

**P2-324 ETHNIC DIFFERENCES IN CARDIOVASCULAR RISK IN CHILDHOOD: COMPARISON OF UK SOUTH ASIAN, AFRICAN-CARIBBEAN AND EUROPEAN CHILDREN**

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<sup>1</sup>P Whincup,\* <sup>1</sup>C Nightingale, <sup>1</sup>A Donin, <sup>2</sup>A Rapala, <sup>2</sup>D Joysurry, <sup>2</sup>M Prescott, <sup>2</sup>A Donald, <sup>2</sup>E Ellins, <sup>1</sup>C Owen, <sup>1</sup>A Rudnicka, <sup>1</sup>D Cook, <sup>2</sup>J Deanfield. <sup>1</sup>St George's, University of London, London, UK; <sup>2</sup>Institute of Child Health, London, UK

**Introduction** UK South Asian adults have high risks of coronary heart disease, stroke and type 2 diabetes (T2D) when compared with Europeans; UK African-Caribbeans have high risks of stroke and T2D and low coronary heart disease risks. With growing evidence that cardiovascular disease risks begin before adulthood, we compared risk factor patterns and vascular disease markers in UK children from these ethnic groups.

**Methods** We conducted a school-based study of cardiovascular risk profiles in 4796 9–10 year-old UK children of South Asian, African-Caribbean and European origin, with substudies of carotid intimal-medial thickness (cIMT) and carotid-femoral pulse wave velocity (cfPWV) in 939 and 631 children respectively.

**Results** Compared with Europeans, UK South Asian children had higher adiposity, diastolic BP, insulin resistance, HbA1c and triglyceride levels; their HDL-cholesterol was low. cfPWV was slightly higher in South Asians and cIMT similar. In contrast, African-Caribbean children had lower adiposity, LDL-cholesterol and triglyceride levels and higher diastolic BP, insulin resistance, HbA1c and HDL-cholesterol; both cfPWV and cIMT were higher in African-Caribbeans. cIMT was positively associated with systolic and diastolic BP, while cfPWV was positively associated with adiposity, diastolic BP and insulin resistance. However, adjustment for these risk factors had little effect on the ethnic differences in cfPWV and cIMT observed.

**Conclusion** Appreciable ethnic differences both in cardiovascular risk factors and vascular disease markers are apparent in children before puberty, which are substantially consistent with adult cardiovascular disease patterns. There may be important opportunities for cardiovascular disease prevention before adult life in high-risk ethnic minority groups.

**P2-325 TRENDS IN CARDIOVASCULAR DISEASE TREATMENT IN THE UK, 1961–2011**

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K Wickramasinghe,\* P Bhatnagar, P Scarborough. BHF Health Promotion Research Group, Department of Public Health, University of Oxford, Oxford, UK

**Introduction** Cardiovascular disease (CVD) is the leading non communicable disease contributing to more than 17 million deaths annually in the world and in the UK for almost 191 000. The knowledge base related to the aetiology and treatment of CVD has expanded over last few decades informing effective prevention and treatment efforts. The aim of this study was to report trends in hospital episodes, surgeries and prescriptions for CVD in the UK over the last 50 years.

**Methods** Data obtained from several national surveys including prescription cost analysis, National Adult Cardiac Database Report, Hospital In-patient Enquiry and Hospital Episodes Statistics.

**Results** There were around 70 000 estimated inpatient episodes of CHD in England and Wales in 1961, increasing to around 450 000 by 2009. In 1962, there were 700 surgeries to treat arteriosclerotic heart disease in England and Wales. By 2009, there were around 25 000 coronary artery bypass graft surgeries and over 80 000 percutaneous coronary interventions carried out annually. In 2008, around 266 million prescriptions (costing £1.6 billion) were issued for CVD in

England, five times as many as issued in 1986. Since 1990 the number of prescriptions for antiplatelet and lipid lowering drugs have increased steadily.

**Conclusion** Improvements in treatment for CVD in the UK have contributed to declines in case fatality and mortality rates. But despite these improvements in treatments, CVD remains the biggest killer. Analysis and interpretation of treatment trends has been restricted by data availability and comparability issues such as changes in surgical procedures, classification of diseases and drugs.

**P2-326 COMPARISON OF URBAN DIABETICS WITH OPTIMAL AND SUBOPTIMAL CONTROL**

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<sup>1</sup>M Piniidiyapathirage, <sup>1</sup>T Warnakulasuriya, <sup>1</sup>A Kasturiratne, <sup>1</sup>U Ranawaka, <sup>1</sup>D Gunasekera, <sup>1</sup>N Wijekoon, <sup>1</sup>K Medagoda, <sup>1</sup>S Perera, <sup>2</sup>F Takeuchi, <sup>2</sup>N Kato, <sup>1</sup>A Wickremasinghe.\* <sup>1</sup>Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka; <sup>2</sup>Department of Gene Diagnostics and Therapeutics, Research Institute, National Center for Global Health and Medicine, Tokyo, Japan

**Introduction** The prevalence of Diabetes Mellitus in Sri Lanka is increasing. We describe the characteristics of patients with optimal and suboptimal control of diabetes among known diabetics in a 35–64-year-old urban population resident in the Ragama Medical Officer of Health (Ragama MOH) area of Sri Lanka.

