

Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum, India; ⁷Madras Diabetes Research Foundation, Chennai, India; ⁸Indira Gandhi Government Medical College, Nagpur, India

Introduction Cardiovascular disease (CVD) prevention guidelines recommend lifetime risk stratification for primary prevention of CVD, but no such risk stratification has been performed in India to date.

Methods We estimated short-term and lifetime predicted CVD risk among 10 054 disease free, adult Indians in the age group of 20-69 years who participated in a nationwide risk factor surveillance study. The study population was then stratified into high short-term ($\geq 10\%$ 10-year risk or diabetes), low short-term ($< 10\%$)/high lifetime and low short-term/low lifetime CVD risk groups.

Results The mean age (SD) of the study population (men=63%) was 40.8+10.9 years. High short-term risk for coronary heart disease was prevalent in more than one fifth of the population (23.5%, 95% CI 22.7 to 24.4). Nearly half of individuals with low short-term predicted risk (48.2%, 95% CI 47.1 to 49.3) had a high predicted lifetime risk for CVD. While the proportion of individuals with all optimal risk factors was 15.3% (95% CI 14.6 to 16.0), it was 20.6% (95% CI 18.7 to 22.6) and 8.8% (95% CI 7.7 to 10.5) in the highest and lowest educational groups, respectively.

Conclusion Approximately 1 in 2 men and 3 in 4 women in India had low short-term predicted risks for CVD in this national study, based on aggregate risk factor burden. However, 2 in 3 men and 1 in 2 women had high lifetime predicted risks for CVD, highlighting a key limitation of short-term risk stratification.

P2-129 PRE-PREGNANCY BODY MASS INDEX AND BLOOD PRESSURE IN THE FIRST TRIMESTER OF PREGNANCY: PRELIMINARY RESULTS FROM A COHORT OF RIO DE JANEIRO, BRAZIL

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F Rebelo, A B Franco-Sena, D R Farias, J dos Santos Vaz, G Kac. * *Rio de Janeiro Federal University, Rio de Janeiro, Brazil*

Background Women who have higher systolic blood pressure (SBP) and diastolic blood pressure (DBP) in early pregnancy are more prone to develop pregnancy complications such as hypertension, preeclampsia and eclampsia. These complications contribute significantly to morbidity, stillbirth and neonatal mortality.

Objective To evaluate the effect of pre-pregnancy body mass index (BMI) on first trimester SBP, DBP and mean arterial pressure (MAP).

Methods 118 pregnant women between 20 and 40 years of age, up to 13 weeks and free from chronic or infectious diseases were investigated. SBP and DBP were obtained with automatic arm sphygmomanometer (Omron) and MAP was calculated as $(SBP + DBP \times 2) / 3$. Statistical analysis was performed using ANOVA, correlation and multivariate linear regression. Adjustments were made for age, skin colour, parity and smoking.

Results Women were 26.3 \pm 4.9 years of age, had 8.7 \pm 2.7 years of schooling, per-capita income (US\$) of 291.2 \pm 166.4 and pre-pregnancy BMI of 25.6 \pm 5.1 kg/m². There was a moderate positive correlation between pre-pregnancy BMI and SBP ($r=0.52$; $p<0.001$), DBP ($r=0.33$; $p<0.001$) and MAP ($r=0.44$; $p<0.001$). Mean MAP (mm Hg) increased with BMI categories (underweight=76.5; normal weight=77.4; overweight=82.9 and obesity=88.7, $p<0.001$) as did SBP (underweight=100.3; normal weight=105.8; overweight=112.4 and obesity=121.2, $p<0.001$) and DBP (underweight=64.8; normal weight=63.5; overweight=68.3 and obesity=72.6, $p<0.001$). Multivariate linear regression showed that an increase of 1.0 kg/m² in pre-pregnancy BMI raised SBP in 1.24 mm Hg ($p<0.001$) and 0.53 mm Hg in DBP ($p=0.002$).

Conclusion Women who begin pregnancy overweight or obese tend to have higher values of SBP and DBP, which may indicate a higher risk of developing hypertensive disorders during pregnancy.

P2-130 EPIDEMIOLOGY OF HYPERTENSION IN AN URBAN SRI LANKAN POPULATION

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¹A Kasturiratne,* ¹T Warnakulasuriya, ¹J Pinidiyapathirage, ²N Kato, ¹R Wickremasinghe, ¹A Pathmeswaran. ¹Department of Public Health, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka; ²Department of Gene Diagnostics and Therapeutics, Faculty of Medicine, University of Kelaniya, Tokyo, Japan

Introduction Hypertension is a common risk factor for cardiovascular disease. In Sri Lanka, despite the existence of a universal free health system, services are not available for routine screening of hypertension in the general population. This paper aims to describe the epidemiology of hypertension in 35-64 year old residents in Ragama Medical Officer of Health area in the Gampaha district, Sri Lanka.

