1.4 CARDIOVASCULAR

Chair: Dr. Susana Sans, Spain

01-4.1 EXPLAINING RECENT CORONARY HEART DISEASE MORTALITY TRENDS IN ENGLAND BY SOCIOECONOMIC CIRCUMSTANCES, 2000–2007

doi:10.1136/jech.2011.142976a.30

[1]M Bajekal,* [1]S Scholes, [2]H Love, [3]N Hawkins, [3]M O'Flaherty, [1]R Raine, [3]S Capewell. *[1]Health Care Evaluation Group, Dept of Epidemiology and Public Health, UCL, London, UK; [2]Pensions and Annuity Group, Legal and General plc, London, UK; [3]School of Population, Community and Behavioural Sciences, University of Liverpool, Liverpool, UK*

Introduction The continuing fall in coronary heart disease mortality rates is widely celebrated. However, the impact of public policies and treatments is poorly quantified and hardly ever by socioeconomic group.
Methods Using a previously validated epidemiological model we estimated the contribution of risk factor changes and evidence-based treatments to reduce CHD mortality in adults aged over 25 years between 2000 and 2007 in England, both overall and by deprivation quintiles.
Results CHD mortality rates fell by 35% (219 to 142 deaths per 100 000), resulting in 38 070 fewer deaths in 2007 compared with 2000. Decreases in major cardiovascular risk factors were generally modest accounting for −37% of the total decrease in CHD mortality overall. This ranged from −50% in the most deprived quintile to −30% in the most affluent. The biggest contribution came from a fall in systolic blood pressure (−33%). Other gains were modest: total plasma cholesterol (−6%), smoking (−4%) and inactivity (−2%). Furthermore, these benefits were negated by increases in BMI and diabetes (+11%).

Treatments accounted for approximately half the mortality decline across all social groups. The largest contributors were medical therapies in community settings for lipid reduction (−14%), chronic angina (−13%) and secondary prevention (−11%).
Conclusions Much of the fall in CHD mortality in England between 2000 and 2007 was attributable to medical therapies, evenly distributed across social groups. This was unexpected, and probably reflects frustratingly small recent decreases in major cardiovascular risk factors, compounded by continuing rises in obesity and diabetes.

01-4.2 INDIVIDUAL PARTICIPANT ANALYSIS OF SECULAR TRENDS IN CARDIOVASCULAR MORTALITY IN UK WOMEN, 2000–2009

doi:10.1136/jech.2011.142976a.31

[1,2]B Cairns,* [1,2]A Balkwill, [1,2]V Beral. *[1]Cancer Epidemiology Unit, University of Oxford, Oxford, UK; [2]On behalf of the Million Women Study Collaborators, UK*

Introduction Cardiovascular mortality has declined rapidly in recent decades in many developed countries. Although determinants of these trends have been investigated in ecological studies, little evidence has so far been available from individual participant data.
Methods The Million Women Study is a prospective cohort study of approximately 1.3 million women from England and Scotland, recruited in 1996–2001. For women 50–69 years of age, trends in mortality due to cardiovascular causes (International Classification of Diseases, version 10: I00–I99) were examined in age-period-cohort analyses of individual participant data, linked to death registrations. The first 4 years of follow-up for each woman were excluded to account for an initial healthy cohort effect.
Results After exclusion of the first 4 years of follow-up, a total of 8349 cardiovascular deaths occurred in women aged 50–69 years during 2000–2009. In this period, the there was a 5% (95% CI 4 to 6%) overall annual reduction in cardiovascular mortality. Baseline body mass index, smoking status, alcohol consumption, socioeconomic status and geographical region were each strongly associated with cardiovascular mortality in multivariate models ($p < 0.001$), as expected. However, there was no strong evidence of differing trends in cardiovascular mortality across levels of these risk factors, consistent with little interaction between the risk factors and time trends in cardiovascular mortality.
Conclusion In this cohort of women from England and Scotland, the recent secular decline in cardiovascular mortality was evident both in high and in low cardiovascular risk individuals, according to several lifestyle and socioeconomic risk factors.

