DO DEMANDS AND WORRIES FROM CLOSE SOCIAL RELATIONS INCREASE THE RISK OF SUBSEQUENT INCIDENT IHD HOSPITALIZATION? A 7 YEAR LONGITUDINAL STUDY OF MIDDLE-AGED DANISH MEN AND WOMEN

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Background The association between support from social relations and ischemic heart disease is well described, however the possible hazardous effects of negative aspects of social relations on cardiovascular health are less well known. The purpose of the present study was to analyze the possible influence of negative aspects of social relations (NASR) at baseline on the risk of development of ischemic heart disease (IHD) defined as incident hospitalized cases of acute myocardial infarction and chronic IHD during 7 year follow-up. NASR were defined as demands or worries from partner, children, family, and friends.

Methods Participants were included in a questionnaire-based study in 2000 and were a random sample (N=6767) of Danish men and women aged 40 or 50 years by October 1st 1999 from the Danish Longitudinal Study on Work, Unemployment and Health. Data for the present study are based on baseline questionnaire data in 2000 and register linked data from the period 2000–2007 on hospitalization for IHD (ICD10: I21–25). Cases of IHD (I21–25) four years prior to baseline were excluded from the analyses. In total 127 new cases of IHD were identified during follow-up.

Results Men who always or often experienced worries or demands from their partner had an increased risk of incident IHD compared to those who seldom/never experienced worries and demands HR(95%CI)=2.81(1.44–4.53) adjusted for age, socioeconomic status, cohabitation status, depressive symptoms, smoking and emotional support from all social relations. There was no association between demands/worries from partner and risk of development of IHD among women. Both men and women who experienced frequent worries and demands from their family (other than partner and children) were at increased risk of IHD HR=1.76(1.10–2.81) adjusted for above mentioned covariates and gender. Demands and worries from children and friends were not associated with significantly increased risk of IHD although estimates were in the same direction as for demands/worries from partner and family.

Conclusion For men, frequent demands and worries from a partner seem to be associated with increased risk of incident IHD hospitalization during 7 year follow-up. Demands/worries from family are risk factors for both women and men. Adjustment for the level of social support from all social relations did not change these conclusions. These findings confirm earlier findings of an association between NASR and self-reported angina pectoris. The weaker findings for women may partly be explained by the substantially smaller number of cases in this middle-aged cohort.
with healthy non-obese participants only the metabolically unhealthy obese participants had elevated odds of incident depression (OR=1.56, 95% CI, 1.09 – 2.22), but not their metabolically healthy obese counterparts (OR=1.45, 95% CI, 0.92 – 2.30) nor unhealthy non-obese participants (OR=1.38, 95% CI, 0.98 – 1.94). In further analysis we examined the associations between individual metabolic risk factors and depression. There was a dose-response association between the number of metabolic risk factors and risk of depression, although the risk only became significant in participants with more than one risk factor. Adverse triglycerides, impaired glycaemic control, and low grade inflammation were associated with depression at follow-up in models adjusted for age, sex and baseline CES-D score.

**Conclusion** The association between obesity and risk of depressive symptom appears to be partly dependent on metabolic health, although further work is required to confirm these findings.

### Population Based Studies: Intergenerational

**OP61** IS MATERNAL IRON STATUS ASSOCIATED WITH OFFSPRING’S BLOOD PRESSURE AND ADIPOSEITY? A MENDELIAN RANDOMIZATION STUDY

**Background** Iron deficiency during pregnancy is a common problem. Experimental animal studies suggest that mothers deficient in iron during pregnancy are more likely to have offspring who become obese and have higher blood pressure. The use of random assortment of genes from parents to offspring can provide a method for assessing the causal impact of nutritional exposures, which is less likely to be influenced by confounding and reverse causality. The C282Y mutation in the HFE gene is robustly associated with iron stores, with those who carry the mutation having higher iron stores. Thus, this variant could be used as an instrumental variable to examine whether the association of maternal iron with offspring adiposity and BP in adulthood. Instrumental variable (IV) analysis uses the proportion of the variation in maternal ferritin that is explained by C282Y to provide an unconfounded estimate of the relationship with offspring outcomes. The results were compared to the results of multivariable ordinary least squares (OLS) regression examining the same relationship.

