pre-treatment with CGRP or SP in normal control rats were comparable to those of IPC. In addition, inhibition of CGRP or SP receptor essentially abolished the cardiac protective effects of IPC in normal control rats, but not in diabetic rats. IPC resulted in significant increase of CGRP and SP release in coronary effluent of normal control hearts, and which were effectively inhibited by TRPV1 receptor inhibitor, capsazepine or ruthenium red. However, IPC had no effects on CGRP and SP release in coronary effluent of diabetic hearts in the presence or absence of capsazepine or ruthenium red.

**Conclusions** Cardioprotection by IPC against ischaemia/reperfusion injury is lost during diabetes, and their underlying mechanism is partly associated with the decreased CGRP and SP release due to the impairment of TRPV1 receptor in diabetic hearts.

**Objective** Psychological stress has become an important factor in the development of cardiac disorders. MicroRNAs (miRNA) have been implicated in regulation of cardiovascular diseases. Therefore, we investigated whether miRNAs are involved in the psychological stress-induced cardiac disorders.

**Methods** Stress rat models were established by complex stimulation at different times during the daytime for 2 weeks. Body weight, blood pressure and ECG were measured every 3 days during processing stress. Adrenocorticotrophic hormone (ACTH) was measured by using ELISA. Cardiac changes were detected by HE staining and electronic microscopy. MicroRNA microarray was used for analysing the differential expression of miRNAs.

**Results** After psychological stress, rats displayed change in behaviour. Body weight increased slowly and systolic blood pressure increased significantly in stress group from the 6th day to the 15th day. The ECG of all rats was normal before experiment. 2 weeks after stimulation the ECG record of different individuals in stress group showed different cardiac rhythms, including sinus tachycardia, atrial premature contraction, ventricular arrhythmia, and ST-T changes. Hypothalamic-pituitary-adrenal activity increased in stress group compared to control group by measuring ACTH.

**Conclusions** Complex stimulation can induce psychological stress, which can cause cardiac injury. MiRNAs change in stress rat models, including upregulation of miR-141, miR-382, miR-219-5p and miR-296, and significant downregulation of miR-155a and miR-466b are significant down-regulate.

**Objective** To investigate the relationship between the single nucleotide polymorphisms (SNP) of matrix metallo proteases (MMP2 -735C/T; MMP3 -1171 5A/6A) and the carotid atherosclerosis (CAS) in Chinese Han and Uygur populations with EH.

**Methods** The study comprised 276 Han nationality and 212 Uygur participants, who were divided into two groups: CAS (n=293) and NS (n=195). Genotypes were detected by PCR-RFLP and their frequencies were determined.

**Results** (1) The frequencies of MMP2 TT genotype and T allele in CAS were higher than in NS (Han: X²=11.441, p=0.003; Uygur: X²=18.285, p=0.000). In NS, the frequencies of TT genotype and T allele in Han were higher than in Uygur (X²=12.809, p=0.001)). (2) The frequencies of MMP3 3A/6A genotype and 6A allele in CAS were higher than NS (Han: X²=7.523, p=0.024; Uygur: X²=6.474, p=0.039). The frequencies of MMP-3 3A/6A genotype and 6A allele in Han were higher than Uygur (CAS: X²=2.262, p=0.000; NS: X²=18.809, p=0.000). (3) The single gene analysis showed Han individuals with CT or TT genotypes had 2.25-fold risk and Han individuals with 6A/6A genotypes had 1.85-fold risk suffering from CAS. Han individuals with both T allele and 6A/6A genotypes had 3.17-fold risk suffering from CAS. The single gene analysis showed that Uygur individuals with CT or TT genotypes had 5.04-fold risk suffering from CAS. Uygur individuals with 6A/6A genotypes had 2.20-fold risk suffering from CAS. Uygur individuals with both T allele and 6A/6A genotypes had 3.21-fold risk suffering from CAS.

**Conclusions** (1) Han and Uygur individuals had differential distribution of MMPs. (2) The SNP of MMP2 -735C/T is associated with CAS in individuals with EH. The MMP2 T allele may be a risk factors for CAS in individuals with EH. (3) Han and Uygur individuals had differential distribution of MMPs. (4) The SNP of MMP3 -1171 5A/6A is associated with CAS in individuals with EH. Uygur individuals with 6A/6A genotypes had 2.20-fold risk suffering from CAS.