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## Pathophysiology

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The Effect of Exposure of Guinea Pig to Cigarette Smoke and their Sensitization in Tracheal Responsiveness to Histamine and Histamine Receptor (H<sub>1</sub>) Blockade by Chlorpheniramine

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## Abstract

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Airway responsiveness to histamine and histamine H<sub>1</sub> receptor blockade by chlorpheniramine (CR-1) on guinea pig trachea were examined. Chronic obstructive pulmonary disease (COPD) and asthma were induced in guinea pigs by exposing them to cigarette smoke for 3 months and by sensitization with injection and inhalation of ovalbumin (OA). The responses of tracheal chains of COPD (n = 8), COPD + asthma (n = 6) and control animals (n = 8) to histamine (EC<sub>50</sub> H) and (CR-1) were measured. The in vitro histamine responses of COPD and COPD + asthmatic guinea pigs in tracheal chains were significantly higher than those of control animals (p < 0.001 and p < 0.01, respectively). The CR-1 blockade was also significantly greater in trachea of COPD and COPD + asthma compared to that of controls (p < 0.01 and p < 0.05, respectively). There were significant correlations between EC<sub>50</sub> H and (CR-1) (r = -0.542, p < 0.01). The hematocrit in COPD and COPD + asthma groups was also significantly higher than in controls (p < 0.001 for both groups). The contractility of tracheal chains to histamine in COPD + asthma animals was significantly greater than those of control and COPD groups (p < 0.05 for both cases). The differences in contractility between COPD and COPD + asthmatic groups, however, suggests different basic mechanisms for AHR in COPD and asthma. © 2007.

## Reaxys Database Information

## Author keywords

Asthma; Chlorpheniramine blockade; COPD; Guinea pig; H<sub>1</sub> receptors; Histamine; Tracheal responsiveness

## Indexed Keywords

EMTREE drug terms: chlorpheniramine; cigarette smoke; histamine; histamine H1 receptor; ovalbumin

EMTREE medical terms: animal experiment; animal model; animal tissue; article; asthma; chronic obstructive lung disease; cigarette smoking; controlled study; correlation analysis; female; guinea pig; hematocrit; male; muscle contractility; nonhuman; priority journal; receptor blocking; sensitization; trachea

Chemicals and CAS Registry Numbers: chlorpheniramine, 132-22-9; histamine, 51-45-6, 56-92-8, 93443-21-1; ovalbumin, 77466-29-6

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doi: 10.1136/thorax.56.12.972

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