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The Release of Acetylcholine from Neurons in the Isolated Spinal Cord of the Newborn Rat

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Release of acetylcholine (ACh) from neurons in the rat spinal cord was studied using specific radioimmunoassay (Kawashima et al., J. Pharmacol. Methods 3 : 115, 1980) and electrophysiological techniques. Spinal cord was isolated from 1-4-day-old rat and perfused by atrificial cerebrospinal fluid (art. CSF) at a rate of 0.4 ml/min at 27℃. The spinal cord was first perfused with an irreversible anticholinesterase agent, methanesulfonyl fluoride (100 μM) for 30 min. After washing with normal art. CSF, the amounts of ACh in 5-min fractions of perfusion medium were determined by RIA. Bath application of high K^+ (90 mM) or veratridine (5—50 μM) evoked 5—10 fold increase of the ACh release. The high K^+-evoked release was abolished in Ca^{2+}-free medium. Veratridine-induced ACh release was abolished in Ca^{2+}-free medium or in a solution containing tetrodotoxin (1 μM). Eledoisin-related peptide (ERP) induced a slight increase in ACh release, suggesting that cholinergic interneurons are activated by tach kinins. This was further supported by the following electrophysiolosical findings : application of ERP evoked a depolarizing response of the lumbar ventral root, which was greatly potentiated by edrophonium. In a low-Ca^{2+} medium, ERP induced a similar depolarizing response, which, however, was not potentiated by edrophonium.

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SHR における piretanide の抗高血圧作用

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〔第8回 抗高血圧薬セミナー (昭和62年4月2日, 東京) で発表〕

〔**目的**〕 ピレタニド (PIR) は速効性で強力な利尿作用を持つループ利尿薬である。しかし, 他の利尿薬と比較してカリウムおよび尿酸排泄や, 糖代謝に及ぼす影響は少ないとされている。我々は高血圧自然発症ラット (SHR) を用いて, 長期経口投与したPIRの血圧および水・電解質代謝に及ぼす作用を検討した。