01-4.3 SEASONAL VARIATION IN BLOOD PRESSURE AMONG CHINESE ADULTS: THE KADOORIE BIOBANK STUDY OF 0.5 MILLION PEOPLE IN CHINA

doi:10.1136/jech.2011.142976a.32

[1]S Lewington,* [2]L Lee, [1]P Sherliker, [1]R Collins, [2]G Yu, [1]I Millwood, [3]J Chen, [1]L Yang, [1]B Lacey, [1]G Whitlock, [1]R Peto, [1]Z Chen. *[1]University of Oxford, Oxford, UK; [2]Chinese Academy of Medical Sciences, Beijing, China; [3]Chinese Centre for Disease Control and Prevention, Beijing, China*

Introduction Seasonal variation in blood pressure and its association with outdoor air temperature has been reported in several studies. However, large population-based studies are few and data from developing countries such as China are limited.
Methods Cross-sectional data from the Kadoorie Biobank Study were used to relate seasonal variation in systolic blood pressure (SBP) to outdoor air temperature in 510 000 Chinese adults aged 30–79 recruited during 2004–2008 at 10 widely separated study sites. Analyses related mean SBP—overall and in subgroups of the population—to mean local air temperature on the day of recruitment.
Results SBP was strongly inversely associated with temperature within all 10 areas studied, at least above 5°C, with a mean rise of 5.7 (SE 0.04) mm Hg per 10°C fall in outdoor temperature. The mean difference in SBP between summer (Jun–Aug) and winter (Dec–Feb) was 10 mm Hg, and was more extreme in rural than in urban areas (12 vs 8 mm Hg). The association was slightly stronger in older people, at lower body mass index, and in people taking antihypertensive medications. At low temperature the association was greatly attenuated in participants with central heating in their home.
Conclusion SBP is strongly inversely associated with outdoor temperature in Chinese adults, across a range of climatic exposures. Season or temperature and access to central heating should be considered a source of variation in epidemiological studies of blood pressure and in the clinical management of hypertension.

01-4.4 FRAMINGHAM STROKE RISK PROFILE AND COGNITIVE DECLINE IN MIDDLE AGE: THE WHITEHALL II STUDY

doi:10.1136/jech.2011.142976a.33

S Kaffashian,* A Dugravot, E J Brunner, S Sabia, J Ankri, M Kivimäki, A Singh-Manoux. *INSERM, Paris, France*

Background The relationship between stroke risk and cognitive ageing has not been adequately studied in non-elderly populations.

The objective of this study was to examine whether 10-year risk for incident stroke is associated with cognitive decline.

Methods Study sample comprised of 4512 men and 1741 women, mean age 55.6 years, from the Whitehall II study, a longitudinal British cohort study. The Framingham Stroke Risk Profile was used to assess 10-year risk of stroke. It incorporates age, systolic blood pressure, diabetes mellitus, smoking status, prior cardiovascular disease, atrial fibrillation, left ventricular hypertrophy, and use of hypertensive medication. Measures of cognitive function consisted of tests of reasoning, memory, phonemic and semantic fluency, and vocabulary, assessed three times over 10 years. Linear mixed models were used to determine longitudinal associations between stroke risk and subsequent cognitive decline over 10 years.

Results Higher stroke risk at baseline was associated with faster rate of cognitive in tests of reasoning, verbal fluency, vocabulary and global cognition. For example, compared to persons in the low stroke risk group (<2.5%), those in the moderate stroke risk group (2.5≤ stroke risk <5%) and the high stroke risk group (≥5%) had a 12.5% and 43.8% faster rate of decline in, phonemic fluency respectively.

Conclusions Higher 10-year stroke risk in middle age is associated with faster rate of cognitive decline in more than one cognitive domain. These results support early targeting of vascular risk factors to prevent or delay cognitive decline.

01-4.5 PROGNOSTIC VALUE OF A NOVEL CLASSIFICATION SCHEME OF CLINICAL SYMPTOMS AND SIGNS OF HEART FAILURE ADJUSTED FOR MAJOR CONFOUNDERS

doi:10.1136/jech.2011.142976a.34

[1,2]M Severo,* [1,3]R Gaio, [4]J Pimenta, [4]C Paulo, [4]M Patacho, [4]P Bettencourt, [1,2]A Azevedo. *[1]Department of Hygiene and Epidemiology, University of Porto Medical School, Porto, Portugal; [2]Institute of Public Health of the University of Porto, Porto, Portugal; [3]Department of Mathematics, University of Porto Science School, Porto, Portugal; [4]Heart Failure Clinic, Department of Internal Medicine, Hospital S. João, Porto, Portugal*

Introduction Only one third of patients suspected of having heart failure (HF) see this diagnosis confirmed. Gender, age, education and obesity are major determinants of unconfirmed suspicions.

Objective To assess the impact of including major confounders in classification schemes based on clinical data solely (model 1—11 symptoms/signs) or considering objective evidence of cardiac dysfunction (model 2).

Methods Cross-sectional evaluation of 1115 community participants aged ≥45 years, 2006—2008. The individuals were classified by Latent Class Analysis with concomitant variables. The classification's prognostic value was assessed by the association with 6-year mortality in an independent sample of 753 subjects.

