2.4 CARDIOVASCULAR AND DIABETES

Chair: Dr Maria Ines Schmidt, Brazil

02-4.1 LONG TERM CARDIOVASCULAR RISK IN WOMEN WITH PRE-ECLAMPSIA: SYSTEMATIC REVIEW AND META-ANALYSIS

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[1]M Brown, [1]K Best,* [1]R Bell, [1]M Pearce, [2]S Robson, [3]J Waugh. *[1]Institute of Health & Society, Newcastle University, Newcastle, UK; [2]Institute of Cellular Medicine, Newcastle University, Newcastle, UK; [3]Directorate of Women's Services, Newcastle upon Tyne NHS Foundation Trust, Newcastle, UK*

Introduction There is increasing evidence that pre-eclampsia, a principal cause of maternal morbidity, may also be a risk factor for future cardiovascular and cerebrovascular events. This review aimed to assess the current evidence and quantify the risks of cardiovascular and cerebrovascular events that may follow a diagnosis of pre-eclampsia.
Methods MEDLINE and EMBASE were searched with no language restrictions, as were core journals and reference lists from reviews. Case control and cohort studies which reported cardiovascular and cerebrovascular diseases diagnosed more than 6 weeks postpartum, in women who had history of pre-eclampsia relative to women who had unaffected pregnancies, were included.
Results 24 articles were included in the systematic review and 19 in the meta-analysis. Women with a history of pre-eclampsia or eclampsia were at significantly increased odds of fatal or non-fatal cardiovascular disease (OR 2.27, 95% CI 1.83 to 2.82) and cerebrovascular disease (OR 2.46, 95% CI 1.57 to 3.85). Among pre-eclamptic women, pre-term delivery was not associated with an increased risk of a future cardiovascular event (RR 1.28, 95% CI 0.82 to 1.99).
Conclusion Women diagnosed with pre-eclampsia are at increased risk of future cardiovascular or cerebrovascular events, with an estimated doubling of risk compared to unaffected women. This has implications for the follow-up of all women who experience pre-eclampsia, not just those who deliver pre-term. This association may reflect shared common risk factors for both pre-eclampsia and cardiovascular and cerebrovascular disease.

02-4.2 IS THE IMPACT OF HEALTH LIFESTYLE BEHAVIOURS ON CARDIOVASCULAR MORTALITY MODIFIED BY PARENTAL HISTORY OF CARDIOVASCULAR DISEASE?

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[1]E Eguchi,* [1]H Iso, [2]Y Wada, [3]S Kikuchi, [4]Y Watanabe, [3]A Tamakoshi. *[1]Osaka University, Osaka, Japan; [2]Kochi Women's University, Kochi, Japan; [3]Aichi Medical University, Aichi, Japan; [4]Kyoto Prefectural University of Medicine, Kyoto, Japan*

Introduction We examined whether the association between lifestyle behaviours and cardiovascular disease mortality is modified by parental history of CVD.
Methods The survey cohort was a total of 52 606 subjects (22 278 men and 30 328 women) aged 40–79 years from 1988 to 1990 were followed-up until the end of 2006. Paternal, maternal, both of parental, and either/both of parental histories of heart disease and/or stroke were defined as parental histories of CVD. We used the healthy lifestyle score (fruits≥1/day, fish≥1/day, milk almost every day, exercise≥5 h/w and/or walking>0.5 h/day, BMI 21–25 kg/m^2, Ethanol intake<46.0 g/day, non-smoker, and sleep 5.5–7.5 h/day, ranged 0–8) to evaluate the lifestyle status.
Results During the 14.2 median years of follow-up, there were 3284 deaths from total CVD (1706 men and 1578 women). Compared with people without parental history of CVD, those with it showed 9%–25% increased risk of mortality from CVD. However, the association between lifestyle behaviours and the mortality from CVD did not vary materially by parental history of CVD. The respective multivariable HRs (95% CI) in highest lifestyle score category compared to lowest were 0.55 (0.45 to 0.68) for either/both of parental histories of CVD and 0.50 (0.39 to 0.64) for those without it in men, and 0.65 (0.54 to 0.79) and 0.63 (0.49 to 0.81) in women.
Conclusions Lifestyle modifications may be important for both people with or without parental histories.

