[gw22-e0339]

EFFECTS OF ANGIOTENSIN II AND TELMISARTAN ON TRANSIENT OUTWARD POTASSIUM AND L-TYPE CALCIUM CURRENTS IN SPRAGUE–DAWLEY RAT ATRIAL MYOCYTES

Long Yi, Zhou Yanan, Fan JinqiThe Second Affiliated Hospital Of Chongqing Medical University, Chongqing, China

10.1136/heartjnl-2011-300867.173

Objective To explore possible electrophysiological mechanisms of single atrial myocyte by evaluating the effects of angiotensinII (AngII) and telmisartan on transient outward potassium currents (I_{to}) and L-type calcium currents ($I_{Ca\text{-}L}$) in Sprague–Dawley rats.

Methods Single atrial myocyte of SD rats was obtained by enzymatic dissociation method. The whole cell patch-clamp recording technique was used to record the change of I_{to} and $I_{Ca\text{-}L}$ by intervening of AngII, telmisartan and AngII plus telmisartan, respectively. Experimental groups: (1) AngII group: cells were perfused with bath solution containing AngII (0.1 μmol/l); (2) Telmisartan group: cells were perfused with bath solution containing telmisartan (0.01 μmol/l); (3) Combined group, myocytes were perfused with bath solution containing AngII (0.1 μmol/l) and telmisartan (0.01 μmol/l).

Results Compared with baseline value, AngII (0.1μmol/l), Telmisartan (0.01 μmol/l) and AngII plus Telmisartan group significantly decreased the peak density of I_{to} in SD rat atrial myocytes (22.48±2.75 vs 15.71±2.06 pA/pF, $p<0.01$), (24.16±2.36 vs 16.15±1.82 pA/pF, $p<0.01$) and (24.41±2.27 vs 21.35±1.46 pA/pF, $p<0.05$), respectively. AngII (0.1 μmol/l) significantly increased the peak density of $I_{Ca\text{-}L}$ in SD rat atrial myocytes (−4.51±0.38 vs −5.16±0.29 pA/pF, $p<0.01$). Telmisartan (0.01 μmol/l) had no significant effect on $I_{Ca\text{-}L}$ in the rat atrial myocytes (−4.35±0.27 vs −4.29±0.34 pA/pF, $p>0.05$), but it could antagonise the effects of AngII. In the Ang IIcombined telmisartan group, the peak density of $I_{Ca\text{-}L}$ was (−4.08±0.28 vs −4.20±0.31 pA/pF, $p>0.05$), which was significantly different from that of AngII group ($p<0.05$).

Conclusion AngII and telmisartan had directly electrophysiological effects on SD rat atrial myocytes as well as telmisartan had antagonist effects on AngII at the level of angiotensin receptor.