Chronic Non-communicable Diseases 1

Chairpersons: R Cummings, S Keizer Beache

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Biomarkers of chronic kidney disease and longitudinal bone loss in Tobago Black men of African descent

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Objective: To determine the relationship between markers of chronic kidney disease (CKD): serum creatinine and cystatin C, and urinary albumin-creatinine ratio (ACR), with bone loss among Afro-Caribbean males 40 years and older and to compare our findings with those of the Osteoporotic Fractures in Men (MrOS) study, among Caucasian men in the United States of America.
Design and Methods: Approximately 1425 Afro-Caribbean males from Tobago were included. In 2004/2007, questionnaires were administered to ascertain demographic information, medical history and risk factors. Dual X-ray absorptiometry of total hip and its sub-region (trochanter and femoral bone) were measured in 2004/2007 and at follow-up visits in 2012. Serum creatinine and cystatin C were measured using Jaffè reaction and Dade Behring nephelometry, respectively. Urinary albumin and creatinine were measured by turbidimetric procedure and Jaffe reaction, respectively, to determine ACR. After a mean follow-up of six years, the relationship of annual per cent bone mineral density (BMD) change with quartiles of markers of CKD was analysed. Annual per cent bone loss was compared with published bone loss data in Caucasian men in the MrOS Study.
Results: There was a consistent decline in annual per cent BMD across increasing quartiles of ACR, serum creatinine and cystatin C in trochanter, femoral neck and total hip bones. Based on quartiles of cystatin C, the rate of bone loss was similar to that in Caucasian men.
Conclusions: After controlling for age and other confounders, BMD declined over time even at mild levels of kidney impairment. Bone decline rates were similar in Afro-Caribbean and Caucasian men with CKD.

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Early life social and biological determinants of blood pressure at 18−20 years old: the 1986 Jamaica Birth Cohort Study

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Objective: To evaluate the effects of social and biological factors at birth and at age 18−20 years on systolic blood pressure (SBP).
Design and Methods: This was a longitudinal study of 794 participants (364 males, 430 females) from the 1986 Jamaica Birth Cohort Study. Trained nurses measured blood pressure (BP) and anthropometry, and conducted face-to-face interviews between 2005 and 2007. Gender-specific multi-level mixed-effects linear regression models were used to examine associations between SBP at 18−20 years and birthweight, birth length, maternal age, height and socio-economic circumstances (SEC) at birth, and participants' body size and SEC at 18−20 years.
Results: In bivariate analyses, SBP was associated with birthweight (500 g categories) among women but not among men. Using birthweight 3000−3499 g as the reference category, regression coefficient (b) for SBP (expressed in mmHg) was + 4.0, $p = 0.006$, for birthweight < 2500 g among women. In gender-specific, multi-level models adjusted for current age, body mass index (BMI), height, mother's age at child's birth and mother's occupation at child's birth, lower birthweight was associated with higher SBP among women: β +4.0, $p = 0.004$ for birthweight < 2500 g and β +2.4, $p = 0.014$ for birthweight 2500−2999 g. Among men, compared to skilled/highly skilled mothers, those whose mother's had lower SEC had higher SBP: semi-skilled/unskilled, β +3.6, $p = 0.028$; unemployed, β +4.7, $p = 0.001$; housewives, β +3.2, $p = 0.024$. Current BMI was associated with SBP among both men (β +0.8, $p < 0.001$) and women (β +0.4, $p < 0.001$).
Conclusions: Determinants of SBP in young adulthood differ between men and women, with birthweight appear-

ing to be an important correlate for women and lower maternal SEC for men.

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Prevalence and predictors of hypertension and prehypertension among University of the West Indies Cave Hill students in Barbados

