POTASSIUM ION CHANNELS AND ALLERGIC ASTHMA.

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Introduction: Calcium-activated potassium (BK^+_{Ca}) and ATP-sensitive potassium (K^+_{ATP}) channels play significant role in airway smooth muscle (ASM) and goblet cells activities and cytokine production. Considering crucial role of myogenic tone and allergic inflammation in asthma pathogenesis, activation of these channels represents possible mechanism for asthma treatment. Thus, presented work evaluated therapeutic potency of BK^+_{Ca} and K^+_{ATP} openers in experimental animal asthma model.

Material and methods: Allergic inflammation of airways was induced by ovalbumine on guinea pigs in 21 days and followed by 14 days lasting therapy by BK^+_{Ca} and K^+_{ATP} openers. Long-term therapy influence was observed on ASM reactivity changes *in vivo* and *in vitro* conditions, ciliary beat frequency (CBF) and on allergic inflammation evaluated by exhaled NO levels (E_{NO}), immunohistochemical staining (IHC) and plasma cytokine levels (PCL).

Results: Both openers decreased ASM reactivity *in vivo* and *in vitro*, CBF and PCL. Furthermore, NS 1619 reduced E_{NO} and inflammatory cells infiltration of pulmonary tissue evidenced by IHC.

Conclusion: Presented data confirmed beneficial effect of long-term administered NS1619 and pinacidil on defence mechanisms of airways. Although both openers influenced pro-inflammatory PLC, E_{NO} and IHC results unambiguously evidenced anti-inflammatory effect of NS1619. Therefore, especially BK^+_{Ca} represent promising target of new drugs for treatment of respiratory diseases causally associated with allergic airways inflammation.

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