

Effect of I_{Ca,L} blockade on adrenergic stimulation in developing heart

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Abstract

© 2016 Springer Science+Business Media New York. The effect of verapamil-induced blockade of L-type calcium ionic currents (I_{Ca,L}) on the action of non-selective adrenergic cardiac stimulation by norepinephrine was examined during different periods of early postnatal ontogeny. In 1-week-old rats, intravenous norepinephrine induced a short-term tachycardia both with and without preliminary injected verapamil. In 3-week-old rats, norepinephrine alone produced no chronotropic effect; in contrast, it induced a biphasic tachycardia in verapamil-treated rats. In 6- and 20-month-old rats, norepinephrine induced a short-term tachycardia, which could be prevented by verapamil. The age-related peculiarities of chronotropic action of non-selective adrenergic stimulation are indicative of the role of L-type calcium ionic channels in the development of sympathetic control over the heart.

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Keywords

Adrenoreceptors, Chronotropy, Heart, L-type Ca channels 2+, Ontogeny