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Interaction of adrenergic and purinergic receptors in the regulation of rat myocardial contractility in postnatal ontogeny

Anikina T., Zverev A., Sitdikov F., Anisimova I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

β -Adrenergic receptor agonist isoproterenol and purinergic receptor agonist 2-methylthio-ATP have a positive effect on the myocardial contractile force and show different efficiencies depending on the age of animals. The maximum inotropic effect of agonists on the ventricular myocardial contractility was observed in 21-day-old rat pups. The study of a combined effect of isoproterenol and 2-methylthio-ATP showed that an increase in the sympathetic regulatory effects on the heart of 21-day-old animals, against the background of a high functional activity of β -adrenergic receptors and P2X receptors of the heart, a combined administration of the agonists led to a mutually complementing effect of an increase in the myocardial contractility. © 2013 Pleiades Publishing, Inc.

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Keywords

adrenergic receptors, ATP, contractility, myocardium, ontogeny, P2 purinergic receptors