EARLY EXPOSURE TO HYPERTONIC SOLUTION STRONGLY INTENSIFIES THE EFFECTS OF K⁺ CHANNEL OPENER, RILMAKALIM, IN GUINEA PIG VENTRICULAR MYOCYTES

Ivan Kocić¹,²,#, Yuji Hirano¹, Masayasu Hiraoka¹

¹Department of Cardiovascular Diseases, Medical Research Institute, Tokyo Medical and Dental University, Tokyo, Japan, ²current address: Department of Pharmacology, Medical University of Gdańsk, Do Studzienki 38, PL 80-227, Gdańsk, Poland


We report here that early exposure of guinea pig ventricular myocytes to hypertonic solution (~400 mOsm compared to 280 mOsm in isotonic solution) increased the potency of rilmakalim to evoke ATP-sensitive K⁺ current 10 times (pD₂ = 7.44 ± 0.11 compared to pD₂ = 6.49 ± 0.18 in isotonic solution) without changing Eₘₐₓ, and observed effect was completely reversed by glibenclamide at 1 μM.

Key words: ATP-sensitive K⁺ channels, hypertonic challenge, rilmakalim, guinea pig, ventricular myocytes

# correspondence; e-mail: ikocic@amedec.amg.gda.pl