

8.59±1.97 pA/Pf; p0.05). Applying CdCl<sub>2</sub>, a blocker of I<sub>Ca-L</sub>, could decrease the current density of I<sub>Ca-L</sub> and diminish EAD, DAD and the second plateau response.

**Conclusion** The wider APD dispersion of RVOT, the foundation of SQT and LQT in clinic, potentially played an important role in the genesis of right ventricular outflow tract ventricular tachycardia (RVOT-VT). I<sub>to</sub> was a possible cause of markedly abbreviated APD in RVOT cardiomyocytes. Some cardiomyocytes in rabbit RVOT possessing a higher current density of I<sub>Ca-L</sub> and showing marked prolongation in APD compared with RV, with the easier appearance of EAD and DAD concomitantly might be one of the mechanisms in RVOT-VT generation. This is the first study on the electrophysiological level to report the I<sub>Ca-L</sub> current in rabbit RVOT cardiomyocytes.

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#### L-TYPE CALCIUM CURRENT OF RABBIT CARDIOMYOCYTES IN RIGHT VENTRICULAR OUTFLOW TRACT

Liang Shenghui<sup>1</sup>, Li Yuan<sup>1</sup>, Liu Taipeng<sup>2</sup> <sup>1</sup>Zhongshan Hospital Xiamen University, Xiamen, China; <sup>2</sup>College Of Life Science Peking University, Beijing, China

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**Objective** The mechanism of idiopathic ventricular tachycardia, which mainly originates from right ventricular outflow tract (RVOT), has not been completely understood. Previous research indicated that early after depolarisation (EAD) and delayed after depolarisation (DAD) more frequently occurred in RVOT cardiomyocytes. The dispersion of action potential duration (APD) in RVOT cardiomyocytes is wilder than that of RV cardiomyocytes. The L-type calcium current, an important component of action potential (AP) plateau, has an apparent effect on APD. The aim of this study is to explore the electrophysiological characteristics of I<sub>Ca-L</sub> in RVOT cardiomyocytes and the possible mechanism of idiopathic ventricular tachycardia arising from RVOT.

**Methods** Rabbit cardiomyocytes in RVOT and in right ventricle (RV) were investigated with patch-clamp technique.

**Results** RVOT cardiomyocytes had a wider APD dispersion: the marked-prolonged APDs and the marked-shortened APDs both existed. 4-AP, an inhibitor of the transient outward potassium current (I<sub>to</sub>), abolished the marked-shortened APDs. Some cardiomyocytes in rabbit RVOT showed significant prolongation in APD compared with RV (RVOT 727.25±44.52 ms; RV 481.0±97.12 ms; p.05). Some of their AP with long plateau could not even repolarise back to resting potential. In addition, EAD, AD and the second plateau response could emerge spontaneously in these cells. However, these phenomena were not observed in RV. These cells showed a higher current density of I<sub>Ca-L</sub> compared with that of RV (RVOT 13.16±0.87 pA/pF; RV