Methods An age-stratified random sample of 4400 adults between 35 and 64 years of age drawn from the population based electoral list, was invited for a screening programme on cardiovascular risk factors. Socio-demographic and risk factor related data and anthropometric and blood pressure measurements were obtained by trained research assistants. Blood was obtained for relevant biochemical investigations.

Results The prevalence of hypertension (systolic > 139 mm Hg and/or diastolic > 89 mm Hg) in 2986 subjects (Males 45%), was 30.4% (27.8% in males; 32.5% in females). 31.8% ($n=288$) were previously undetected. Of the known hypertensives, 19.5% were not on anti-hypertensive medication and only 32.1% were controlled (defined by systolic < 140 mm Hg and diastolic < 90 mm Hg). Factors associated with hypertension in both males and females were body mass index, waist circumference, fasting blood glucose and serum triglycerides.

Conclusions The prevalence observed is comparable to the prevalences of developed countries with relatively older populations. A considerable proportion of known hypertensives are not on treatment and the observed poor control indicates problems in drug compliance. Interventions targeting lifestyle modification and drug compliance are essential to control adverse outcomes of hypertension.

P2-131 FALLING PREVALENCE OF IMPAIRED GLUCOSE TOLERANCE IN SOUTH ASIAN POPULATIONS

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¹S V Katikireddi,* ²J Morling, ²R Bhopal. ¹NHS Lothian, Edinburgh, Scotland, UK; ²Centre for Population Health Sciences, University of Edinburgh, Edinburgh, Scotland, UK

Introduction Recently, diabetes prevalence has soared in South Asians making it a global public health priority. However, there are suggestions from the PODOSA trial and elsewhere that pre-diabetes, including impaired glucose tolerance (IGT), may not be increasing. We conducted a systematic review to assess secular trends in pre-diabetes in South Asian populations worldwide.

Methods We searched electronic databases from inception to June 2009 for cross-sectional studies providing prevalence of pre-diabetes (using WHO criteria) in South Asian adult populations. Two reviewers independently screened articles, performed data extraction, quality appraisal and study classification with any discrepancies resolved by consensus. Repeated cross-sectional studies,

categorised by pre-specified criteria, were used for the primary analysis.

Results 16 cross-sectional data-sets resulting in four sets of repeated cross-sectional studies were identified. Repeated studies conducted in Chennai, rural Tamil Nadu, Mauritius and Singapore (n=30 399), provided time-trend information. Three showed a statistically significant increase in diabetes prevalence ($p < 0.001$) while IGT prevalence fell significantly in two ($p < 0.05$), and was stable in the remainder.

Conclusion This novel systematic review is the first to assess secular trends of pre-diabetes in any population. The data shows diabetes prevalence is rising in South Asians while IGT prevalence is either stable or falling. Recent environmental or lifestyle changes could favour an increased rate of conversion from IGT to diabetes or for individuals to progress directly from normal glycaemic status to diabetes. While the natural history of diabetes remains unclear, these findings have implications for health systems planning future treatment for diabetes and pre-diabetes.

P2-132 INTERGENERATIONAL INFLUENCES ON DIABETES IN A DEVELOPING POPULATION: THE GUANGZHOU BIOBANK COHORT STUDY

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¹M Schooling,* ²S Kavikondala, ³C Jiang, ³W Zhang, ⁴K K Cheng, ²T H Lam, ²G Leung. ¹University of Hong Kong, China; ²Department of Community Medicine and School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China; ³Guangzhou Occupational Diseases Prevention and Treatment Centre, Guangzhou Number 12 Hospital, Guangzhou, Guangdong, China; ⁴Department of Public Health and Epidemiology, University of Birmingham, Birmingham, UK

Introduction Intergenerational “mismatch” has been suggested as being relevant to the emergent epidemic of diabetes in developing populations. Conversely, constrained growth conditions over generations may also increase susceptibility to diabetes. In a rapidly developing southern Chinese population, we tested whether maternal environment, proxied by maternal literacy, or family socio-economic position (SEP), proxied by paternal literacy, were associated with fasting blood glucose and diabetes. To assess if intergenerational mismatch contributed, we tested whether the associations were modified by life course SEP.

