

ARTÍCULO

Reduction in mitochondrial membrane peroxidizability index and protein lipoxidation levels in the rat heart after β -adrenergic receptor signaling interruption with the β -blocker atenolol

Alexia Gómez¹, Inés Sánchez Román¹, José Gómez¹, Alba Naudi², Charumati Pushparaj², Manuel Portero-Otin², Mónica López-Torres¹, Reinald Pamplona², Gustavo Barja*¹

¹Department of Animal Physiology II, Faculty of Biological Sciences, Complutense University, Madrid 28040, Spain ²Department of Experimental Medicine, Faculty of Medicine, University of Lleida-IRBLleida, Lleida 25008, Spain.

* Corresponding author: Prof. G. Barja. Department of Animal Physiology II, Faculty of Biological Sciences, Complutense University, c/Antonio Novais nº 2, Madrid 28040, Spain. e-mail: gbarja@bio.ucm.es

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ABSTRACT

A new mammalian longevity model based on β -adrenergic signaling interruption at the level of adenylyl cyclase has reported decreased bone and heart aging and mean and maximum longevity increases in AC5KO mice (1). We decided to mimic this model in male Wistar rats treated with the β -blocker atenolol in the drinking water and to check if an oxidative stress decrease could be involved. Atenolol treatment did not modify heart mitROS generation rate and mitDNA oxidative damage but significantly decreased global peroxidizability index of mitochondrial membranes, as well as protein lipoxidation, probably mediated by changes in elongases and desaturases activities.

Keywords: Oxidative stress; β -blocker; Lipid damage.

RESUMEN

Reducción en el índice de peroxidizabilidad de la membrana mitocondrial y niveles de lipoxidación proteicos en el corazón de la rata después de la interrupción de la señalización del receptor betaadrenérgico con el betabloqueante atenolol

Un nuevo modelo de longevidad en mamíferos basado en la interrupción de la vía de señalización beta-adrenérgica a nivel de la adenilato ciclasa ha revelado una