

N-acetylcysteine (NAC) is a classical mucolytic agent that, in addition to its mucolytic activity, also exhibits antioxidant activity. This could be beneficial in treating chronic inflammatory airway diseases, including asthma. An experimental guinea pig model of allergic inflammation was initiated by 21-day sensitization with ovalbumin. For the last 10 days of the study, ovalbumin sensitized animals received oral doses of NAC (20 and 60 mg/kg/day). The concentrations of inflammatory cytokines IL-4, IL-5, IL-10, IL-12, IL-13, GM-CSF, IFN- γ , and TNF- α were measured in BALF using a multiplex detection method. The concentration of the remodelling marker TGF- β 1 was measured in lung homogenates using an enzyme-linked immunosorbent assay (ELISA). *In vivo*, changes in specific airway resistance, tracheal contraction amplitude and number of cough efforts were determined. Ciliary beat frequency (CBF) was assessed on washed tracheal cells. Our data show that a 10-day NAC administration significantly decreased the inflammatory cytokines IL-4, IL-5, GM-CSF and the remodelling marker TGF- β 1. NAC reduced the number of chemically induced cough efforts and CBF. NAC did not affect airway hyperreactivity parameters. NAC showed positive effects on the levels of regulatory cytokines and the remodelling marker, which probably reduced the intensity of airway defence mechanisms.

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