02-4.3 EDUCATION AND CORONARY HEART DISEASE RISK: POTENTIAL CONTRIBUTIONS OF HEALTH LITERACY, TIME PREFERENCE AND SELF-EFFICACY

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[1]E Loucks,* [2]S Gilman, [2]I Kawachi, [2]L Kubzansky, [3]L Martin, [1]M Rogers, [1]A Wilhelm, [1,2]S Buka. *[1]Brown University, Providence, Rhode Island, USA; [2]Harvard University, Boston, Massachusetts, USA; [3]Rand Corporation, Washington, DC, USA*

Introduction Education is inversely associated with risk for coronary heart disease (CHD), however the contributions of potential explanatory mechanisms including health literacy, time preference and self-efficacy are poorly understood. Objectives were to evaluate whether infrequently measured covariates (health literacy, time preference, self-efficacy) are important explanatory mechanisms for associations between education and CHD risk.
Methods The study sample included 416 participants, aged 38–47 years (59.5% female), of the New England Family Study birth cohort. Ten-year CHD risk was calculated using the validated Framingham risk algorithm incorporating diabetes, smoking, blood pressure, total cholesterol, HDL cholesterol, age and sex. Multivariable regression analyses were performed.
Results Regression analyses adjusting for age, sex and race/ethnicity demonstrated that > college (ie, additional schooling past 4-year college degree) was associated with b=−68.9% (p<0.001) lower 10-year CHD risk compared with < high school. Further addition of early life potential confounders (childhood socioeconomic position, childhood intelligence and childhood chronic illness) resulted in b=−64.9% lower 10-year CHD risk for those with > college vs < high school. Finally, addition of health literacy, time preference and self-efficacy to models resulted in b=−74.5% (p<0.0001) lower CHD risk for > college vs < high school. Dose-response associations between education and CHD risk were found for < high school, high school, some college, college degree and > college.
Conclusion This study found that education was inversely associated with CHD risk after accounting for traditional and early-life confounders; further addition of novel potential explanatory mechanisms including time preference, health literacy and self-efficacy had minimal impact on effect size.

02-4.4 LOWER RESPIRATORY TRACT INFECTION IN EARLY LIFE IS ASSOCIATED WITH WORSE LUNG FUNCTION IN ADULT LIFE: PROSPECTIVE RESULTS FROM THE BARRY CAERPHILLY GROWTH (BCG) STUDY

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[1]J L Bernal,* [2]M Upton, [1]J Henderson, [3]A McCarthy, [1,4]G Davey Smith, [1]Y Ben-Shlomo. *[1]School of Social and Community Medicine, University of Bristol, Bristol, UK; [2]Woodlands Family Medical Centre, Cleveland, UK; [3]Child Health Epidemiology*

Division, Health Research Board, Dublin, Ireland; [4]MRC Causal analyses in translational epidemiology Centre, University of Bristol, Bristol, UK

Introduction Respiratory infections in childhood have been related to reduced adult lung function, but few studies have examined the timing and type of infection. We hypothesised that lower respiratory tract infections (LRTIs) compared with upper respiratory tract infections (URTIs) and early compared with later infections would have a stronger association with adult lung function.
Methods The Barry Caerphilly Growth study collected information on childhood infections (URTI, LRTI and gastrointestinal infections) from birth to 5 years on 14 occasions. Subjects were traced at 25 years of age and had lung function (FEV1, FVC, FEV1/FVC, FEF25-75, and PEFR).
Results 581 subjects had acceptable data for both FEV1 and FVC. Childhood LRTIs (0–5 years) but not URTIs or gastrointestinal infections were negatively associated with all lung function measures except FVC ($p<0.05$) and showed a dose-response effect. LRTIs in the first year of life and between 2 and 5 years were predictive of PEFR (significant interaction with age at infection $p=0.02$) but only the former predicted FEV1, FEV1/FVC and FEF25-75 in multivariable models for example, β coefficient for >1 LRTI between 0 and 1 year and FEF25-75 −0.306 (95% CI 0.523 to −0.089, $p=0.006$) compared with −0.021 (95% CI −0.324 to 0.282, $p=0.89$) for exposure between 2 and 5 years.
Conclusion LRTIs but not URTIs are associated with an obstructive lung function deficit, especially under 1 year, either due to primary infection-related airways damage or a secondary effect reflecting abnormal airway development. The former explanation, if true, may contribute to socioeconomic differences in obstructive airways disease irrespective of smoking behaviour.

