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Caffeine, prostacylin, and exercise-induced bronchoconstriction.

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result of Mexican drug therapy. *Drug Intell Clin Pharm* 1984; 18:66-68

- 3 Blackburn JL, Hindmarsh KW. Corticosteroids contained in Mexican cures for arthritis and asthma. *Can Med Assoc J* 1976; 114:299-302
- 4 Hargis JB, LaRussa VF, Redmond J, Kessler SW, Wright DG. Agranulocytosis associated with "Mexican aspirin" (dipirone): evidence for an autoimmune mechanism affecting multipotential hematopoietic progenitors. *Am J Hematol* 1989; 31:213-15

To the Editor:

The title of my article, "The Mexican Asthma Cure," was taken directly from my index patient, who used these words to describe the medications that she was taking. It is unfortunate that this title could be seen as insulting to the many fine and ethical medical practitioners in Mexico, and for this I apologize. This type of quackery is no more representative of the usual practice of medicine in Mexico than chelation therapy for arteriosclerosis is representative of accepted practice in Canada or the United States.

Honest physicians in any country who give quality medical care to their patients don't have magical "cures" to advertise. The disreputable few who choose to sell false hopes to desperate patients become the unwanted representatives of foreign practice when they market to wealthy clients abroad. This is what happened in Mexico with laetrile ("vitamin B-17"), and is happening again with the marketing of oral corticosteroids as a cure for asthma. I was very pleased when Dr Soffer agreed to name the physicians in Mexicali responsible for this hoax so that their colleagues in the same city would not have their reputations tarnished by the practice of the Drs Carrillo.

If not for the help of honest medical colleagues in Mexico City and Mexicali I would not have been able to collect and verify the information used in preparing my article. I hope that my colleagues in Mexico accept my sincere apologies for any suggestion that this "cure" in any way represents acceptable medical practice in Mexico. With the help of honest physicians like Drs Chavaje, Cicero, and Perez-Padilla and medical journals like *Chest*, with their willingness to expose medical quackery, we may be able to put these charlatans out of business. That will be the finest service that we can do for the reputation of physicians, both in Mexico and in Canada.

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Caffeine, Prostacyclin, and Exercise-induced Bronchoconstriction

To the Editor:

Kivity et al (*Chest* 1990; 97:1083-85) documented a beneficial effect of caffeine, a methylxanthine, in the prevention of exercise-induced bronchoconstriction (EIB) in ten young asthmatic patients. It has been suggested that EIB in fact represents a vascular phenomenon occurring secondary to thermal gradients that result after exercise or hyperventilation.¹

Caffeine administration has been shown to stimulate the production of prostacyclin in vitro.² The effect of prostacyclin as an inhibitor of platelet aggregation and as a vasodilator has been well documented. This vasodilatory effect of caffeine-induced prostacyclin production could conceivably account for the observed salutary effect of caffeine on EIB. It is plausible that caffeine diminishes EIB via prostacyclin-mediated bronchovascular vasodil-

ation with a consequent reduction in the end-hyperventilatory thermal gradient believed to be necessary for airway obstruction to occur.

Interestingly, ascorbic acid, which like caffeine has been demonstrated to attenuate EIB, has also been found to stimulate prostacyclin production.^{3,4} It again seems conceivable that this particular effect of ascorbic acid could occur through a prostacyclin-mediated vasodilatory action affecting intrabronchial thermal gradients, similar to that observed with caffeine. Such a prostacyclin-mediated effect could help explain the findings of Kivity et al regarding prevention of EIB by caffeine, as well as the earlier reported findings relating pretreatment with ascorbic acid to diminished EIB.

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REFERENCES

- 1 McFadden ER. Hypothesis: exercise-induced asthma as a vascular phenomenon. *Lancet* 1990; 1:880-83
- 2 Mentz P, Pawelski KE, Giessler CH, Mest HJ, Mannes F, Rotzoll S. Myocardial biosynthesis of prostacyclin and the influence of cardiac loading and drugs. *Biomed Biochim Acta* 1988; 47:S244-47
- 3 Schlesinger A, Schachter EN. The attenuation of exercise-induced bronchospasm by ascorbic acid. *Chest* 1980; 78:538
- 4 Beetens JR, Herman AG. Vitamin C increases the formation of prostacyclin by aortic rings from various species and neutralizes the inhibitory effect of 15-hydroxy-arachidonic acid. *Br J Pharmacol* 1983; 80:249-54

Accidental Methacholine Bronchoprovocation in a Laboratory Worker

To the Editor:

We have recently encountered episodic bronchospasm in a pulmonary function technician. The patient is a 26-year-old woman with a 6-year history of chronic stable asthma, with no hospitalizations, emergency room visits, or work absence during the past year. Her treatment included theophylline (1,200 mg in divided doses), albuterol and ipratropium (three puffs four times daily), cromolyn sodium (two puffs four times daily), and triamcinolone aerosol (three puffs four times daily). We observed two episodes of symptomatic asthma immediately following passive inhalation of methacholine during her performance of bronchoprovocation testing on two clinic patients. Seated approximately 3 ft from patients who received a single breath of a 5 mg/ml concentration of methacholine, she experienced greater than 20 percent reduction in FEV₁. On both occasions she responded quickly to treatment with nebulized albuterol. To determine her nonspecific bronchial hyperreactivity, we performed methacholine challenge using the tidal breathing method of Juniper et al.¹ To simulate clinic testing, she had received asthma therapy approximately two hours prior to testing. We found a 41 percent reduction in FEV₁ in response to a methacholine concentration of 0.04 mg/ml. Subsequently, we have attempted to restrict her performance of bronchoprovocation or have pretreated her with albuterol immediately prior to testing, with no further problems.

Little information exists concerning occupational hazards associated with respiratory therapy, although pentamidine aerosol-associated tuberculosis has been reported in respiratory technicians.² Methacholine is generally not considered an occupational hazard,