Results Bayesian Information criteria suggested the best solutions for model 1 and 2 was 2- and 3-class, respectively; the best solution for both models considering concomitant variables was 3-class.

Class 1 had high endorsement probabilities for all items (symptomatic HF); class 2 had high probability for volume overload and objective evidence of cardiac dysfunction and lower probability for subjective troubled breathing (asymptomatic cardiac dysfunction); class 3 had low endorsement probabilities for all items (non-cases).

The sex- and age-adjusted 6-year absolute risk of death was 13.5%, 4.3% and 2.7% for class 1, 2 and 3, respectively, in model 1; for model 2 it was 10.2%, 4.2% and 3.2%, respectively.

Conclusions When relying only on clinical data and not considering confounders, we were only able to distinguish symptomatic HF from the normal population. Considering confounders and evidence of cardiac dysfunction improved the discriminative power to distinguish a third group with asymptomatic cardiac abnormalities.

01-4.6 ALCOHOL-INDUCED DAMAGE TO HEART MUSCLE RATHER THAN ATHEROSCLEROSIS MAY DRIVE THE ASSOCIATION OF CIRCULATORY DISEASE WITH HAZARDOUS DRINKING IN RUSSIA

doi:10.1136/jech.2011.142976a.35

[1]D Leon,* [2]S Borinskaya, [1]A Gil, [3]N Kiryanov, [1]M McKee, [4]A Oralov, [4]L Saburova, [1]O Savenko, [5]V Shkolnikov, [3]M Vasilev, [6]H Watkins. *[1]London School of Hygiene & Tropical Medicine, London, UK; [2]Vavilov Institute of General Genetics, Moscow, Russia; [3]Izhevsk State Medical Academy, Izhevsk, Russia; [4]Social Technologies Institute, Izhevsk, Russia; [5]Max Planck Institute for Demographic Research, Rostock, Germany; [6]Department of Cardiovascular Medicine, University of Oxford, Oxford, UK*

Background Circulatory disease mortality in Russia is associated with hazardous drinking. Over the past 40 years there have been major fluctuations in mortality from circulatory disease that are closely correlated with deaths from acute alcohol poisoning (r=0.8 among working-age men). In a case-control study (2003—2005) hazardous drinking was associated with deaths attributed to ischaemic heart disease. However, rather than hazardous alcohol consumption increasing risk of atherosclerotic disease and subsequent myocardial infarction, these effects could be due to misclassified non-atherosclerotic damage to the heart induced by heavy drinking as occurs in extreme form in alcoholic cardiomyopathy.

Methods A population-based sample of 1052 men aged 30—60 years living in Izhevsk (a medium-sized Russian city) were examined (2008—2009). Information about drinking was obtained by interview of proxy informants (mainly spouses or partners). Levels of B-type natriuretic peptide (BNP—a sensitive and highly specific marker of heart muscle stress) and an atherogenic index (ApoB to ApoA1 ratio) were measured in blood.

Results Compared to abstainers, men who drank hazardously had an increased risk of being in the top 20% of BNP (OR 4.80, 95% CI 2.29 to 10.1) adjusted for age and BMI, with non-hazardous drinkers being intermediate in risk. The equivalent association for the ApoB/ApoA1 ratio was in the opposite direction (OR 0.31, 0.16 to 0.61).

Conclusion Hazardous drinkers show a lipoprotein profile associated with a reduced risk of atherosclerotic disease. However, they have raised levels of BNP. Taken together these results support the hypothesis that hazardous drinking among Russian men may induce non-atherosclerotic heart muscle damage.

1.5 NUTRITION

Chair: Prof. K. Srinath Reddy, India

01-5.1 CLUSTER-RANDOMISED CONTROLLED TRIAL OF AN EARLY CHILDHOOD OBESITY PREVENTION PROGRAM: THE MELBOURNE INFANT FEEDING, ACTIVITY AND NUTRITION TRIAL (InFANT) PROGRAM

doi:10.1136/jech.2011.142976a.36

[1]K Hesketh,* [1]K Campbell, [1]D Crawford, [1]J Salmon, [1]K Ball, [1]S McNaughton, [2]Z McCallum. *[1]Centre for Physical Activity and Nutrition Research, Deakin University, Melbourne, Victoria, Australia; [2]University of Melbourne, Melbourne, Victoria, Australia*

Introduction This study aimed to assess the effectiveness of a child-focused early obesity prevention intervention for first-time parents in existing social networks.

Methods The Melbourne InFANT Program is a cluster-randomised controlled trial involving 542 families from 62 first-time parent groups in Melbourne, Australia (87% recruitment; 90% retention). It focuses on positive diet, physical activity and reduced sedentary behaviours from 3 to 18 months of age.