**Methods** We conducted a Mendelian randomization study to examine the association between maternal iron status with offspring adiposity and BP in adulthood. Instrumental variable (IV) analysis, using maternal C282Y as a genetic instrument for mother’s ferritin, was performed. IV analysis uses the proportion of the variation in maternal ferritin that is explained by C282Y to provide an unconfounded estimate of the relationship with offspring outcomes. The results were compared to the results of multivariable ordinary least squares (OLS) regression examining the same relationship. Male and female offspring of mothers from the UK Women Cohort Study (UKWCS) were approached, of whom 548 with mean age of 41 years completed the study. About half were offspring of C282Y carriers. Offspring’s BP, height and weight were measured at their local medical practice. Participants were also asked to self-measure their WC at home.

**Results** Maternal C282Y was associated with maternal ferritin (mean difference per allele=84 g/l, 95% CI 51, 137, P=0.002). Using IV analyses, maternal ferritin was not associated with offspring’s BP, BMI or WC. The first stage F statistic for the strength of the instrument was 10 (Kleibergen-Paap & LM P-value=0.009). Maternal ferritin was associated with offspring diastolic BP, WC and BMI in univariable, but not in multivariable OLS analysis. There was no strong statistical evidence of a difference between the OLS and the IV models coefficients for any of the outcomes considered.

**Conclusion** We found no association between maternal iron status and offspring’s BP and adiposity using both multivariable OLS and IV modeling with maternal C282Y mutation as the instrument. Further exploration of this relationship is needed in larger studies that have genetic variation assessed in both mother and offspring.

**OP62** THE INFLUENCE OF PRENATAL MATERNAL AND PATERNAL ANXIETY AND DEPRESSION ON CARDIOVASCULAR BIOMARKERS IN THE CHILD AT AGE 10: FINDINGS FROM THE AVON LONGITUDINAL STUDY OF PARENTS AND CHILDREN (ALSPAC)

**Background** The aim of the current study was to investigate whether exposure to prenatal maternal anxiety and depression influenced later offspring glucose, lipid and inflammatory markers via intrauterine mechanisms.

**Methods** Data from a prospective birth cohort based in the South West of England were used. Our analysis included 2539 mother-child duos and 2361 father-child duos for outcomes assessed at mean age 9.9 years (non-fasting cholesterol, triglycerides, low density and high density lipoprotein cholesterol (LDLs and HDLs), C-reactive protein (CRP) and interleukin 6 (IL–6) and 2011 and 1726 parent-child duos for outcomes at mean age 15.4 years (fasting glucose, insulin, lipids and CRP). We compared associations of maternal exposures with offspring outcomes to those of the same paternal exposures with offspring outcomes. The rationale for this comparison was that if maternal depression/anxiety influenced offspring outcomes via intrauterine mechanisms we would expect stronger maternal compared with paternal associations. We also examined whether any association of exposures during pregnancy reflected a postnatal effect, with persistence of depression/anxiety into the postnatal period.

**Results** Maternal anxiety at 18 and 32 weeks gestation, and maternal depression at 32 weeks gestation were associated with increased CRP in children at 9.9 years (mean difference (95% CI): 0.051 (0.005 to 0.057), 0.030 (0.004 to 0.056), and 0.021 (0.003 to 0.040) respectively), but not at 15.4 years. These associations remained when adjusting for potential confounders (maternal age, ethnicity, prepregnancy BMI, parity, social class, smoking and alcohol consumption). Paternal anxiety and depression (measured at 18 weeks gestation) were also associated with increased CRP in children at 9.9 years (mean difference (95% CI): 0.039 (0.005 to 0.076) and 0.026 (0.004 to 0.052) respectively), but not at 15.4 years. The magnitudes of the paternal associations were similar to those seen in mothers. Maternal and paternal postnatal depression/anxiety symptoms were also associated with offspring CRP at age 9.9 and appeared to explain much of the antenatal association.

There were no consistent associations between maternal or paternal anxiety or depression during the antenatal or postnatal periods and any of offspring glucose, insulin, IL-6 or lipids at either age.

**Conclusion** We have found evidence of a relationship between maternal and paternal anxiety and depression during pregnancy and CRP levels in childhood, which does not persist to adolescence. Our results suggest that these associations are unlikely to be explained by intrauterine mechanisms and may be explained by shared familial confounding or postnatal effects.

**OP63** ASSOCIATIONS OF ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY WITH BODY MASS INDEX IN A LARGE NORWEGIAN COHORT: USE OF OFFSPRING BODY MASS INDEX AS AN INSTRUMENTAL VARIABLE

**Background** Population Based Studies: Intergenerational

**Abstracts**

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