 94.2 ± 3.42) and norfloxacin (77.29 ± 4.42 vs 89.4 ± 2.05) [$p < 0.001$] The niosomes of all drug tested produced at least two-fold reduction in MICs against *Pseudomonas aeruginosa* and *Escherichia coli*, and at least four-fold reduction in MICs against *Staphylococcus aureus* ($p < 0.05$).

Conclusions: The results of the study suggest niosomes are a useful sustained release vehicle of drug delivery, and enhance drug delivery of fluoroquinolones producing significant reduction in MICs for *Pseudomonas aeruginosa*, *Escherichia coli* and *Staphylococcus aureus*.