Methods In 19 818 older (≥ 50 years) adults from the Guangzhou Biobank Cohort Study (phases 2 and 3) examined in 2005–2008, we used multivariable censored and logistic regression to assess the associations of maternal and paternal literacy with fasting blood glucose and diabetes and whether these associations varied by sex, age or life course SEP.

Results Adjusted associations of maternal, but not paternal, literacy was negatively associated with fasting blood glucose (-0.07 , 95% CI -0.13 to -0.02) and diabetes (0.92, 95% CI 0.83 to 1.02). These associations did not vary by sex, age or life course SEP.

Conclusions Better living conditions over generations may reduce the risk of diabetes, consistent with the high levels of diabetes in recently developed or developing populations.

P2-133 MUSCLE MASS IS ASSOCIATED WITH DIABETES IN A DEVELOPING POPULATION: THE GUANGZHOU BIOBANK COHORT STUDY

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¹M Schooling,* ²S Kavikondala, ³C Jiang, ³W Zhang, ⁴K K Cheng, ²T H Lam, ²G Leung, ²S Mary. ¹University of Hong Kong, China; ²Department of Community Medicine and School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China; ³Guangzhou Occupational Diseases Prevention and Treatment

Centre, Guangzhou Number 12 Hospital, Guangzhou, Guangdong, China; ⁴Department of Public Health and Epidemiology, University of Birmingham, Birmingham, UK

Introduction Asian populations tend to be more susceptible to type 2 diabetes. In Asians low muscle-mass may also be a contributory factor. In a rapidly developing southern Chinese population, we examined whether skeletal muscle-mass, proxied by serum creatinine, was associated with diabetes or adiposity.

Methods In 9768 older (≥ 50 years) adults from the Guangzhou Biobank Cohort Study (phase 1) examined in 2003–2004, we used multivariable logistic, linear and censored regression to assess the adjusted associations of serum creatinine with diabetes, waist-hip ratio, body mass index and fasting blood glucose. We also examined whether these associations varied by sex and age.

Results The association of serum creatinine with diabetes did not vary by sex. Serum creatinine was negatively associated with diabetes (OR 0.65, 95% CI 0.56 to 0.75) and fasting glucose (-0.43 mmol/l, 95% CI -0.53 to -0.34) for highest compared with lowest tertile, adjusted for age, education, occupation and lifestyle. Serum creatinine had sex-specific associations with waist-hip ratio, negatively associated (-0.10 SDs, 95% CI -0.15 to -0.04) in women only.

Conclusions The observed pattern of associations is compatible with the hypothesis that nutritionally driven increases in muscle-mass, reduces diabetes risk while having sex-specific effects on central obesity, with corresponding implications for prevention.

P2-134 EFFECTIVENESS OF WORK-SITE BEHAVIOURAL INTERVENTION PROGRAM FOR EMPLOYEES WITH METABOLIC SYNDROME AND ITS HIGH RISK PROFILE

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K Kayaba,* Y Kikuchi, Y Miura. Saitama Prefectural University, Koshigaya, Japan

Introduction Japanese government introduced behavioural approach for modifying unfavourable life styles leading to metabolic syndrome (MetS) into community health promotion in 2008. Previous studies have reported its efficacy in community settings. However, few studies examined effectiveness of work-site behavioural intervention for employees.

Methods A total of 311 male workers of a health insurance company were recruited. They were classified as high risk group of Mets by measuring BMI, blood pressure, HbA1c, HDL and LDL cholesterol levels at the annual health examination in 2008. A subgroup of them were recommended to participate in a health promotion activity with behavioural approach aiming diet and physical activity modification (intervention group; 86 persons). After 1-year follow-up, prevalence of MetS and levels of the previous factors were compared between the intervention group and non-intervention group (225 persons).

Results After adjusting for age, no statistically significant difference of the prevalence of MetS and levels of the previous factors was found between the group at the baseline examination. In the 2009 examination, BMI, systolic and diastolic blood pressure and LDL cholesterol levels decreased significantly in the intervention group while HbA1c level increased and HDL cholesterol level decreased in the non-intervention group. Prevalence of Mets decreased in the intervention group (-23.3% : 95% CI -34.2 to -12.2%) and also did in the non-intervention group (-16.8% : -23.5 to -10.3%). Difference in change of the prevalence in each group (6.5%: -3.7 to 16.7%) was in borderline significance.

Conclusion This quasi-experimental study at worksite suggested effectiveness of work-site behavioural intervention for employees with MetS in Japan.