Research Laboratories,
Food and Drug Directorate,
Ottawa, Canada.
J. D. KOHLI

Department of Pharmacology,
Faculty of Medicine, University of Ottawa,
Ottawa, Canada.
GEORGE M. LING

June 21, 1967

Reference

Moran, N. C. (1967). *Ann. N.Y. Acad. Sci.*, **139**, 649–660.

Comparative investigation of the effect of cocaine and desipramine on bronchospasm in guinea-pigs

SIR,—Pharmacological examinations of cocaine and desipramine have shown similarities in some of their properties. The essential characteristic common to both drugs is that both inhibit the uptake of noradrenaline and simultaneously potentiate its effect. Yet there are differences in the activity of the two drugs, for while cocaine inhibits the uptake of noradrenaline to a lesser degree than desipramine (Iversen, 1965) it increases more powerfully the activity of exogenously applied noradrenaline. Taking into consideration these common properties we have examined whether any parallelism exists in the effect of two drugs upon bronchospasm in guinea-pigs. We consider this technique appropriate since adrenergic substances block more or less intensively the bronchial spasm provoked by some spasmogens. The investigation of the influence on the bronchospasm was by plethysmography combined with artificial respiration while the thoracic muscles were relaxed by intravenous injection of suxamethonium in doses of 0·1–0·2 mg/kg (Gjuriš, 1965). The animals were anaesthetized with urethane 1·5 g/kg s.c.

The effect of cocaine and desipramine was tested in bronchial spasm provoked by 5-hydroxytryptamine (5-HT), beginning the experiments at the time when the registered reaction to the spasmogen was 50 % of the initial values (5-HT was given in doses 10–20 g/kg, i.v.).

Cocaine, which resembles desipramine in some ways, differs completely in its influence on bronchospasm under these conditions. Thus cocaine in doses of 0·09, 0·2 and 5 mg/kg, i.v. increased bronchospasm by 31, 73 and 93% respectively. On the other hand desipramine inhibited bronchospasm in doses of 1, 5 and 10 mg/kg, i.v. by 11, 48 and 98% respectively. In contrast to our experiments, Foster (1964) found that cocaine potentiated the relaxant effect provoked by transmural stimulation of the trachea at doses less than 25 μg/ml. The two experiments differ in essential ways; we induced bronchospasm with 5-HT in the intact animal whereas Foster stimulated the isolated trachea electrically. The nervous pathways involved may differ.

Research Department,
Pliva Pharmaceutical and Chemical Works,
Zagreb, Lole Ribara 89,
Yugoslavia.
H. KRNJEVIĆ
I. LINČIR

June 14, 1967

References

Foster, R. W. (1964). *J. Pharm. Pharmac.*, **16**, 125–128.
Gjuriš, V. (1965). Thesis. University of Zagreb.
Iversen, L. L. (1965). *J. Pharm. Pharmac.*, **17**, 62–64.