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ABSTRACT BOOK

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Prof. Gema Frühbeck

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of ZD7288 (an organic blocker) stimulated electrically and also in the absence of this stimulation.

The experiments, which involved the intracellular recording of electrical activities in the working myocardium, were carried out on random-bred albino rats. Isolated right atrial wall from a fragment of the right auricle exhibiting no pacemaker activity was placed in a 3-mL chamber and superfused with Tyrode solution at 38°C at a rate of 10 mL/min. The stimulus duration (1 ms) and repetition rate (5 Hz) corresponded to the normal HR of mature rats. Intracellular AP was recorded via glass microelectrodes with resistance of 25–60 MΩ. The signals were digitized with an E14-140 converter (L-Card) and recorded using PowerGraph 3.3 software (DiSoft). The data were processed with Mini-Analysis 3.0.1 software (Synaptosoft), Microsoft Excel software and Student's *t* test.

ZD7288 significantly increased the duration of action potentials at 50% and 90% repolarization levels in atrial myocardium at a fixed stimulation rate of 5 Hz. The blocker affected neither resting potential nor the upstroke velocity of action potential.

Work supported by Program of Competitive Growth of KFU and Russian Foundation for Basic Research (grant No. 17-04-00071).

P124-T | The blockade of If in isolated (Langendorff perfused) heart

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According to modern views, If are responsible for the development of initial, linear, and slow diastolic depolarization in cells of the sinoatrial node. At the same time, a rather small If was identified in both atypical and working cardiomyocytes. Therefore, it remains unclear how the blockade of data currents affects heart function.

This research aim is to investigate dose-dependent effects of the blockade of If: on coronary flow; the inotropy; and the chronotropy in Langendorff perfused heart in adult rats. Isolated hearts were perfused in a Krebs-Henseleit solution – Langendorff (ADinstruments) installation. The coronary flow (CF), systolic pressure in the left ventricle (LVP) and heart rate (HR) were calculated along the curve. The signals were recorded in a PowerLab system (ADInstruments) with the help of LabChart Pro 8.0 software. 10^{-9}–3×10^{-5} M concentrations range of ZD7288 (Sigma) were used for the blockade of If. The data was processed statistically using Microsoft Excel software and Student's *t* test.

ZD7288 10^{-9} M increased LVP by 47% ($P \leq 0{\cdot}05$), decreased HR by 26% ($P \leq 0{\cdot}05$) and reduced CF by 20% ($P \leq 0{\cdot}01$). ZD7288 10^{-8} M, 10^{-7} M and 10^{-5} M did not cause significant alterations in the studied parameters of the heart. ZD7288 10^{-6} M led to bradycardia – 23% ($P \leq 0{\cdot}05$) and did not cause significant changes in LVP and CF. ZD7288 3×10^{-6} M reduced LVP by 14% ($P \leq 0{\cdot}05$), HR by 11% ($P \leq 0{\cdot}05$) and did not lead to a change in CF. If blockade 3×10^{-5} M reduced myocardial inotropy by 26% ($P \leq 0{\cdot}05$), CF by 14% ($P \leq 0{\cdot}01$) and HR by 19% ($P \leq 0{\cdot}05$).

The blockade of If in Langendorff perfused hearts of adult rats resulted in different contractility effects. The range in all the studied concentrations of the If blockade reduced both heart function and coronary flow.

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P125-T | Role of NPY1,5-receptors in the neonatal rats myocardial contractility

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Neuropeptide Y (NPY) is present in the central and peripheral nervous systems and fully satisfies to neurotransmitter criteria, since it is stored in sympathetic vesicles, released by electrical stimulation and acts on specific receptors. In the rat heart there are metabotropic Y1R, Y2R, Y3R, Y4R and Y5R receptors. The density of different receptor subtypes varies in postnatal ontogenesis. Expression of Y1R increased between 10 and 20 days of life. A small number of Y2R is observed in the atria and ventricles only from 20 days of life. In contrast, the highest level of expression of Y5R was found in newborn pups comparing with more adult rats.

The aim of the current study was to determine the role of different subtypes of NPY receptors in the heart contraction in the postnatal development. Registration of isometric contraction of atrial and ventricular myocardial striae of 7- and 100-day-old rats was carried out on a PowerLab device with a force sensor MLT 050/D (ADInstruments).

The selective agonist of Y1R, Leu(31)Pro(34)NPY (10^{-5}–10^{-13} M), induced an increase in myocardial contraction force in 7-day-old (10^{-6} M) and in 100-day-old rats (10^{-7} M). The selective blocker of Y1R, BIBP 3226,