THE EFFECT OF H3 RECEPTOR AGONIST IMETIT DIHYDROBROMIDE ON COUGH IN ANIMAL MODEL

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Allergic rhinosinusitis and common cold are most common upper airway conditions associated with exaggerated coughing. Histamine plays important role in both processes, and old generation antihistamines are often used empirically to treat them. Presence of serious adverse effects of old generation molecules and lack of antitussive activity in new generation of antihistamines stimulates the research of new possible histamine relevant targets. More recently identified H3 and H4 receptors may be of interest. The aim of our study was to ascertain the role of H3 agonist imetit dihydrobromide which was previously shown to suppress release of substance P from afferent nerves in allergic nasal inflammation on cough induced in an animal model. Ovalbumin (OVA) sensitized guinea pigs were pre-treated by intraperitoneal administration of imetit dihydrobromide (selective H3R agonist 1mg/kg IM1; 2mg/kg IM2 of body weight), nasal symptoms magnitude, citric acid induced cough parameters were evaluated in OVA induced allergic rhinitis (AR) in guinea pigs. Imetit in both doses reduced symptoms of AR, however only the dose 2mg/kg reduces significantly total cough count (9±2 vs 16±1 vs 12±1 vs 6±2, $p<0.05$ for IM2 dose vs OVA). Cough latency was not influenced in this experimental setting. H3R agonist imetit dihydrobromide inhibits magnitude of nasal symptoms and suppress cough induced by inhalation of citric acid. Results indicate significant role of histamine in pathogenesis of UACS and benefits of H3R relevant molecules for future clinical applications. Supported by: BIOMED MARTIN – project co-financed from EU sources & VEGA 1/0107/14