

**Results** Stroke event rates for baseline and Q20 cohorts were 3.1 and 8.4 per 1000 person years respectively. At baseline, healthier levels of three LS7 - BP, physical activity and smoking were associated with reduced risk of stroke. HRs [95% Confidence Intervals] for intermediate and ideal (vs poor) were 0.62 [0.49, 0.79] and 0.41 [0.24, 0.69] for BP; 0.68 [0.49, 0.95] and 0.55 [0.39, 0.79] for physical activity; and 0.68 [0.54, 0.86] and 0.57 [0.43, 0.77] for smoking. For exposures measured at Q20, only BP maintained a protective association (HRs 0.84 [0.66, 1.06] and 0.50 [0.30, 0.84] for intermediate and ideal levels respectively). Protection from each unit increase in overall CVH scores also weakened with age. With reference to the Low-Low trajectory, all trajectories were generally associated with reduced risk. The HRs were Low-High 0.57 (0.41, 0.79); High-Low 0.85 (0.61, 1.19) and High-High 0.77 (0.58, 1.03) respectively.

**Conclusion** Not all components of CVH individually influence stroke. While the association between CVH and stroke weakens with age, improving overall CVH may bring some benefit even in later life.

OP53

#### MOLECULAR BIOMARKERS IN PERIPARTUM CARDIOMYOPATHY: A SYSTEMATIC REVIEW AND META-ANALYSIS

<sup>1</sup>S Cherubin\*, <sup>2</sup>T Peoples, <sup>3</sup>J Gillard, <sup>4</sup>S Lakhali-Littleton, <sup>1</sup>J Kurinczuk, <sup>1</sup>M Nair. <sup>1</sup>Nuffield Department of Population Health, University of Oxford, Nuffield Department of Population Health, Oxford, UK; <sup>2</sup>Mailman School of Public Health, Columbia University, New York, USA; <sup>3</sup>Medical Science Division, University of Oxford, Oxford, UK; <sup>4</sup>Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, UK

10.1136/jech-2020-SSMabstracts.52

**Background** Peripartum cardiomyopathy (PPCM) is a complication of pregnancy in which symptoms of heart failure with reduced ejection fraction (<45%) develop during pregnancy or shortly after delivery. The aetiology and pathophysiology of the disease are poorly understood, but there is some evidence that PPCM is associated with a) altered levels of prolactin (PRL) cleavage products, and b) anaemia. However, the strength of the evidence has not been systematically ascertained. We conducted a systematic review and meta-analysis to: 1) assess the strength of the evidence for PRL cleavage and iron deficiency anaemia as mechanisms for PPCM, 2) identify other biomarkers associated with PPCM.

**Methods** The search strategy for the systematic review was a mix of automated and manual searches, and included both published and unpublished literature. We included observational studies from across the world reporting levels of laboratory biomarkers in women diagnosed with PPCM and in controls without pre-existing CVD, without any restriction of language or time-period. We assessed the risk of bias and quality of the evidence across studies using standard tools. Pooled Standardized Mean Difference (SMD) were generated using a random effects model for the difference in levels of biomarkers comparing PPCM cases to healthy controls.

**Results** Out of 2,425 unique research articles, 78 were selected for full text screening. We extracted 31 papers, 16 of which were included in the meta-analysis. Two papers assessed the association of PRL with PPCM and reported that PPCM cases had higher levels of total PRL. Other markers investigated in PPCM patients included inflammatory

markers, markers of myocardial dysfunction, vascular markers, and micronutrients. Generally, PPCM cases had higher serum levels of CRP (SMD: 2.281, 95% CI: 0.114; 4.448), white blood cells (SMD: 0.437, 95% CI: 0.095; 0.778), natriuretic peptides (SMD: 3.453, 95% CI: 2.174; 4.695), cardiac troponins (SMD: 1.108, 95% CI: 0.690; 1.526), liver enzymes (SMD: 0.651, 95% CI: 0.075; 1.228), and creatinine (SMD: 0.513, 95% CI: 0.33; 0.694), but lower levels of albumin (SMD: -0.662, 95% CI: -0.971; -0.352), selenium (SMD: -0.744, 95% CI: -1.485; -0.002), and haemoglobin (SMD: -0.449, 95% CI: -0.639; -0.259). We did not find any studies that analysed the association between levels of iron markers and PPCM.

**Conclusion** More robust epidemiologic studies are needed to strengthen the link between PRL and PPCM, identify new molecular pathways involved in the development and progression of PPCM, and elucidate the role of iron status in the pathophysiology of the disease.

OP54

#### ENGAGEMENT IN LEISURE ACTIVITIES AND DEMENTIA RISK IN THE ENGLISH LONGITUDINAL STUDY OF AGEING

P Almeida-Meza\*, AP Steptoe, D Cadar. *Behavioural Science and Health, UCL, London, UK*

10.1136/jech-2020-SSMabstracts.53

**Background** Participation in leisure activities has been associated with a lower risk of dementia. It is unclear whether increased participation in leisure activities lowers the risk of dementia or participation in leisure activities declines during the preclinical phase of dementia. We examined the frequency of participation in leisure activities and derived cognitive-activity and social activity scales and investigated dementia incidence over 15 years of follow-up in a representative sample of the English population.

**Methods** Data were 12,280 participants aged 50+ from the English Longitudinal Study of Ageing, free from dementia at their baseline assessments being either wave 1 (2002–2003), 3 (2006–2007), or 4 (2008–2009), and followed up until wave 8 (2016–2017). Leisure activities were derived using a standardised questionnaire derived by Nucci et al. and grouped into the cognitive and social type of leisure activities. Cox proportional hazards regression models were used to estimate the hazard ratios (HR) of dementia in relation to the cognitive and social type of leisure activities using the age of survival as the time metric.

**Results** During the follow-up period, 602 participants aged 56 to 99 developed dementia. Medium (HR 0.79, 95% CI 0.65–0.94, p=0.013) and higher levels (HR 0.62, 95% CI 0.46–0.83, p=0.002) of engagement in cognitive leisure activities were associated with a lower risk of dementia by survival age in a model adjusted for sex and marital status. Further adjustment for wealth explained the association with medium level, but not with higher cognitive engagement (HR 0.72, 95% CI 0.53–0.98, p=0.036). Further subsequent adjustment for CHD, stroke, hypertension did not substantially modify these associations. An independent analysis of the engagement in the social type of leisure activities showed a similar pattern with protection for higher levels of engagement (HR 0.75, 95% CI 0.63–0.90, p=0.002) in a model adjusted for sex and marital status. However, further adjustment for the overall wealth has explained this association.