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**A Relationship of Central Cholinergic Functions with Enhanced
Cardiovascular Responses to Physostigmine in the
Spontaneously Hypertensive Rat**

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A relationship of acetylcholine (ACh) content in the various brain areas with enhanced pressor response to physostigmine was studied in spontaneously hypertensive rats (SHR). In adult SHR physostigmine evoked an enhanced pressor response, but produced no effects on the release of renin and vasopressin. Acetylcholine content in the anterior hypothalamus and medulla oblongata of the adult, and in the midbrain of the young SHR was lower than those in age-matched Wistar-Kyoto (WKY) rats. These results suggest that cholinergic activity in specific brain regions which participate in blood pressure regulation is decreased in adult SHR. Supersensitivity of central muscarinic receptors due to the decreased ACh content could be involved in the enhanced hypertensive response to physostigmine in adult SHR.

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