



**ARCHIVES
OF THE HUNGARIAN
MEDICAL ASSOCIATION OF AMERICA**

The official publication of the Hungarian Medical Association of America, Inc.



factors (e.g. anorexigenic estrogen effects) may be assumed.

Keywords: aging, rat, catabolic, gender

H/5 TRANSIENT RECEPTOR POTENTIAL MELASTATIN-4 (TRPM4) MEDIATES VASOCONSTRICTION IN RAT MODEL

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Introduction: The transient receptor potential melastatin-4 (TRPM4) is a calcium-activated monovalent cation channel. TRPM4 has a major role in pressure-induced depolarization and vasoconstriction in intracranial arteries. Our aim was to study the regulatory function of TRPM4 in basilar (isometric measurements, precontraction by about 5mN) and mesenteric (isobaric conditions, at 80mmHg) arteries. **Methods:** Arteries were isolated from Wistar-Kyoto (WKY) rats and experiments were performed in oxygenated Krebs buffer. **Results:** Initial diameter of the mesenteric arteries was $325 \pm 18 \mu\text{m}$ ($n=9$). Extracellular K^+ (120mM) evoked a vasoconstriction (decrease in diameter from $316 \pm 30 \mu\text{m}$ to $155 \pm 40 \mu\text{m}$, $n=4$, $p=0.03$), similarly to norepinephrine (10 μM , decrease from $387 \pm 17 \mu\text{m}$ to $127 \pm 18 \mu\text{m}$, $n=5$, $p<0.01$). Arteries were pre-constricted with norepinephrine and treated with the TRPM4 channel inhibitor 9-phenanthrol (1 μM -300mM), which evoked a dilation (increase of diameter from $206 \pm 22 \mu\text{m}$ to $390 \pm 10 \mu\text{m}$, $n=5$, $p<0.01$). Extracellular K^+ mediated constriction was also inhibited by 9-phenanthrol. Extracellular K^+ (60mM) evoked an increase in contractile force in the basilar arteries of the rat (contractile force from $2.6 \pm 0.9 \text{mN}$ to $9.3 \pm 1.3 \text{mN}$, $n=4$, $p<0.01$). This extracellular K^+ mediated constriction was also inhibited by 9-phenanthrol (contractile force from $8.3 \pm 1.4 \text{mN}$ to $2.9 \pm 0.9 \text{mN}$, $n=4$, $p=0.02$).

The suspected TRPM4 activator, A23187 caused vasoconstriction accompanied by the rise of intracellular Ca^{2+} -concentration in the arteriolar wall. The evoked vasoconstriction was antagonized by the inhibitor, 9-phenanthrol. **Conclusion:** Our data suggest that TRPM4 has a major role in the modulation of contraction followed by various agonist stimuli in different arteriolar beds of the rat. TRPM4 may participate in pathological conditions characterized by increased arteriolar tone, such as hypertension.

Keywords: TRP, TRPM4, vascular biology, 9-Phenanthrol, A23187

H/6 BASIC AMINO ACIDS INDUCE MITOCHONDRIAL INJURY IN RAT PANCREATIC ACINAR CELLS

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Introduction: Acute pancreatitis (AP) is the sudden inflammation of the pancreas. Large i.p. doses of basic amino acids induce AP in rodents, but the mechanisms mediating pancreatic toxicity remain unknown. Mitochondrial injury is thought to play a role in the pathomechanism. **AIMS AND METHODS:** Our aim was to get insight into the mechanisms through which basic amino acids damage the exocrine pancreas. Pancreatic acinar cells were isolated from rat pancreas with enzymatic digestion. Isolated cells were treated with different concentrations (20-60 mM) of L-arginine, L-lysine or L-ornithine. The morphology of acinar mitochondria was monitored with electron microscopy. We measured intracellular Ca^{2+} concentration ($[\text{Ca}^{2+}]_i$) by microspectrofluorometry using the Ca^{2+} -sensitive fluorescent dye FURA-2-AM. The effect of basic amino acids on basal and cerulein-stimulated amylase secretion was tested. **Results:** We observed the swelling of mitochondria after incubating the cells for 2 hours with 20-60 mM basic amino acids. However, we did not detect any change in the $[\text{Ca}^{2+}]_i$ of cells in response to administration of basic amino acids, whereas marked Ca^{2+} signaling was found in response to 100 μM carbachol. Basal and cerulein stimulated amylase secretion was not influenced by basic amino acids vs the control group. **Conclusion:**