State Dependent Amygdala Stimulation-induced Cardiovascular Effects in Rats

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摘要

Abstract

Stimulation of the amygdala is known to produce pressor, depressor, or has no effects. The present study was performed to test whether amygdala cardiovascular effects are influenced by consciousness states and by different types of anesthetics. Adult rats were set up for stimulation amygdala and measurement of blood pressure in a chronic preparation. After recovery, same sites of the amygdale were stimulated electrically for several trials with the rat under conscious or anesthetic states induced by pentobarbital, urethane, ketamine, α-chloralose and urethane plus α-chloralose, respectively. The interval between any two stimulation trials was at least 2 days. The stimulation was an 80-Hz, 0.5-ms, 100-μA square wave pulse train lasting for 15 s. Cardiovascular responsive sites were found in the central, medial, and basolateral nuclei of the amygdala. In stimulating these responsive sites, significantly different cardiovascular effects were induced under a conscious state and an anesthetized state of the animal, yet no significant differences were found among the various anesthetic agents. We conclude, that the cardiovascular influence of the amygdala is state-dependent in the rat.