Inhibition of bronchoconstriction by aerosols of prostaglandins E1 and E2.

published by rlgriff on Mon, 09/08/2014 - 11:22am

Inhibition of bronchoconstriction by aerosols of prostaglandins E1 and E2.

Title

Publication Type: Journal Article

Year of Publication: 1980

Authors: Wasserman, MA, Griffin, RL, Marsalisi, FB

Journal: J Pharmacol Exp Ther

Volume: 214

Issue: 1

Pagination: 68-73

Date Published: 1980 Jul

ISSN: 0022-3565

Keywords: Aerosols, Anaphylaxis, Animals, Blood Pressure, Bronchial Spasm, Bronchodilator Agents, Dogs, Dose-Response Relationship, Drug, Female, Guinea Pigs, Heart Rate, Histamine Antagonists, Lung, Male, Ovalbumin, Prostaglandins E, Prostaglandins F

Abstract

The proposal that some naturally occurring prostaglandins (PGs) or their by-products may be implicated in the pathogenesis of the asthmatic bronchospasm has been suggested. Other PGs may be potentially useful in the treatment of this lung disease. The present investigation compared the bronchodilator effects of PGE1 and PGE2 in pharmacologically constricted experimental animals. In pentobarbital-anesthetized, spontaneously breathing dogs, aerosols of PGE1 and PGE2, 0.0002 to 0.2%, effectively inhibited the increases in pulmonary resistance (RL) and decreases in dynamic lung compliance (CDYN) produced by PGF2 alpha (3.0 micrograms/kg i.v.). PGE2 was found to be more effective than PGE1 in preventing RL responses to PGF2 alpha; however, both bronchodilators were equally effective vs. CDYN changes. These agents inhibited central airway constriction more than peripheral. Transient decreases in systemic arterial pressure and increases in heart rate occurred especially at the higher concentrations. In a group of trained conscious dogs, effective concentrations did not evoke adverse subjective discomfort or irritation. Higher concentrations, i.e., 1.0%, did produce coughing, breathholding, restlessness and altered patterns of breathing. In normal or sensitized guinea pigs, PGE aerosols were effective in reducing the bronchopulmonary provocation produced by histamine or specific antigen. These in vivo results suggest that aerosols of the classical PGEs are effective bronchospasmolytics in laboratory animals and that irritation may be related to concentration.
Inhibition of bronchoconstriction by aerosols of prostaglandins E1 and E2.

Published on UAB School of Public Health (http://www.soph.uab.edu)

Alternate Journal
PubMed ID
7391972