

## P357

**Remote ischemic post-conditioning may prevent cardiac remodeling within two years of STEMI by cardioprotective microRNA upregulation**

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**Background:** Remote ischemic post-conditioning attenuates ischemia-reperfusion injury in patients with STEMI. However, its biochemical mechanisms, including micro-RNA expression, and effects on cardiac remodeling have not been defined.

**Methods:** We examined 80 patients with STEMI and 20 healthy controls. All patients had been evaluated by cardiac echocardiography. The conditioning protocol utilised a single ischemic stimulus by brachial cuff inflation of both arms at 200mmHg for 5 minutes, while 20 patients underwent a sham conditioning procedure by way of cuff inflation omission after its placement. Blood samples were taken before and after the conditioning protocol; thus, the expression of microRNA-144,-150,-499 (cardioprotective action), -21, and -208 (remodeling stimuli) was quantified at baseline and after the ischemic conditioning procedure, by polymerase chain reaction. Additionally, cardiac remodeling was evaluated by repeat echocardiography after a 2-year follow-up period, in 40 patients.

**Results:** Our conditioning protocol resulted in a statistically significant increase in miR-144,-150, -499, -21, and -208 expression (55.9 vs 7.4/U6sn,  $p < 0.001$ ; 3.4 vs 1.8/U6sn,  $p < 0.05$ ,  $p = 0.01$ ; 3.5 vs 1.6/U6sn,  $p < 0.001$ ; 2.1 vs 1.2/U6sn; 2.4 vs 1.9/U6sn) compared to baseline; none of the aforementioned measurements was affected by the sham procedure. Furthermore, both left-ventricular end-diastolic (LVEDV) and end-systolic volume (LVESV) were decreased after the 2-year follow-up period (from  $99.3 \pm 6.7$  to  $85.9 \pm 5.7$ ,  $p = 0.004$ , and from  $55.3 \pm 6.1$  to  $48.6 \pm 5.2$ ,  $p = 0.04$ , respectively). In addition, the increase in mir-144 and mir-499 was significantly correlated with a decrease in LVESV ( $r = -0.355$ ,  $p < 0.05$ ;  $r = -0.368$ ,  $p < 0.05$ , respectively), while the increase in mir-499 was also significantly correlated with a decrease in LVEDV ( $r = -0.374$ ,  $p < 0.05$ ) at follow-up.

**Conclusion:** Remote ischemic conditioning may prevent adverse myocardial remodelling within 2 years of the index ischemic event, likely by up-regulation of cardio-protective microRNAs expression.