**Methods** A cross sectional study was conducted among 2986 randomly selected 35–64 year olds in the Ragama MOH area from January to September 2007. A detailed history was taken and participants were subjected to a physical examination and assay of fasting blood glucose and HbA1C. A HbA1C <6.5 was taken as evidence of optimal control.

**Results** There were 474 persons (194 males and 280 females) who gave a past history of diabetes. 9 males and 9 females were not on any treatment. 27 persons (9 males and 18 females) were on insulin. Of the 474 diabetics, 113 (48 males and 65 females) had a HbA1c <6.5. The average fasting blood glucose of diabetics with optimal control was 120+21 mg/dl. The mean fasting blood glucose level of the 361 subjects with sub optimal control was 190+70 mg/dl. Optimal glycaemic control was not associated with alcohol intake, smoking, obesity, central obesity and low physical activity levels.

**Conclusions** Most known diabetics had access to treatment but only approximately 25% were optimally treated. The need to optimally manage these patients is highlighted.

**P2-327 PHYSICAL ACTIVITY AND DEPRESSION IN ADOLESCENTS: CROSS-SECTIONAL RESULTS FROM THE ALSPAC COHORT**

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<sup>1</sup>N Wiles,\* <sup>1</sup>A Haase, <sup>1</sup>D Lawlor, <sup>1</sup>A Ness, <sup>2</sup>C Riddoch, <sup>1</sup>G Lewis. <sup>1</sup>University of Bristol, Bristol, UK; <sup>2</sup>University of Bath, Bath, UK

**Introduction** Few studies have examined the association between physical activity (PA), measured objectively, and depressive symptoms in adolescents. The aim of this study was to determine whether there is an association between objective measures of PA (total PA and time spent in moderate and vigorous PA (MVPA)) and adolescent depressive symptoms.

**Methods** Data were available on 2452 adolescents aged 14 years participating in the ALSPAC cohort. Depressive symptoms were measured using the short version of the Moods and Feelings Questionnaire (MFQ) (self-report). Total PA (counts per minute (cpm)) and time spent in MVPA (minutes) were available based on accelerometer. The association between PA and MFQ scores was modelled using ordinal regression.

**Results** Adolescents who were more physically active (total PA or minutes of MVPA) had a reduced odds of depression (adjusted OR per 100 cpm total PA: 0.92 (95% CI 0.88 to 0.97); adjusted OR per 15 min MVPA: 0.94 (95% CI 0.88 to 1.01)). In a multivariable model including both total PA and the percentage of time spent in MVPA, MVPA was not independently associated with depression (adjusted OR MVPA (tertiles) medium 1.06 (95% CI 0.88 to 1.28), high 0.99 (95% CI 0.82 to 1.20)).

**Conclusion** The total amount of PA undertaken was associated with adolescent depression but the amount of time spent in MVPA, once total PA was accounted for, was not. Thus, the relevance of the intensity of the activity may be different for different dimensions of health. This would have important implications for public health messages if confirmed in longitudinal studies and randomised controlled trials.

**P2-328 EFFECTS OF NEIGHBOURHOOD-LEVEL PREDICTORS ON BODY MASS INDEX (BMI) TRAJECTORIES AMONG YOUNG CHILDREN IN CANADA**

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Dr Piotr Wilk.\* *University of Western Ontario, London, Ontario*

**Introduction** Childhood obesity is a major public health concern in Canada as nearly 17% of children between 2 and 11 are overweight and more than 7% are obese. The objective of this study is to examine whether neighbourhood-level predictors affect BMI trajectories among young children.

**Methods** We conducted a secondary data analysis of the National Longitudinal Survey of Children and Youth. A cohort of over 6000 2- and 3-year-old children were followed between 1994 and 2004 in the sequence of bi-annual interviews. Multi-cohort latent growth curve modelling techniques for hierarchical data were employed to assess an independent effect of neighbourhood characteristics on BMI trajectories, after controlling for a number of child- and family-level covariates. Neighbourhood conditions were assessed by indicators related to the physical environment (built and physical) in which the child lives, as well as factors related to socio-economic status of its inhabitants.

**Results** Overall, between the ages of 2 and 12, the estimated BMI trajectory followed the expected U-shaped pattern. The parameter estimates of this trajectory varied significantly, both across-children and across-neighbourhoods. In the unadjusted model, the between-neighbourhood variance constituted approximately 20% of the total variance in these estimates. The results from the final model suggest that a statistically significant portion of the between-neighbourhood variance was accounted by the proposed neighbourhood-level predictors.

