Potentiation of Acetylcholine-induced Smooth Muscle Contraction in Rat Ileum by Lead

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Abstract

The aim of this study was to find out lead interaction on acetylcholine-induced ileal (0.8” to 1” longitudinal total strips) contractions in varying calcium (Ca++) or magnesium (Mg++) media and the cholinergic mechanism. Potentiation of ileal strips by lead (Pb++) remained dose-dependent as elicited by acetylcholine-induced contractions (1.81 x 10^-6 M to 1.28 x 10^-4 M). These were completely antagonized by atropine (1.01 x 10^-8 M). Lead (1.2 x 10^-4 M) potentiated contractions caused by acetylcholine in normal or in excess Ca++ media, but in low Ca++ or with various Mg++ media, lead failed to potentiate such contractions. Thus Pb++ has indirect cholinomimetic effect which involved extracellular Ca++

Key words: Acetylcholine, Calcium, Ileal muscle, Lead, Magnesium, Rat

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