02-4.5 PREVENTION OF GESTATIONAL DIABETES MELLITUS AND NEWBORN'S HIGH BIRTHWEIGHT BY LIFESTYLE COUNSELLING –A CLUSTER-RANDOMISED CONTROLLED TRIAL

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[1,2]R Luoto,* [3]T Kinnunen, [2]M Aittasalo, [2,4]P Kolu, [2,3]J Raitanen, [2]K A Ojala, [2]K Mansikkamäki, [3]S Lamberg, [1,2]T Vasankari, [2]T Komulainen, [4]S Tulokas. *[1]National Institute for Health and Welfare, Helsinki, Finland; [2]UKK Institute for Health Promotion, Tampere, Finland; [3]University of Tampere, Tampere, Finland; [4]Tampere University Central Hospital, Tampere, Finland*

Introduction To examine, whether gestational diabetes mellitus (GDM) or newborns' high birthweight can be prevented by lifestyle counselling.
Methods A cluster-randomised trial in 14 municipalities, where 2271 women were screened at 8–12 weeks' gestation. Euglycaemic (N=399) women with at least one GDM risk factor were included. Intervention included individual intensified counselling on physical activity, diet and weight gain at five antenatal visits. Main outcome measures were incidence of GDM and newborns' birthweight adjusted for gestational age. Multilevel analyses took into account cluster, maternity clinic and nurse level influences in addition with other covariates. Compliance to the individual behavioural objectives varied from 39 to 85.9% depending on the objective and week's gestation.
Results 23.3% (50/216) of women in the intervention group and 20.2% (36/179) in the usual care group were diagnosed for GDM ($p=0.49$). Birthweight was lower in the intervention than in the usual care group (absolute effect −133 g, 95% CI −231 to −35, $p=0.008$) as were also birthweight per gestational age (absolute effect −3.08; 95% CI −5.3 to −0.9, $p=0.006$) and proportion of large for gestational age newborns (26/216, 12.1% vs 34/179, 19.7%, $p=0.042$). The effect sizes were significant after taking cluster, maternity clinic, nurse, age, education, sex of the newborn, parity, pre-pregnancy BMI and smoking into account.
Conclusions Intervention was effective in controlling birthweight of the newborns, but not GDM. Offering lifestyle counselling especially for women at risk for GDM is important in order to prevent high birthweight and the related health problems.

02-4.6 THE BI-DIRECTIONAL RELATIONSHIPS BETWEEN DIABETES MELLITUS AND DEPRESSION: EVIDENCE FROM TWO COHORT STUDIES BASED ON THE SAME POPULATION

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[1]C Y Li,* [1]Y T Chan. *[1]National Cheng Kung University, Tainan, Taiwan; [2]National Taipei University of Nursing and Health Sciences, Taipei, Taiwan*

Introduction It has been argued that the relationship between depression and diabetes is bi-directional, but this hypothesis has not been explicitly tested. We conducted two separate cohort studies, based on Taiwan's National Health Insurance claims, to determine the bi-directional prospective relationships between depression and type 2 diabetes.
Methods The first cohort analysis identified all 390 011 diabetic patients in 2000 and the same number of randomly selected non-diabetic beneficiaries. The second cohort analysis identified 5847 depressive patients and a random sample of non-depressive beneficiaries of the same number in 2000. The subsequent information on incident depression and diabetes was retrieved from ambulatory cares from 2000 to 2006. We evaluated the age-and sex-specific relative hazards of depression/diabetes in relation to diabetes/depression with Cox proportional hazard regression model adjusted for potential confounders.
Results The first cohort analysis noted a covariate adjusted HR of 1.43 (95% CI 1.38 to 1.48) for incident depression among diabetes. The second cohort analysis noted that the depressive patients experienced significantly elevated HR (2.02, 95% CI 1.80 to 2.27) for incident diabetes.
Conclusion The two cohort studies provided support for the bi-directional prospective relationships between diabetes and depression, with a stronger association noted for the depression predicting onset of diabetes. We also noted that the bi-directional relationships were most obvious in younger (<35 years) patients, regardless of gender.