**Conclusion** Neighbourhood-level predictors were identified as significant predictors of the variance in BMI trajectories, suggesting that the neighbourhood characteristics play an important role in shaping BMI trajectories among young children in Canada.

**P2-329 WHAT MEDICAL CONDITIONS AND MEDICATIONS USED TO TREAT THE MEDICAL CONDITIONS INCREASE THE RISK OF SUBSEQUENT MOTOR VEHICLE INJURIES: RESULTS OF THE CANADIAN NATIONAL POPULATION HEALTH SURVEY**

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P Wilk,\* E Vingilis. *University of Western Ontario, London, Ontario, Canada*

**Introduction** The last 2 decades have seen an increased interest in the relationships between medical conditions and medication use and motor vehicle injuries (MVIs). The objective of this study is to

examine the effects of various medical conditions and medications used to treat the conditions on subsequent MVIs.

**Method** The National Population Health Survey is a large nationally representative sample of Canadians who have been surveyed every 2 years since 1994. Self-reported medical conditions and medication use were examined in relation to MVIs reported in the subsequent wave of the survey. Respondents were queried on whether they had any of the following long-term conditions: asthma, arthritis/rheumatism, back problems, high blood pressure, migraine headaches, pain, diabetes and heart disease; measures of distress and depression were also included. They were also asked whether they had taken medications to treat these conditions. Medical conditions and medications were subjected to regression analyses where medical conditions and medications served as controls for each other.

**Results** The results found that asthma, back problems, migraine and distress showed statistically significant increased risk of subsequent MVIs. Various medications (asthma medication, Demerol, codeine, pain medication and, sleeping medication) were also associated with increased risk of subsequent MVIs. Finally, for some medical conditions, medications have a protective effect while for other conditions, medications have independent effects on the risk of subsequent MVIs.

**Conclusion** This study suggests that the relationship between medical conditions and medications is complex and in need of further study.

**P2-330 ASSOCIATIONS OF 25-HYDROXYVITAMIN D2 AND D3 WITH CARDIOVASCULAR RISK FACTORS IN CHILDHOOD: A CROSS-SECTIONAL ANALYSIS IN THE AVON LONGITUDINAL STUDY OF PARENTS AND CHILDREN (ALSPAC)**

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<sup>1</sup>D Williams,\* <sup>1</sup>A Fraser, <sup>2</sup>W Fraser, <sup>3</sup>N Sattar, <sup>4</sup>A Hingorani, <sup>5</sup>J Deanfield, <sup>1</sup>G D Smith, <sup>1</sup>D Lawlor. <sup>1</sup>*University of Bristol, Bristol, UK;* <sup>2</sup>*University of Liverpool, Liverpool, UK;* <sup>3</sup>*University of Glasgow, Glasgow, UK;* <sup>4</sup>*UCL, London, UK;* <sup>5</sup>*ICH, London, UK*

**Introduction** Some observational studies have associated low vitamin D status with increased cardiovascular disease (CVD) and risk factors in adults, but results from randomised controlled trials suggest these associations may not be causal. Trials have largely used supplementation with vitamin D2 and the availability of D3 supplements has led to the suggestion that this is more potent and null effects in previous trials may be because of inadequate dosage of vitamin D.

**Methods** We conducted a cross-sectional study of 4274 children from the Avon Longitudinal Study of Parents and Children (ALSPAC), comparing associations of serum 25-hydroxyvitamin D2 (25(OH)D2) and 25-hydroxyvitamin D3 (25(OH)D3) with several CVD risk factors: systolic and diastolic blood pressure (SBP; DBP), lipids (triglycerides, LDL-c, HDL-c, Apo-A1 and Apo-B) adiponectin, leptin, CRP and IL6.

**Results** In fully adjusted models including age, sex, ethnicity, socio-economic position, waist circumference and mutual adjustment, 25(OH)D3 was positively associated with HDL-c (change per doubling of 25(OH)D3: 0.02 mmol/l; 95% CI 0.0 to 0.04) and Apo-A1 (2.7 mg/dl; 1.5, 3.8), and inversely associated with IL6 (-7.8%; -12.3, -3.1). Equivalent analyses for 25(OH)D2 found positive associations with CRP (8.0%; 3.2, 13.0) and IL6 (5.0%; 1.5, 8.7). Neither exposure was associated with any other outcome. There was statistical evidence that associations of D2 and D3 differed for triglycerides, Apo-A1, adiponectin, CRP and IL6 (all p values for heterogeneity <0.04).

**Conclusions** 25(OH)D2 and 25(OH)D3 differ in their associations with CVD risk factors, but with no clear evidence in children that D3 is necessarily a more potent risk factor for CVD risk.