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Objectives: To determine the prevalence and predictors of hypertension and pre-hypertension among University of the West Indies (UWI) undergraduates 18–30 years old at Cave Hill campus.
Design and Methods: A cross-sectional prevalence study was conducted on 582/1400 randomly selected undergraduates at UWI Cave Hill campus between January and May 2013. Demographic and behavioural data were self-reported by a validated questionnaire, and anthropometric measures collected using standardized protocols. Hypertension was defined as systolic blood pressure ≥ 140 or diastolic blood pressure ≥ 90 mmHg. Prehypertension was systolic blood pressure ≥ 120 or diastolic blood pressure ≥ 80 mmHg, and not classified as having hypertension.
Results: The study population included 334 males (57.4%) and 247 females (42.4%), with a mean age of 21.6 years (SD 2.7). The prevalence of hypertension was 6.9% overall, 9.3% among males *vs* 3.6% among females (*p*-value = 0.008). Prevalence of prehypertensive readings was 54.5% among males and 18.6% among females (*p*-value = 0.000). Normal blood pressure levels (< 120/80) were recorded among 36% males and 77.6% females. To analyse predictors, prehypertensives and hypertensives were combined. Multiple regression identified predictors among males as obesity, eating red meat ≥ 3 times/week and being sedentary (sitting for > 6 hours/day). Predictors among women were obesity and number of snacks/day.
Conclusions: Male students are at high-risk for prehypertension and hypertension related to risk factors of obesity, eating red meat and being sedentary. Females are at lower risk, but share the risk factor of obesity, along with number of snacks/day. Physical inactivity, diet and obesity are major risk factors for elevated blood pressure readings in this student population.

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Prevalence of orthostatic hypotension among ageing patients on antihypertensive and antidepressants and assessment of the risk of falls

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Objectives: To evaluate the prevalence of orthostatic hypotension (OH) and risk of falls among older patients on antihypertensive or antidepressant medications.
Design and Methods: Patients ≥ 60 years of age on antihypertensive or antidepressant drugs, attending the Community Health and Psychiatry Health Centre were recruited from February 2011 to March 2012. Patients unable to stand or who had Parkinson's disease were excluded. Patients were grouped as OH positive by reduction in systolic blood pressure (SBP) of ≥ 20 mmHg or diastolic blood pressure (DBP) of ≥ 10 mmHg within three minutes of standing. Risk of falls was assessed using Timed Up and Go (TUG) test and Tinetti Performance-Oriented Mobility Assessment (POMA) Tool. Descriptive statistics involved use of mean and standard deviation, Mann-Whitney U and Pearson's correlation was used for inferential statistics.
Results: Of the 100 patients recruited (97 females/3 males), 20% (95% confidence interval = 12.2, 27.8) were OH positive. They were significantly older (77.3 ± 8.0 *versus* 72.4 ± 8.2 years, $p = 0.019$) and had higher sitting SBP (160.0 ± 12.6 *versus* 143.5 ± 18.1 mmHg, $p < 0.001$). There was high correlation between the POMA scores and the TUG times (Pearson's $r = -0.733$, $p < 0.001$). Patients who were OH positive had significantly higher TUG times (22.0 ± 6.3 s *versus* 17.8 ± 7.1 s; $p < 0.020$) and lower POMA scores (20.4 ± 5.4 *versus* 23.8 ± 4.3; $p < 0.001$).
Conclusion: There is a high prevalence of OH among ageing patients on antihypertensive and antidepressant drugs and they are at a greater risk of falling. Therefore, it is imperative to monitor ageing patients on antihypertensives and antidepressants for these possible adverse events.

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Resiliency and cardiovascular risk factors in Jamaican adolescents 15−19 years

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Objective: To assess the resiliency factors in Jamaican adolescents 15−19 years old that may be associated with the prevalence of cardiovascular disease (CVD) risk factors.
Design and Methods: A cross-sectional national study of 1317; 15−19 year olds used interviewer administered questionnaires to obtain information on sociodemographic indices, lifestyle practices and resiliency indicators such as caring relations inside and outside the home. Cross-tabulations and logistic regression determined the association of resiliency factors and CVD risk.
Results: More than 50% of respondents possessed each of the protective factors, except living in a nuclear family. More males than females (M: 31.1%, F: 24.5%, $p = 0.01$) reported living in a nuclear family. There were sex differences in the proportion of youth with the risk factors "low socio-economic status" [SES] (M: 28.6%, F: 34.4%, $p = 0.03$), "no religious affiliation" (M: 20.5%, F: 10.1%, $p < 0.001$); and ≤ 2 risk factors (M: 49.5%, F: 41.8%, $p = 0.02$). However, more males reported > 2 risk behaviours (M: 34.6%, F: 15.4%, $p < 0.001$) such as sexual activity, and inappropriate use of alcohol, tobacco and marijuana. Forty-seven per cent of males and 44% of females possessed at least one of the six CVD risk factors considered. Youth who had resiliency factors were more than 30% ($p < 0.05$) less likely to have any CVD risk factor. This association remained statistically significant after adjusting for the presence of risk factors and behaviours.
Conclusion: The prevalence of CVD risk factors in Jamaican 15−19 year olds may be ameliorated by supportive home and school environments. Interventions should lead to public education programmes that promote safe parenting and mentoring practices for our youth.