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Parallel session A

Life course CVD

001 IS ACCELERATED POSTNATAL GROWTH ASSOCIATED WITH BLOOD PRESSURE IN CHILDHOOD?

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Objective: To investigate whether variations in growth patterns in early-life are associated with blood pressure at age 6.5 years by modelling detailed, individual growth trajectories between birth and 5 years of age.
Design: Prospective cohort study nested in a large randomised trial.
Setting: Belarus.
Participants: 10 494 children from Belarus who were born in one of 31 hospitals that participated in a cluster randomised trial of breastfeeding promotion intervention and had multiple measures of height and weight from birth to age 6.5 years. We analysed all 13 childhood growth measurements to develop a best-fitting linear spline random-effects model with 2 knots (thus dividing follow-up into 3 time periods, each with its own trajectory). The spline models were used to generate 4 random effects coefficients: birthweight; ''early infant weight velocity'' (birth–3 mo); ''late infant weight velocity'' (3 mo–1 yr) and ''childhood weight velocity'' (1–5 yrs). Each coefficient denotes an individual's deviance from average birthweight or velocity at each time period; together, the coefficients are a within-subject summary of each child's growth curve from birth to 5 years. The coefficients were converted into age-standardised z-scores to render them directly comparable.
Main Outcome Measures: Systolic and diastolic blood pressure (mm Hg) measured at age 6.5 years. Sex-specific OLS was used to investigate associations of each coefficient with blood pressure, controlled for hospital and baseline confounders.
Results: Birth-weight and weight velocity at all 3 time-periods were positively associated with blood pressure in boys. The change in systolic blood pressure per z-score increase in growth was 0.27 (95% CI 0.07 to 0.47) for birthweight; 0.47 (0.26 to 0.68) for ''early infant weight velocity''; 0.70 (0.50 to 0.90) for ''late infant weight velocity'' and 0.96 (0.76 to 1.16) for ''childhood weight velocity''. Associations were similar for girls (all p-values for interactions >0.1.).
Conclusion: Children's growth trajectory between birth and 5 years was positively associated with blood pressure at age 6.5 years. Associations increased in magnitude with age. Further analysis will investigate whether early or late infant growth have any additional influence on blood pressure levels in childhood, over and above weight at 6.5 years.

002 ELEVATED BLOOD PRESSURE IN EARLY ADULTHOOD AS A PREDICTOR OF LATER CORONARY HEART DISEASE MORTALITY: UP TO 83 YEARS FOLLOW-UP IN THE HARVARD ALUMNI HEALTH STUDY

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Objectives: Few studies have examined the association between blood pressure in early adulthood and later coronary heart disease (CHD). In those that have, whether the impact of early adult blood pressure is mediated via blood pressure in middle age or, if it exerts an independent effect, has yet to be tested. We examined these issues using extended follow-up of the Harvard Alumni Study.
Design: Cohort study of male University students who had a physical examination at college entry between 1914 and 1952 (mean age 18.4 years) when data on CHD risk factors including blood pressure were measured directly. Study participants were traced, mailed a health questionnaire in 1962/1966 (mean age 45.3 years) which included enquiries regarding self-reported physician-diagnosed hypertension, and were followed for subsequent mortality experience – which is >99% complete – until the end of 1998. Blood pressure at college entry was categorised according to Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure criteria: normotensive (<120/<80 mm Hg), pre-hypertension (120–139/80–89 mm Hg), stage 1 hypertension (140–159/90–99 mm Hg) and stage 2 hypertension (≥160/≥100 mm Hg).
Setting: USA.
Participants: 15 488 men enrolled in Harvard University in the given years, who completed the subsequent health questionnaire, and whose vital status could be ascertained.
Main Outcome Measure: CHD death.
Results: Over a maximum of 83.5 years of follow-up (median 52.6 years), there were 1531 deaths from CHD. Following adjustment for age and other CHD risk factors (body mass index, cigarette smoking status and physical activity) at college entry, in comparison to men who were normotensive there was an elevated risk of CHD mortality in those categorised as pre-hypertensive (hazards ratio 1.21, 95% CI 1.07 to 1.36), stage 1 hypertensive (hazards ratio 1.46, 95% CI 1.25 to 1.70), and stage 2 hypertensive (hazards ratio 1.89, 95% CI 1.46 to 2.45) (test for trend: p<0.001). After additional adjustment for self-reported hypertension in middle-age, CHD risk in relation to college blood pressure was somewhat attenuated but remained elevated: pre-hypertensive (1.17; 1.03 to 1.32), stage 1 hypertensive (1.33; 1.14 to 1.56), stage 2 hypertension (1.63; 1.26 to 2.12) (p<0.001 test for trend).
Conclusion: In this cohort, higher measured blood pressure in early adulthood was associated with an elevated risk of CHD mortality several decades later, and these effects appear to be independent of self-reported hypertension in middle-age. These results may suggest that blood pressure lowering strategies should begin earlier in the life course than is currently the case.

003 WORKING CHARACTERISTICS AND CARDIOVASCULAR DISEASE: ARE ASSOCIATIONS CONFOUNDED BY EARLY LIFE RISK FACTORS?

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Objectives: Work characteristics, such as night work, long hours and psychosocial work stress, have been found to be associated with cardiovascular disease (CVD) but the pathways from work to increased CVD risk are unclear. Since numerous early life indicators of CVD risk have been identified, including prenatal, socio-economic, environmental, physical, cognitive and behavioural factors, it is possible that associations seen for work arise through pre-existing CVD risk prior to entering the labour market. To determine whether cross-sectional relationships seen for working characteristics and risk factors for CVD in mid-adult life are confounded by early life risk factors for CVD, the following questions are addressed: (i) are work characteristics associated with CVD risk factors independently of each other? (ii) do work